NORTH EASTERN HILL UNIVERSITY
LOWER LACHUMIERE:SHILLONG-I

No.AC:45-2/Conf/92-1610 Dated the 30th Nov.1992.

To

The Members of the Academic Council,
NEHU, Shillong.

Subj:- AGENDA PAPERS FOR THE 45TH MEETING OF THE ACADEMIC COUNCIL.

Sir/Madam,

I am forwarding herewith the Agenda Papers for the 45th Meeting of the Academic Council to be held on the 7th & 8th Dec/92, at 11 A.M. for favour of your information and consideration.

Enclo: as above.

Yours faithfully,

(A.PATTON)
REGISTRAR.

30/11/92

C/C

AGENDA ITEMS FOR THE FORTY FIVE MEETING OF THE ACADEMIC COUNCIL

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Item No: 2 : Reporting Items -

(i) Constitution of the Institute Board of Self Organising Systems & Bio-Physics

It may be recalled that the constitution of the Institute Board of Self Organising Systems & Bio-Physics was kept in obeyance in view of the decision at the 43rd Academic Council meeting reproduced below :-

" No:AC:43:92:5:08:(iii): The Council RESOLVED to nominate the following external members to the Institute Board of Self-Organising Systems and Bio-Physics. It however, desired that the constitution of the Institute Board may be kept in abeyance till the final decision is taken regarding the nomenclature and function of the Institute.

1. Dr.Deepak Kumar(Physics),
   JNU Delhi
2. Dr.V.M.Nandkumaran (Mathematical Physics),
   Deptt. of Physics, Cochin University,
   Cochin.
3. Dr. C.L.Khetrapal (Physical Chemistry),
   NMR,SIF,Indian Institute of Science,Bengalore.
4. Dr. G.Govil (Molecular Biophysics),
   Tata Institute of Fundamental Research,
   Bombay- 400 005
5. Dr. B.M.Deb (Theoritical Chemistry)
   S.N.Bose National Centre for Basic Sciences,
   DB-17, Sector 1, Calcutta-64"

Later, the Director, Institute of Self Organising Systems & Bio-Physics explained the necessity to re-constitute the Institute Board, as the Board has to consider the research cases of candidates who were admitted for research in the Institute before the case of transformation of the Institute of Self-Organising Systems & Bio-Physics came up in the Academic Council/Executive Council. After careful consideration on the matter, and in order to avoid further delay in the research career of the scholars of the Institute, the Vice-Chancellor has approved re-constitution of the Institute Board of Self-Organising Systems & Bio-Physics till further orders with an advice that the Institute does not make any new admission of Research Scholars till the future form of the Institute of Self-Organising Systems & Bio-Physics is decided.

The matter is reported to the Council for information.

ITEM NO. 3 - RATIFICATION OF ACTION TAKEN BY THE VICE-CHANCELLOR :

(i) Grant of Provisional affiliation to Salt Christian College and Pravananda Women's College.

Two new colleges in Dimapur viz. Salt Christian College and Pravananda Women's College were inspected by the respective Inspection Teams for the purpose of considering grant of provisional affiliation upto Pre-University(Arts) level. The Inspection Reports on the two colleges are placed at Annexures 'A' and 'B' respectively

After considering the Inspection Reports, the Vice-Chancellor has approved grant of provisional affiliation to the two colleges subject to fulfilment of the conditions laid down by the Inspection Teams

The matter is placed before the Council for ratification

3:1(2)

Annexure -A

NORTH-EASTERN HILL UNIVERSITY
SHILLONG

INITIAL AFFILIATION

Inspection Committee Report(to be submitted to the University in duplicate)

1. Name of the College — SALT CHRISTIAN COLLEGE DIMAPUR (NAGALAND)
2. Its sponsoring authority — "SALT CHRISTIAN SOCIETY " DIMAPUR (NAGALAND)
3. The Legal Status of the College (Whether college is a registered body under Sociaties Registration Act)
Yes, numbered as Rs. 1691 vide ED/GSS/RS/9/91-92.
4. Whether the College is having a Governing Body duly constituted for the purpose:

Yes.

(attach a copy of the constitution) ATTACHED.

5. Any special features of the Governing Body Constitution which deserve special attention for the grant of affiliation:
To inculcate genuine academic & Christian morals among the vast. number of Matriculates facing inadequacy of the number of colleges.

Physical and Financial Resources:

6. Whether the college is already located at its own site :
Yes.
(a) If not, whether the college has already acquired land
Efforts for acquiring even a better plot are in the fir l phase.
(copy of the Proposed site plan Map enclosed)
(b) Give below a brief report on the suitability of the site and plan after inspection :
i) The sought-after land being in the heart of town will be within easy reach of the students from all the quarters of the town.,
ii) To erect spacious building to accommodate Degree-level students.
7. The college is seeking affiliation for offering the following courses in :

P.U.Level	Degree Level
ENGLISH; ALT.; ENGLISH ;	
POLITICAL SCIENCE ; ECONOMICS;	
HISTORY; EDUCATION; HINDI.	

3:1(3)

8. Students seeking Admission :

P.U. Arts :	428	B.A.	.....
P.U.Sc	_____	B.Sc	_____
P.U.Com	_____	B.Com	_____

9. Whether the college has adequate number of titles of books and journals for the courses of study mentioned at para 7 above :

College library is well furnished with adequate number of text and Reference books and Journals & Periodicals on the relevant subjects.

(a) If no, do you recommend that the college should be affiliated pending acquisition of books/journals :

Adequate library collection enables the college to urge upon the affiliation. Striving untiringly to enrich the library is its aim.

10. (a) Reading room facilities
size 42' x 21 ' Adequate/Inadequate

(b) Classrooms
size 50' x 26': 50' x 26'; & 40' x 30' Adequate/Inadequate.

(c) Students' Common Room.
size 30' x 20' Adequate/Inadequate

(d) Teachers' Common Room
size 20' x 10' Adequate/Inadequate

11. Whether the college has adequate equipment/laboratory facilities for practical classes :

(DOES NOT ARISE)

_____

_____

_____

3:1(4)

12. Name of the teachers with Port-Graduate Degree/Specialization:

	Name	Lecturer in	P.G.Degree with grade or specialization.
1.	Mr.Vijay Choudhury Dean(Academic)	English	C.G.P.A. 7.15 Equivalent to 71.5%
2.	Mr. Joy V.J.	English	53.5%
3.	Mr.Subrat Ghose	Economics	60.75%
4.	Mr. Marengchiba Temjen	Pol.Science	55%
5.	Mr. Probhat Mandal	History	58%
6.	Mrs.Madhumita Roy	Education	60%
7.	Mr.M.P.Singh	Hindi	II Division.
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____
11.	_____	_____	_____
12.	_____	_____	_____
13.	_____	_____	_____
14.	_____	_____	_____
15.			
16.			

NOTE :- The University Regulation stipulates the following :-

Level/Class	Minimum No. of Teachers in each subject
a) P.U.Non-Lab	ONE
b) P.U.Laboratory	TWO
c) Degree Non-Laboratory(Pass) + P.U. Non-Laboratory	Two in all subjects and Three in English.
d) Degree Laboratory(Pass) + P.U.Laboratory	Six of whom four should be lecturers.
e) Degree Non-Laboratory(Pass) + Hons + P.U.	Four in all subjects other then English & other elective languages in which there should be at least five.
i) Degree Laboratory(Pass) + Hons + P.U.	Seven of whom six shall be Lecturers.

3:1(5)

13. Whether the college has adequate No. of qualified teachers in the subjects for which affiliation is sought:

It has suggicient and adequately qualified teachers for all the subjects for which affiliation is sought.

14. Whether the college is maintaining a fixed term deposit of Rs. 1,00,000/- in any bank:

Yes

If yes, the Fixed Deposit Certificate -

No 05411 dated 15/11/91

For Rs 1,00.000- (One lakh) only

in the NAGALAND STATE COOPERATIVE BANK LTD., H.O.:DIMAPUR

(Mention the name of the Bank and Branch).

15. Any other observation (s) :

16. Recommendations :

Note : a) If conditional recommendation is made kindly specify the conditions and the period by which the same are expected to be fulfilled by the college for the Provisional/Extension of Affiliation.

b) If provisional affiliation is recommended upto a certain period only, this may be mentioned.

Attached in separate sheets.

Signature of the members of the Inspection Team.

3:1(6)

Management Board 1st Meeting Resolution for proposed opening a Arts College at Dimapur.

Dated Dimapur the 15th, May'1990.

Meeting :- At Shri L.Alem Ao, Residence
Half Magurjan, Dimapur.

Minutes.

Before the meeting Mr.M.Pangerlongchar explain all the importance, views for opening the proposed College. The three I/c (i) M.Pangerlongchar (2) L.Alem Ao and (3.) Mr.Chuba M.A. put together their heads for the project.

1. The meeting selected two more members and constituted a management Board.

    1. M.Pangerlongchar as Incharge
    2. I.S.Lakota
    3. Chuba Oziikum
    4. L Alem Ao
    5. Temsi lungkumer

Shri M.Pangerlongchar will contect the other two new members to know their acceptance

2. The party will devote to open the College from the season 1991.
3. All the members will be responsible for the arrangement of finance for the expenditures towards this project.
4. The name of the College will be decided latter.
5. All the required permission orders will be obtained from the Governments.
6. Resolved that Shri.M.Pangerlongchar is appointed as 'Incharge' of all functions connected to this programme. He will work as full time from 1st June 1990.
7. A special committee will be contributed for drafting the Rules and regulations for the Institutions
8. Appointments, selections of all teaching and office staffs must be completed before hand.

First Founding Members of the proposed College.

1.(Sd/M.Pangerlo)
2.(Sd/ L.Alem Ao)

3:1(7)

GOVERNMENT OF NAGALAND
DIRECTORATE OF HIGHER & TECHNICAL EDUCATION
NAGALAND : : KOHIMA.

NO.HTE/COL-DEV/10/90-91/- Dt. Kohima, the 22nd Nov'91.

To

The Management Director & Administrator,
Salt Christian College, Dimapur.

Sub :- PERMISSION TO OPEN SALT CHRISTIAN COLLEGE, AT DIMAPUR.

Sir,

On the subject cited above, I am directed to forward herewith a Government letter No.EDS/HTE/27/86 Dated 11.10.91 for your necessary action.

Enclosed : As stated above.

Yours faithfully,

(Sd/ N.I.OZUKUM)
Higher & Technical Education,
Nagaland : Kohima.

3:1(8)

GOVERNMENT OF NAGALAND
DEPARTMENT OF HIGHER & TECHNICAL EDUCATION

No.EDS/HTE/27/86
Dated Kohima, the 11th Oct'91.

To

The Director,
Higher & Technical Education,
Nagaland, Kohima.

Subj:- Permission to open Salt Christian College at Dimapur.

Sir,

I am directed to refer to your letter No.HTE/Col-DEV/19/90-91/823 dated 16.9.91 on the above subject and to convey the approval of the Government of Nagaland for granting permission for opening of a college by the name of"Salt Christian College" Dimapur.

2. The approval is subject to fulfilment of all other conditions required by the North Eastern Hill University,Shillong.

Yours faithfully,

(Sd/ M.P.Gurung)
Deputy Secretary to the Government.

No.EDS/HTE/27/86 : Dated Kohima, the 11th October,1991.

Copy to :-

1. The Vice-Chancellor, North Eastern Hill University Shillong- 793 001 for favour of information and necessary action.
2. The Pro-Vice-Chancellor, Nagaland Campus, NEHU Kohima for favour of information.
3. Mr.Temsu Longkumer, Managing Chriman, Salt Christian College, Dimapur He is requested to take up the matter of affiliation of the college direct with the University authorities.
4. The Principal, Salt Christian College, Dimapur.
5. Guard file.

(Sd/ M.P.Gurung)
Deputy Secretaty to the Government.

3:1(9)

GOVERNMENT OF NAGALAND
DIRECTORATE OF HIGHER & TECHNICAL EDUCATION
NAGALAND : : : KOHIMA.

No.HTE/COL-DEV/90-91/219 : Dated Kohima, the 19th Nov'90.

To

The Secretary to the Govt. of Nagaland,
Higher & Technical Education, Kohima.

Subject :- PERMISSION TO OPEN AN ARTS COLLEGE AT DIMAPUR.:

Sir,

On the subject indicated above, I have the honour to submit herewith a copy of the letter received from Mr.Panger Longchar, Incharge, Management Board Dimapur seeking permission for opening of an Arts College Named " Salt Christian College " at Dimapur.

The requisite information submitted by the Management Board has been verified and enclosed for your kind reference.

Government is therefore, requested to take the necessary steps in granting permission for opening the above cited College.

Enclo : As Stated above:

Yours faithfully,

(Sd/ I.Yanger)
Director,

NO.HTE/COL-DEV/10/90-91/ Dated Kohima the Nov'90.

Copy to :-

Shri M.Panger, Incharge, Management Board, Dimapur for information.

(Sd/I.Yanger.)
Director.
Higher & Technical Education,
Nagaland:Kohima.

3:1(10)

GOVERNMENT OF NAGALAND
DIRECTORATE OF HIGHER AND TECHNICAL EDUCATION
NAGALAND :: :: KOHIMA

NO.HTE/COL-DEV/10/90-91/ Dated Kohima, the 4 .'91.

To

Shri.M.Panger Longchar
Incharge, Management Board
Salt Christian College, Dimapur.

Subject :- PERMISSION TO START A NEW COLLEGE AND PROCEDURE THEREOF:

Sir,

I am directed to inform you that for according permission to your proposed College, you are to process its through your concerned District Planning Board.

The following important points will be taken into considerations as to whether the proposed College is viable to start or fit for according permission :-

1. Students enrolment.
2. Building requirement
3. Library requirement.
4. Staff requirement.
5. Service condition of staff.
6. Financial position.

You are therefore requested to process the matter as directed by the Government.

Yours faithfully,

(Sd/ Dr.Piketo Sema)
Officer on Special Duty,
Directorate of Higher & Technical
Education, Kohima.

3:1(11)

GOVERNMENT OF NAGALAND
DIRECTORATE OF HIGHER & TECHNICAL EDUCATION
NAGALAND :: ::KOHIMA

NO.HTE/COL-DEV/19-90-91/824 Dated Kohima, the the Sep'91.

To

The Secretary to the Govt. of Nagaland,
Department of Higher and Technical Education,
Nagaland, Kohima.

Subject :- FORWARDING OF INSPECTION REPORTS FOR GRANT OF PERMISSION TO OPEN COLLEGES :.

Sir,

As per discussion, I beg to forward herewith two Inspection reports submitted by Dr.Piketo Sema, O.S.D. (HTE) in respect of Salt Christian College, Dimapur and Agape College, Dimapur for favour of your kind perusal.

Government is requested to take necessary steps in granting permission to open the above cited Colleges.

Two applications received from the above mentioned Colleges are being re-submitted herewith for consideration.

Yours faithfully,

(Sd/I.Yanger.)
Director.

No.HTE/COL-DEV/19/90-91/824/ : Dated Kohima, the 16th Sep'91.

Copy to :-

1. The Inch arge, Management Board, Salt Christian College, Dimapur.
2. The President, Agape Mission & Evangelism Centre,Dimapur.

(I.Yanger)
Higher & Technical Education,
Nagaland : Kohima.

3:1(12)

GOVERNMENT OF NAGALAND
DIRECTORATE OF SCHOOL EDUCATION
NAGALAND : : KOHIMA.

No.ED/GSS/RS/9/91-92 Dated Kohima, the 20th Dec'1991.

CERTIFICATE OF REGISTRATION:

Certificate of Registration No.RS.1691 dated 18-12-91 in the office of the Registrar of Societies, Nagaland, Kohima under Registration of Societies Act,1860 as amended vide Registration of Societies (Nagaland First Amendment) Act, 1969.

In the matter of the application of Sarvashri M.Pangerlongchars,Chuba,A.Yanger of the registration of society at Walford Dimapur in the District of Kohima I do hereby Certify that persuant to section 3 of the registration of Societies Act,1860 as amended vide Registration of Societies (Nagaland First Amendment) Act, 1969, the centre has been registered in my office as a sosiety under the title of " Salt Christian Society and number as Rs.One thousand six hundred ninety-one of the year one thousand nine hundred and ninety-one Anno Domini.

Aims and objects, Titles and location of the Society,Club etc. once registered will be final and no demand for alteration will be entertained after registration.

(Sd/ Talitsuba)
Director of School Education,
Ex-Officio Registrar of Societies,
Nagaland : Kohima.

No.ED/GSS/RS/9/91-92: Dated Kohima, the th Dec'91.

Copy to :

1. The President, Salt Christian Society, Walford Dimapur.
2. The Commissioner & Secretary to the Govt. of Nagaland Education Department, Kohima.
3. Deputy Commissioner, Kohima.
4. The Publisher, Nagaland Gazette, Kohima for favour of publication of the above certificate.

(Sd/ Talitsuba)
Director of School Education,
Ex-Officio Registrar of Societies,
Nagaland : Kohima.

3:1(13)

Constitution.

Preamble.

Enact and Established this constitution of this 'Society' to secure the apportunity to all and to ensure future based Education and hence to hereby adopt and give to ourselves this Constitution on this day the 12th Nov. Nineteen hundred Eighty nine of the year of our Lord.

Article I. Name :- The name of the society shall be called ' Salt Christian Educational Society,'

Article II. Location and its Headquater.

The Registered office of the Society will be within the state of Nagaland with its Headquater located at Dimapur.

Article. III. Aims and objects.

The main aims and objects of this society has to sponsored the ' Salt Christian College Dimapur.' The Society will look forward for the successfull Management of the Institution and to produce the best types of Academic excellence.

Article IV. Organization/Composition.

(i) Member of the Society.

(ii) Government Body of not less than of (seven) Members.

(iii) President and its Executive (3) three Members.

Article V. Ownership & properties.

The name of the college and all other expansions of the Institution shall be owned and belong to the society. All movable and inmovable properties acquired by the College shall be belonged to this society.

Article VI. Amendments/inclussions and Deletions

This constitution can be amented or new certicles can be included or deleted through discussions and debate and decide by the Governing Body.

3:1(14)

Memorandum of Association of
Salt Christian Educational Society.

1. The name of the society is "SALT CHRISTIAN EDUCATIONAL SOCIETY".
2. Location :- At Dimapur Nagaland.
3. The object for which the society is established are to be sponsored the ' Salt Christian College' Dimapur.
4. We the several persons whose names and addresses are subscribed are desireous of being formed in to a society in pursence of this memorandum of Association. Dated Dimapur the 12th Nov'1989.

Name and address and accupation of the members of the society :-

Name	Address	Occupation
1. Shri.M.Panger Longchar	Salt Christian College Dimapur	Service.
2. Mrs. I.Alemla	Dimapur	House Wife
3. Imtitemjen	Dimapur College	Student
4. I.Matsung	Dimapur College	-do-
5. A.Yanger	Dimapur	Bussiness
6. Chuba	Dimapur	-do-
7. Alengla	Dimapur	Student

Certified to be true copy.

(Sd/ M.PangerLongchar)

3:1 (15)

Rules and Regulations of
'Salt Christian Educational Society'.

1. The affairs of ' Salt Christian Educational soci[illegible] be engaged by the members of the society who forms t[illegible]ng Body of the same.
2. The day to day activity of the society will be managed b[illegible] the Executive committee consisting of there members selected by the Governing Body refered to in Article-IV of the constitution, from amongst its members who will be designate as President secretary and Treassurer respectively of the Governing Body.
3. This Governing Body of the Society shall select the Governing Body of the ' Salt Christian College in accordance to the University Ordinances.
4. The Office of the Principal of the College will be held by the president of this Governing Body.
5. The President and the executive shall appoint Lecturers and other staffs for the College as and when found necessary and the remunerations payable to such Lecturers shall be fixed in Consultations with other members of the Governing Body.
6. The President will seek affiliation of the college to confer Degrees, Diplomas, Certificates etc.
7. Tution fees for different courses of study shall be [illegible] by the Executive.
8. The Accounting year of the society shall be the calender year viz-from Ist January to 31st December.
9. The Presidentand the executive shall appoint, a Auditor General for the College audits, for all annual accounts.
10. All money belongs to the college or society, shall be deposited to the Bank account opened in the name of the College. The Account shall be operated joining by the president and secretary of the Executive.
11. The president and the executive shall look after the future expansion and development of the College.

The constitution and the Rules and Regulations have been framed to day by an unanimous resolution adopted by the person signing below :-

1. Sd/ M.Panger Longchar
2. Sd/ Mrs I.Akumla
3. Sd/ Imtitemjen
4. Sd/ Intingtuing
5. Sd/ A.Kyanger
6. Sd/ Chuba
7. Sd/. Akumla

Certified to be true copy :-

(i) Sd/ M.Panger Longchar (ii) Imtitemjen
(iii) Sd/ Mrs I.Akumla.

3:1(16)

GIFT OF PLOT AND BUILDING TO SHRI M.PANGER LONGCHAR
AND TO THE GOVERNING BODY :

THIS DECLARATION OF GIFT IS MADE FOR THE GIFT OF THE [illegible] OT AND BUILDING UNDER PATTA NO:11 VIDE DMR/76-2378 OF DT; 21.6.'76 TO SHRI M.PANGER LONGCHAR FOR ESTABLISHING AND STARTING A COLLEGE UNDER THE NAME AND FASHION OF " SALT CHRISTIAN COLLEGE ".

ALL THE EXPANSION, RENOVATION, AND REPAIRING WORKS ARE TO BE CARRIED OUT AS PER SPECIFICATIONS OF THE COLLEGE MANAGEMENT BODY AND THE COLLEGE WILL EXECUTE ITS FUNCTIONS AS LONG AS ITS MANAGEMENT BODY DESIRES IT TO DO SO.

DIMAPUR,
DATE: JUNE 19,1990

(Sd/L.I.ALEM)
LAND LORD

WITNESS.

(i) Sd/ MERENLONGKUMER)
Member

(ii) Sd/P.CHUBA.OZUKUM)(Member)

Witness S

Sd/ Addl Deputy Commissioner
Dimapur, Nagaland.

3:1(17)

' SALT CHRISTIAN COLLEGE'

WALFORD AREA, DIMAPUR : &(&**" , NAGALAND(INDIA)

(LIST OF ADMINISTRATIVE AND THE EXISTING TEACHING STAFF . . THEIR ACADEMIC DATA.)

1. Shri M.Panger Longchar B.A.(Hons) Pol.Sc (G.U) Passed Previous M.A. (History)(BD) Imanuel Theological Seminary, (appeared Final)

Administrator & Secretary,
Principal Incharge.

Name	Subject	M.A.	M.Phil
2. R.Raja Sekharan. Principal, (On study leave)(5 yrs.Experience)	(History)	58%	62%
TEACHING STAFF.			
Vjay Choudhoury, Vice-Principal/Dean Academic)10 yrs. Experience as Professor	English	71.5%	
2. Mr.Joy.V.J. Lecturer.	English	53.5%	
3. Mr.Subrat Ghose	Economics	60.7%	
4. Mr.Merenchiba Temjan Lecturer,Students Welfare Officer	Pol.Science	55%	
5. Probhat Mandal Lecturer,(15yrs. exp. in teachings)	History	48 %	
Mrs Madhumitha Roy Lecturer	Education	60%	
Mr. M.P.Singh Lecturer	Hindi	43 % (M.A.Eng) II Div M.A. Hindi.	

3:1(18)

The Inspection Team comprising the following members inspected Salt Christian College, Dimapur for its affiliation to P.U.course on 28th September, 1992.

1. Dr. K.K.Sharma, Pro-Vice Chancellor (Acting) NEHU, Kohima. - Chairman
2. Dr.Pikato, OSD,Higher & Technical Education,Nagaland,Kohima - Member
3. Dr.V.Sanyu, Lecturer, Deptt. of History & Archaeology, NEHU,Kohima. - Member
4. Dr. S.K.Mishra, Deptt. of Economics NEHU, Shillong. - Member
5. Dr. S.C.Daniel, Deptt. of Philosophy NEHU, Shillong. - Member

The Inspection Team while going through the existing physical infrastructure and other requirements needed for P.U course observed that :

i) the College has adequate building for classrooms, Library office and Hostel.

ii) the College has adequate number of qualified faculty but a regular qualified Principal needs to be appointed.

iii) the College Library needs to have more books in order to meet the needs of students and faculty for which College is taking steps.

In view of the above observations, the Inspection Team recommends that provisional affiliation for three years 1992 to 1995 may be given to the College to run P.U. course. Besides College may be directed to appoint regular qualified Principal within a year otherwise affiliation would be withdrawn.

SIGNATURE OF THE INSPECTION TEAM .

(Sd/Dr.K.K.Sharma)
Pro-Vice Chancellor (Acting)
NEHU, Kohima Chairman.

(Sd/ Dr.Pikato)
OSD, Higher & Technical Education, Nagaland, Kohima, Member.

(Sd/ Dr.V.Sanyu)
Lecturer, Deptt. of History & Archaeology, NEHU, Kohima Member.

(Sd/ Dr. S.K.Mishra, Deptt. of Economics, NEHU, Shillong, Member.

(Sd/ Dr. S.C.Daniel,
Deptt. of Philosophy,NEHU
Shillong, Member.

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: SALT CHRISTIAN COLLEGE :
WALFORD : DIMAPUR: (NAGALAND)

NAGALAND GOVERNMENT PERMISSION ORDER NO: HTE/COL-DEV/10/90-91
DTD: 22nd NOV. 91.

REGISTERED UNDER THE SOCIETIES ACT 1860 AND NAGALAND FIRST AMENDMENT ACT, 1969 VIDE REGISTRATION NO: Rs. 1691

ANNEXURES :

1. INITIAL AFFILIATION FORM
2. MINUTES OF THE RESOLUTIONS TAKEN AT THE FIRST MEETING OF THE MANAGEMENT BOARD (Pages 1-2)
3. PERMISSION ORDERS (Pages 3-7)
4. CERTIFICATE OF THE SOCIETY'S REGISTRATION WITH ITS CONSTITUTION (Pages 8-11)
5. GIFT DEED DULY SIGNED IN BY MR. L.I.ALEMAO FOR THE PERMANENT GIFT OF HIS ENTIRE PLOT AND BUILDING UNDER PATTA NO: 11 VIDE DMR/76-2378 DT:21/6/76 AND DULY ENDORSED BY THE ADDITIONAL DEPUTY COMMISSIONER ,DIMAPUR, UNDER HIS SEAL? FOR ESTABLISHING AND STARTING A COLLEGE THEREON AND THEREIN UNDER THE NAME AND FASHION OF 'SALT CHRISTIAN COLLEGE ' (page 12)
6. LIST OF THE EXISTING ADMINISTRATIVE AND TEACHING STAFF WITH THEIR ACADEMIC DATE (Page 13)
7. COPY OF THE PROPOSED SITE PLAN MAP IS ALSO ENCLOSED (Page 14)

Sd/ PRINCIPAL
SALT CHRISTIAN COLLEGE
DIMAPUR? NAGALAND.

3:1(20) Annexure - B

INITIAL AFFILIATION

Inspection Committee Report (to be submitted to the University in duplicate)

1. Name of the College Pranabananda Womens College, Dimapur.
2. Its sponsoring authority Bharat Sevashram Sangha.
3. The Legal Status of the College (Whether college is a registered body under Societies Registration Act)
Yes. The college has been registered under the Societies Act,1860.
4. Whether the College is having a Governing Body duly constituted for the purpose : Yes, the College is having a duly constituted Governing Body for the purpose of administering the College.

Details in Annexure - I & II
(attach a copy of the constitution)

5. Any special features of the Governing Body Constitution which deserve special attention for the grant of affiliation : The College being the only Womens College in the State of Nagaland deserves special favour in the G.B. is committed to uphold the cause of higher education among the Women in this part of the State and to impart Collegiate education to women/Girls of Dimapur in particular and the State of Nagaland in general irrespective of the community and caste with special emphasis on moral and qualitative improvement in character of the students.

Physical and Financial Resources

6. Whether the College is already located at its own site : Yes/No : Yes. The College is located in the building of the sponsoring authority at Dimapur.
(a) If not, whether the college has already acquired land
A plot of land measuring 3 bighas has been purchased where the College will be shifted ultimately.
(b) Give below a brief report on the suitability of the site and plan after inspection :

A copy of the site plan is in Annexure- III

7. The college is seeking affiliation for offering the following courses in :-

P.U. Level	P.U.(Arts).	Degree Level.
English, Alt.English, MIL Bengali and Hindi, Logic, History, Education, Economics, and Pol.Science.		

3:1(21)

8. Students seeking Admission :

P.U.Arts Ist year - 84 B.A. _____
2nd year - 38 B.Sc _____
P.U.Sc _____ B.Com _____
P.U.Com _____

9. Whether the college has adequate number of titles of books and journals for the courses of study mentioned at pare 7 above: The College has approximately eight hundred title of books. The College also subscribes on monthly, one weekly and one daily papers.

(a) If no, do you recommend that the college should be affiliated pending acquisition of books/journals:

10.(a) Reading room facilities
size 17' x 10 ' Adequate/Inadequate

(b) Classrooms
size 25'x20', 25'x15',25'x13'
35'x25', 26'x21',26x21'. Adequate/Inadequate

(c) Students' Common Room
size 20'x14' Adequate/Inadequate

(d) Teachers' Common Room
size 15'x13' Adequate/Inadequate

11. Whether the college has adequate equipment/laboratory facilities for practical classes :

12. Name of the teachers with Post-Graduate Degree/Specialization :

Name	Lecturer in	P.G.Degree with grade or specialization
1. Miss Sipra Gope	Education	M.A. in Education from NEHU 1990 Ist Class 60.19%
2. Shri D.K.Dhar,	Economics	M.A in Economics from G.U. in 1991 Second Class 49%
3. Shri Ashok Ray,	Logic	M.A. in Philosophy from G.U.in 1987 Second Class 53%
Mrs.Suvarnalatha Salimath	Pol.Science	M.A. in Political Science from Karnatak University in 1985, 52.5%
5. Miss Papri Ghosh	English	M.A. in English from NEHU in 1991 Second Class 51.56%

contd/...../ ..

3:1(22)

6. Miss C.Narola Ao	History	M.A. in History from NEHU in 1985 Second Class 56.25%
7. Shri P.K.Roy	English Part-time	M.A. in Engl[illegible] from G.U. in 1971 second [illegible].
8. Mrs Uma Paul	Bengali	M.A in Bengali from R.B.U in 1985 second class 43%.
9. Mrs G.Sinha	Tutor in Hindi.B.Sc.B.A. appearing at the M.A Exam. In Hindi.	

10. .....
11. .....
12. .....
13. .....
14. .....
15. .....
16. .....

Note :- The University Regulation stipulated the following :-

Level/Class	Minimum No. of Teachers in each subject.
a) P.U.Non-Lab	One
b) P.U.Laboratory	Two
c) Degree Non-Laboratory (Pass) + P.U.Non-Laboratory	Two in all subjects and Three in English
d)Degree Laboratory (pass) + P.U.Laboratory	Six of whom four [illegible] be Lecturers
e) Degree Non-Laboratory(Pass) + Hons + P.U.	Four in all subjects other than English & other elective languages in which there should be at least five.
f) Degree Laboratory (Pass) + Hons + P.U.	Seven of whom six shall be Lecturers.

contd/...../. ..

3.1(23)

13. Whether the college has adequate No. of qualified teachers in the subjects for which affiliation is sought:

Yes.

14. Whether the college is maintaining a fixed term deposit of Rs.1,00,000/- in any Bank :
Yes/No

If yes, the Fixed Deposit Certificate-

No EDR 0192084 dated 20-3-92
for Rs. 100000.00 (one lakh).
in the Punjab & Sind Bank, Dimapur.
(mention the name of the Bank and Branch).

15. Any other observation(s) :

16. Recommendations :

Note : a) If conditional recommendation is made kindly specify the conditions and the period by which the same are expected to be fulfilled by the college for the Provisional/Extension of Affiliation.

b) If provisional affiliation is recommended upto a certain period only, this may be mentioned.

Attached in separate sheets.

Signature of the memebers of the Inspection Team.

3:1(24)

Annexure - 1

NAMES ADDRESS AND OCCUPATION OF THE MEMBE[illegible]
THE GOVERNING BODY OF 'PRANABANANDA WOMEN'S COLLEGE
DIMAPUR MARCH 1991-Feb1994)

Sl	Name	Address	Occupation	Designation
1.	Swami Vijoyananda	Bharat Sevashram Sangha Calcutta-19	Monk	President
2.	Shri.Gobinda Ch.Paira	Burma Camp,Dimapur	Social Worker	Working President.
3.	Dr.B.Bhattacharjee	Happy Valley, Dimapur.	Service	Vice-President
4.	Sri Manik Bhattacharjee	Kalibari Rd. Dimapur	Social worker	Secretary
5.	Sri Haripada Sarkar	Hazi Park, Dimapur	Business	Treasurer
6.	Sri Lanu Longchar	Near Treasury Dimapur	Social Worker	Member
7.	Shri K.P.Nandy	Kalibari Road Dimapur	Business	"
8.	Shri N.R.Biswash	Lumthi Coloney, Dimapur	Service	"
9.	" S.C.Paul	Rly.Coloney, Dimapur	Contrac	"
10.	Mrs S.Kevichusa	Burma Camp, Dimapur.	Educationist	"
11.	Mrs Loola Thadani	Rly.Coloney Dimapur	"	"
12.	Principal S.Majumder			Ex-Officio Member.

Sd/ Principal
Pranabananda Womens' College
Dimapur: Nagaland.

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Annexure - II

RULES AND REGULATIONS OF PRANABANANDA WOMENS' COLLEGE.DIMAPUR.NAGALAND.

1. The affairms of Pranabananda Women's College hereinafter referred to as 'College' shall be managed by a Governing Body formed by the members of the Society, whose tenure in office will be 3(three)years.
2. The Governing Body shall appoint Principal,Lecturers and other members of teaching and non-teaching staff as and when found necessary and will fix remuneration payable to such persons.
3. The College shall seek affiliation to the privileges of the University to which other college of Nagaland shall be affiliated
4. Tution fees and other fees payable by the students shall be fixed by the Governing Body of the College.
5. The accounting year of the Society shall be from 1st April to 31st March.
6. All money belonging to the Society shall be deposited to a Nationalised Bank in an account opened in the name of the society which shall be operated jointly by the Secretary and Treasurer of the Governing Body.
7. The annual accounts of the society shall be audited by a person/ Audit firm, who shall be appointed by the Governing Body Specifically for the purpose.
8. In the event of any confusion and or dispute in the manner of conducting the affairs of the society/College, the decision of Bharat Sevashram Sangha, Calcutta-19 (Sponsoring Body) shall be final and binding upon all concerned.

The above noted rules have been framed to-day, the 4th May 1992, by an unanimous resolution adopted by the persons named and signing below :-

1. Swami Vijoyananda (Sd/ Swami Vijoyananda)
2. Sri Gobinda Ch.Paira (Sd/ Gobinda Ch.Paira)
3. Dr.B.Bhattacharjee ($d/ B.Bhattacharjee)
4. Sri Manik Bhattacharjee(Sd/ Manik NBhattacharjee)
5. " K.P.Nandy (Sd/ K.P.Nandy)

contd/-----/....

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6. Sri H.P.Sarkar (Sd/ H.P.Sarkar)

7. Sushil Ch.Paul (Sd/Sushil Ch.Paul)

Dated Dimapur the
4th May'1992.

CERTIFICATE TO BE TRUE COPY:-

1. Sd/
(G.C.Paira)

2. Sd/
(B.Bhattacharjee)

3. (Sd/Manik Bhattacharjee)

Sd/ Principal
Pranabananda Women's College
Dimapur, Nagaland.

3:1(27)

The Inspection Team comprising the following members inspected Pranabananda Women College, Dimapur on 28th September,1992 for affiliation to start P.U.(A) class.

1. Dr. K.K.Sharma,
   Pro-Vice-Chancellor (Acting) - Chairman
   NEHU, Kohima.
2. Dr.Pikato,
   OSD, Higher & Technical - Member
   Education, Nagaland, Kohima.
3. Dr.V.Sanyu, Lecturer,
   Deptt. of History & Archaeology - Member
   NEHU, Kohima
4. Dr. S.K.Mishra,
   Deptt. of Economics, - Member
   NEHU, Shillong.
5. Dr.S.C.Daniel, - Member
   Deptt. of Philosophy,
   NEHU, Shillong.

The Inspection Team while going into the physical infrustructure of the College, Library books numbers & qualifications of teaching staff, found that College has potential for its growth and recommends that provisional affiliation for three years 1992 to 1995 may be given to the Pranabananda Women College, Dimapur.

SIGNATURE OF THE INSPECTION TEAM.

(Sd/ K.K.Sharma)
Pro-Vice-Chancellor(Acting)
NEHU, Kohima, Chairman.

(Sd/Dr.Pikato)
OSD,Higher & Technical
Education, Nagaland, Kohima
Member.

(Sd/Dr.V.Sanyu)
Lecturer, Deptt. of History &
Archaeology, NEHU,Kohima,
Member.

(Sd/Dr.S.K.Mishra)
Deptt. of Economics, NEHU,
Shillong, Member.

(Sd/Dr.S.C.Daniel)
Deptt. of Philosophy,NEHU,
Shillong,Member.

3:2(1)

(11) NOMINATION OF NEHU REPRESENTATIVES TO THE GOVERNING BODY OF AFFILIATED COLLEGES.

The Vice-Chancellor has nominated the following teachers as University Representatives in the Governing Body of various affiliated Colleges. The nominations are now placed before the Council for ratification.

Name of College.	Name of the University Representatives.	Term.
1.Hrangbana College, Aizawl.	(i)Prof.L.K.Jha, Deptt.of Forestry Mizoram Campus Aizawl.	2 years w.e.f. 19.3.92.
	(ii)Dr.K.C.Baral Deptt.of English, Mizoram Campus, Aizawl.	- do -
2.Nongstoin College, Nongstain.	(i)Dr.H.W.Ston Deptt.of Khasi.	3 years w.e.f.16.8.91.
	(ii)Dr.K.M.Warjri, Centre for Cont. Education.	- do -
3.Kazi & Zaman College, New Bhaibari,Garo Hills.	(i)Prof.A.K.Baruah Deptt.of Pol.Science.	3 years w.e.f.16.9.92.
	(ii)Dr.Tlanglawma Deptt.of Economics.	- do -
4.Board of Management, of NERIST,Itanagar.	(i)Dr.B.K.Sarma Director,College Dev. Council.	2 years w.e.f.28.10.91.
	(ii)Prof.C.S.Shastry, Deptt.of Physics.	- do -

Item No : 5:- ACADEMIC MATTERS

5:1:- Statutes/Ordinances/Regulations and Rules -

AMENDMENT/UPDATING OF ORDINANCES OA-1, OA-2, OA-3 AND OA-4 ON ESTABLISHMENT OF SCHOOLS, DEPTTS. AND CENTRES AND ASSIGNMENT OF DEPTTS. TO THE SCHOOLS.

The Proposal for amendment/updating the Ordinances OA-1, OA-2, OA-3 and OA-4 on establishment of Schools Departments and Centres and an assignment of Deptts/Centres to the Schools, was placed before the Academic Council the 38th Meeting held on 3.3.90. The Council desired that the proposal be examined by a Committee. A Committee was constituted to examine the matter and its Report was placed in the 42nd meeting of the Academic Council held on 17.6.91 wherein the Council desired that the report be sent to the Departments for Comments.(The Report of the Committee is again placed before the Council at Annexure-A). Some of the Departments have expressed their view which are appended herewith at Annexure -'B'.

It may also be mentioned that as regards the assignment of Centres of Studies to the Schools is concerned, a Committee was constituted by the Vice-Chancellor to look into the various aspects of the powers and functions of the Centres of Studies and also to look into the relationship between the Centres with the Schools. The Report of the Committee is still awaited.

The matter is however placed before the Council for consideration and decision on the re-organisation of Schools and assignment of Deptts/Centres to the Schools so that the relevent Ordinances can be amended and updated accordingly.

5:1:2(2) Annexure -A

The Committee constituted in pursuance of the Academic Council resolution No.AC:38:90:04(ii) met on 4-6-90 and 25-4-91. The Committee examined the proposals for updating the Ordinances OA-1, OA-2, OA-3 and OA-4 on establishment of School of Studies, Departments, Centres of Studies and on Assignments of Departments and Centres to the Schools of Studies respectively and resolved to make the following recommendations for consideration of the Council.

Ordinance OA -1 on the establishment of Schools of Studies -

The Committee noted that the School of Economics and Management Studies was approved by the University as well as the Visitor.Subsequently the Academic Council and the Executive Council decided to remove the Department of Economics from the School and assigned it to the School of Social Sciences again.The Committee recommends that the School may now be given the nomenclature of School of Information and Management Studies instead of School of Economics and Management Studies.

Though the School of Library and Information Sciences existed in the University,since it is the School with only one Department,the Committee recommends that this School may be merged with the Management Studies under the nomenclature given above.This School will comprise the Departments of (i) Commerce,(ii) Management Studies, (iii) Public Administration, (iv) Library and Information Science, (v) Journalism and Public relations.

The Committee recommends that a School of Humanities and Languages may be established to include the Departments of English,Khasi,Hindi and Philosophy.

The School of Education will remain as such but the Departments of Psychology,Social Work and Home Science may be added.The new School,namely, "School for Studies of Spritual and Moral values" may be added to the list.

Ordinance OA-2 on the establishment of Departments -

The Committee recommends that the Department of Classical Languages, which is provided in the existing ordinance,may be deleted and the Department of Modern Indian Languages may be substituted.The following new departments may be added to the existing ordinance.

(a) Department of Management Studies.
(b) Department of Public Administration.
(c) Department of Modern Indian Languages.
(d) Department of Horticulture.
(e) Department of Soil Conservation.
(f) Department of Animal Production.
(g) Department of Rural Development Planning.
(h) Department of Library and Information Science.
(i) Department of Journalism and Public Relations.
(j) Department of Christianity.

Contd...

(k) Department of Traditional Religions.

(l) Department of Forestry.

(m) Department of Social Work.

(n) Department of Home Science.

(o) Department of History and Archaeology.

(p) Department of Plant Pathology.

Ordinance OA-3 on the establishment of Centres of Studies -

The Committee recommends that the Centre for Forestry and Natural Resources Management may be deleted as the University has now the Department of Forestry.

The Centre for Data Processing and Systen studies may be substituted by the "Centre for Computer Science".

The Centre for School Mathematics and Science may be substituted by the "Centre for Science Education". The Centre for Communications may be deleted as the University has the Department of Journalism.

Ordinance OA-4 on assignent of departments to the School of Studies -

The Committee recommends that the title of this Ordinance may be changed to "On Assignment of Departments and Centres to the Schools of Studies" as the Centres of Studies are also to be assigned to the Schools.

The Committee recommends that the Schools of the University may be re-organised and departments to various Schools may be assigned as follows :-

(1) School of Social Sciences.

The Department of Philosophy and Psychology may be removed from the School and may be assigned to other Schools and the Centre for Communications may be deleted. The Department of History and Archaeology and the Department of Economics may be added to this School.

(2) School of Economics and Management Studies -

This School may be re-named as the "School of Information and Management Studies" and the following departments may be assigned to this School.

(i) Department of Commerce.

(ii) Department of Management Studies.

(iii) Department of Public Administration

(iv) Department of Library and Information Sciences.

(v) Department of Journalism and Public Relations.

(vi) Department of Public Relations.

The Centre for Applied Statistics may be deleted as it is now assigned to the School of Physical Sciences.

(3) School of Life Sciences -

The Department of Forestry may be added to the list of Departments given under this School.

Contd...P/

(4) School of Environmental Sciences :-

The Centre for Forestry and Natural Resources Management may be deleted.

(5) School of Physical Sciences -

The Centre for Data Processing and Systen Studies may be substituted by the " Centre for Computer Science ".

The Centre for School Mathematics and Science may be given the title " Centre for Science Education ".

The Centre for Applied Statistics may be added to this School.

(6) School of Literature and Languages -

This School may be re-named as " The School of Humanities and Languages"and the following Departments may be assigned to this School.

(i) Department of English
(ii) Department of Khasi
(iii) Department of Linguistics
(iv) Department of Hindi
(v) Department of Modern Indian Languages
(vi) Department of Philosophy
(vii) Centre for Creative Arts
(viii) Centre for Study of Foreign Languages.

(7) School of Education -

The following Departments may be assigned to the School of Education.

a) Department of Education
b) Department of Social Work
c) Department of Psychology
d) Department of Home Science
e) Centre for Educational Technology
f) Centre for Child Development
g) Centre for Distance Education
h) Centre for Adult and Continuing Education.

(8) School of Agricultural Sciences and Rural Development -

The following Departments may be assigned to this School.

i) Department of Horti-Culture
ii) Department of Soil Conservation
iii) Department of Animal Production
iv) Department of Rural Development Planning.
v) Department of Plant Pathology.

Contd...

(9) School for Studies of Spritual and Moral values -

This new School will consist of the following two departments :

(i) Department of Christianity.
(ii) Department of Traditional Religions.

Sd/
(R.G.Michael)
Chairman.

The Committee consisted of the following :-

1.	Prof.R.G.Michael	Chairman
2.	Prof.J.B.Bhattacharjee	Member
3.	Prof.A.L.Verma	-do-
4.	Prof.K.Chatterjee	-do-
5.	Shri.O.D.Shira	-do-

S.1.1.(6) Annexure-I

A brief of comments from the departments on the Committees proposal for amendment/updating Ordinances OA-1,OA-2,OA-3 and OA-4.

Departments	Comments
Economics	The Department agrees to the Committee's proposal assigning the Department of Economics to the School of Economics and Management Studies because Management and other related fields can interact with Economics in a better way if they fall under a common School. Secondly, the School of Social Sciences under which the Department is assigned now is already too big and the Department of Economics did not get fuller opportunity to play its vital role.
Linguistics	The Department does not agree to the Committee's proposal on the fillowing:- (a) assignment of the Department of Library and Information Sciences and the Department of Journalism and Public Relations to the School of Economics and Management Studies or "School of Information and Management Studies"(as per the proposed nomenclature of the Committee".) The Department proposed that these two departments may be assigned to a "School of Information and Mass Communication". This amounts to re-nomenclature of the existing "School of Library and Information" Sciences to the "School of Information and Mass Communication". (b) assignment of the Department of Philosophy to the School of Humanities and Languages. The Department proposes to retain the Department of Philosophy under the School of Social Sciences.

Contd.../-

5.1.1(7)

Departments	Comments
Library and Infor-mation Studies.	The Department does not agree to the Committee's proposal of clubbing Information Studies and Management Studies under one School because these two are two distinct clusters of knowledge. The Department proposes that the Department of Library and Information Science and the Department of Journalism and Public Relations be assigned under a "School of Information Studies".
Psychology	The Department of Psychology does not agree to the Committee's proposal of assigning Psychology to the School of Education. It recommends its retention under the School of Social Sciences.
Forestry	The Department does agree to the Committee's proposal of assigning it to the School of Life Sciences. The Department of Forestry proposes creation of seperate "School of Forestry" this being the pattern adopted in other Indian Universities. Other supporting Departments may be opened in the next plan in order to strengthen Forest teaching and research in the North-Eastern belt. But pending the above proposal and for the Department to run in the present existing style, it is appropriate to assign it to the School of Environmental Sciences.

Contd...../-

5.1.1(8)

Departments	Comments
Education	The Committee proposed that the Department of Home Science be assigned to the School of Education. However, the Department of Education feels that the Department of Home Science be assigned either to the School of Agricultural Sciences and Rural Development or to the School of Life Sciences. The Centre of Educational Technology no longer exist but its name still appears in the Ordinance. The Committee did not comment anything such as deletion of this Centre from the Ordinances.
Public Administration	The discipline of Public Administration which has been an integral part of Political Science, operating under an umbrella of Social Sciences in most Universities of India, including this University since the start of its teaching in 1986-87 in Aizawl Campus, is now being proposed to remove the department of Public Administration from the School of Social Sciences and assign this discipline to the School of Information and Management Studies which comprises the Departments of (i) Commerce (ii) Management Studies (iii) Public Administration, (iv) Library and Information Science (v) Journalism and Public Relations. The proposed amendment takes pride in being 'modern' and 'Management oriented' but this kind of an outlook may not necessarily help in building up an 'independent' identity for the discipline of Public Administration. Most of the people have now come round to the approach that the study of Public Administration as a Social Science has necessarily to lean heavily

Contd..../-

5:1:1(9)

Departments

Comments

on History, Sociology and political Science. Not only but Public Administration is a multi-disciplinary field and has to draw upon other fields of knowledge, lessons of History, theories of society and organisation, theories of human nature and ethics and philosophy of life-all to be assimilated in the broad area of administration. Similarly, the growth of Science and Technology, growing organisation, ecological factors are among the many key factors with which public administration has to work. The Science of administration must embrace new vistas and catch up with new horizons.

If Public Administration should be taught in our Universities, it is perhaps improper to treat it as a Uni-disciplinary subject. Probably the best course would be to have a centre for the study of government and public policy as a multi-disciplinary school pooling together the resources of political science, history, sociology and a few other allied subjects like economics and social psychology. Besides, the Indian Political System, the historical evolution of the Indian Administrative system, the debates in the Constituent Assembly and the basic constitutional Law of the country deserve much more attention as a core themes of any worthwhile public administration discipline.

An academically worthwhile, public administration discipline in India has to have anchorage in broader social science international field. Only then we can strive for the formulation of appropriate concepts and theories for explaining the structure and a operation of administration in our special socio-economic situation.

Contd.../-

5:1:1 (16)

Departments

Comments

Unlike the physical science, social Sciences are essentially ethical sciences. The idea of a good society and a moral existence is an inescapable motto of social science. A Public Administration discipline that avoids analysing the role of administration in sustaining a structure of domination, repression and injustice is not a genuine science but a courtier subject. At the University level, what is needed therefore, is a discipline of Public administration that would be sensitive to social crisis and radical enough to expose the myths and rituals of an overtowering bureaucratic state appratus. Under conditions of under development, it has also a moral duty to chart out the methods of social transformation. Such a discipline can grow and develop only in close association with political science and allied social sciences.

Therefore the growing discipline of Public Administration may be allowed to continue to remain in the School of Social Sciences with a view to making its study more relevant in the country's socio-economic situations and also result oriented. An attempt to club the department of Public Administration with the proposed departments of the school of Information and Management studies will not help in building up an independent identity for the discipline of Public Administration.

Contd.../-

5.1.1(11)

Departments/Centres	Comments
Applied Statistics	The Centre agrees with the recommendation of the Committee for assignment of the Centre to the School of Physical Sciences.
Social Work	Social work is one of the helping professions like that of medicine. The needs and requirements of professional education are unique and different from any academic department. As there is a need for separate school for Medical Sciences, on the same line there is a need for Separate School for Social Work. An example of a Central University can also be quoted here. Delhi University is a Central University having Department of Social Work which is one the primier departments. The Department of Social Work is assigned to the School of Social Work in the University's Ordinances. 2. For any reason if NEHU finds in difficult to establish School of Social Work immediately, the department of Social Work can temporarily remain under the School of Education. However, the University may, at the earliest possible opportunity, establish School of Social Work.
Commerce	It is the considered opinion of the Department to establish departments keeping in view the long run objectives of the University. The allocation of the Departments to the various Schools to be established in the University should serve the purpose of academic interaction and it should not serve build-up of empires. Keeping this as the base, we propose the following schools to be established in the University.

5'1:1(13)

School of Library and Information Sciences

This School should be concerned with those departments which focus upon processing all information. The following departments may, therefore, be included in this School.

1. Department of Library & Information Sciences.
2. Department of Journalism & Public Relations.
3. Centre for Computer Science.

Science and Humanities Languages

This School should contain the following departments.

1. Department of Khasi
2. Department of English
3. Department of Linguistics
4. Department of Modern Indian Languages
5. Department of Hindi
6. Centre for Creative Arts
7. Centre for Study of Foreign Languages.

School of Education

This School should contain the following:

1. Department of Education
2. Department of Social Work
3. Department of Home Science
4. Centre for Adult & Continuing Education
5. Centre for Education Technology
6. Centre for Child Development
7. Centre for Distance Education.

5.1.1(12)

School of Social Sciences

The School of Social Sciences should include those departments which are concerned primarly with the Macro-Environment. We, therefore, believe that the following departments be included in the School of Social Sciences.

1. Department of Economics
2. Department of Philosophy
3. Department of Sociology
4. Department of Anthropology
5. Department of Public Administration
6. Department of History and Archaeology
7. Department of Political Science
8. Centre for Literary & Cultural Studies
9. Centre for Studies in Economic Development
10. Centre for Applied Statistics.

The Committee proposed Department of History and Department of History and Archaeology . We believe that there is no need to have two Departments which are inter-related. We, therefore, believe that these two departments be merged into the department of History and Archaeology and included in the School. It is not appropriate to call the Centre for Economic Development. It should be renamed as the Centre for Studies in Economic Development.

School of Business Management Studies

This School should be concerned with all the departments that focus attention on the problems related to the Management of Business and Non Business Organisations. The following departments may, therefore, be included in this School :

1. Department of Commerce
2. Department of Management Studies.

5:2 - Syllabus etc.

(i) Syllabi for the Three Year Integrated Degree Course to be introduced from 1993 session.

The Academic Council in its 44th meeting held on 7th and 8th August, 1992 had approved the Course structure for the Three Year Integrated Degree Course to be introduced from 1993 session. Subsequently, the Boards of Under-Graduate Studies met to frame the syllabi under the new pattern.

The syllabi as framed and approved by the respective BUGS are placed as indicated below for consideration of the Council:

1. Garo - At Annexure-'A' i.e. pages 2 to 5
2. Publication Administration-At Annexure 'B' i.e. pages 6 to 38
3. Philosophy-At Annexure 'C' i.e. pages 39 to 51.
4. Chemistry - At Annexure 'D' i.e. pages 52 to 94.
5. Anthropology-At Annexure 'E' i.e. pages 95 to 116.
6. Commerce- At Annexure 'F' i.e. pages 117 to 149.
7. Sanskrit-At Annexure 'G' i.e. pages 150 to 156.
8. Nepali - At Annexure 'H' i.e. pages 157 to 162.

Annexure-

Syllabii for Integrated Three Year Degree Course (Garo)
(To be effective from 1993)

M.I.L.

Paper I ; Poetry and Stories

Maximum marks : 100 Time : 3 Hours
Distribution of marks :

1. Traditional Garo Poetry 50 marks.
2. Stories from Shakespeare 50 marks.

Text Books :-

1. H.W.Marak : A'Chik Aganbewalrang.
Pieces to be read :

(i) Dakgipa Rabuga (ii) Sam Bolrangni Chachenga (iii) Mande are Chatchi De'a (iv) Bonepani A'a So'a (v) Gongani Kilbolma Supea (vi) Gancheng Hakkalchenga (vii) Bisi Bima (viii) Churugala (ix) Chrok Mesaa (x) Muneko Man'a.

2. Wilson K.Marak : Shakespearni Golporang.
Pieces to be read :

(i) Julius Caesar (ii) Othello.

Paper II : Prose,Peotry,Drama and Composition

Maximum Marks : 100 Time : 3 Hours

Distribution of marks :

1. Prose : 25 marks
2. Modern Poetry : 30 "
3. Drama : 20 "
4. Garo Proverbs and Phrases : 10 marks
5. Essays : 15 marks

Text Books :

1. Rev James Wood : Ka'donge Baltigipa.
2. Evelyn R.Marak : Chimonggimin A'chik Ku'rang

(Pieces to be read):

(i) E.R.Marak : O A'chik Song.
(ii) K.R.Marak : Sigimin Ripengko Gisik Ra'ani.
(iii) M.Rongmity : Panteni Gisik Ra'ani.
(iv) Couplane G.Momin : Saksan
(v) Kosan G.Momin : Pring.
(vi) Howard Denison Momin : Hilsi Gital.
(vii) Howard Denison : Me'chik aro Mamaku.
(viii) E.R.Marak : Golap Bibal.
(ix) Tuniram R.Marak : Do'kua.
(x) Howard Denison Momin : Do'maskini Git.

contd/..../-

3. Karnesh R.Marak : Macbeth.
4. M.S.Sangma & Julius L.R.Marak : Aganme'apa.
5. Julius L.R.Marak & M.S.Sangma : Ku'jikse.
6. Essays (Unseen).

Elective

Paper I : Poetry, Rhetoric and Prosody

Maximum Marks : 100 Time : 3 Hours

Distribution of marks :

1. Garo Traditional Poetry : 40 marks
2. Garo Modern Poetry : 40 marks
3. Elements of Rhetoric and Prosody : 20 "

Text Books :

1. H.W.Marak : A'chik Aganbewalrang.

(pieces to be read):

(i) Dani (ii) Chera Ganching (iii) Chrokna A'bachengo Ring'ani (iv) Matdoka ba Matchu Den'a (v) Dakgipa Krita aro churugala (vi) Jaragata (vii) Nokdonggao Ring'ani (viii) Wangalao Doroa (ix) Kabe (x) Do'sia.

2. Kindrid D.Shira : A'chik Poedorang

(Pieces to be read)

(i) Jonmoni D.Shira : Mikjumang A'gilsak
(ii) Goplane G.Momin : Na'an Nitoa.
(iii) Jonmoni D.Shira : Do'kru.
(iv) Mahendra D.Shira : Ketket Rim'bo
(v) Evelyn R.Marak : Ang ' Chame
(vi) Coplane G.Momin : Angni Gisik.
(vii) Jonmoni D.Shira : Anga Me'Chik.
(viii) Baren Bangshall : A'Chik A'song.
(ix) Hirilla M.Rechil : Waimong 'Bri Matchuni Simchi.
(x) Howard Denison Momin : Seng'nat.

3. V.Sonachi B.Sangma : Elements of Rhetoric and Prosody.

Paper II : Drama

Maximum marks : 100 Time : 3 Hours.

Distribution of Marks :

1. Garo Traditional Drama 50 marks
2. Garo Modern Drama 50 "

Text Books :

1. Llewellyn R.Marak : Dikki, Part I.
2. Kenneth M.Momin : Nokdang.

condt/.../-

Paper III : History of Literature, Proverbs and Phrases

Maximum marks : 100 Time : 3 Hours

Distribution of Marks :

1. History of Garo Literature 80 marks
2. Garo Prbverbs and Phrases 20 "

Text Books :

1. M.S.Sangma : History of Garo Literature
2. M.S.Sangma & Julius L.R.Marak : Aganme'apa.
3. Julius L.R.Marak & M.S.Sangma : Ku'jikse.
4. Kindrid D.Shira : Gisik Matgrikrang

Major Papers

Paper IV : Prose & Fiction

Maximum Marks : 100 Time : 3 Hours

Distribution of Marks :

1. Prose : 50 marks
2. Fiction 50 "

Text Books :

1. Wilson K.Marak : Songregipani Songreani (Pilgrim's Progress)
2. Wilson K.Marak : Rabindranath Tagoreni Basegimin Golporang (7 Golporang).

Paper V : Garo Traditional Drama

Maximum Marks : 100 Time : 3 Hours

Text Book :

1. Julius L.R.Marak : Serejing aro Waljan .

Paper VI : Poetry

Maximum Marks : 100 Time : 3 Hours

Text Books :

1. Harendra W.Marak : Gitanjali (Translated) 75 marks
2. Published by Arts & Culture, Govt. of Meghalaya : Ripinggimin Poedorang -25 "

Gitanjali : Pieces to be read :

Verses : 1,3,5,6,7,9,12,13,16,17,20,23,26,28,31,33,35,36,37,40, 42,44,46,48,51,53,55,57,60,62,64,66,69,71,72,74,76,78, 80,82,84,86,88,90,91,92,93,94,96,99.

contd/..../-

Paper VII : History of Garo Language & Grammar

Maximum marks : 100 Time : 3 Hours

Distribution of Marks :

1. History of Garo Language : 80 marks
2. Garo Grammar 20 "

Text Books :

1. M.S.Sangma : History of Garo Language
2. Rev .E.G.Phillips : Garo Grammar

Paper VIII : Literary Criticism & Composition

Maximum Marks : 100 Time : 3 Hours

Distribution of marks

1. Garo Literary Criticism 80 marks
2. Garo Composition 20 "

Text Books :

1. Lindrid D.Shira : Garo Literary Criticism .
2. M.S.Sangma & J.L.R.Marak : Agan Me'apa
3. J.L.R.Marak & M.S.Sangma : Ku'gikse.
4. Keneth M.Momin : A'chik Composition.

ANNEXURE-'B'

Distribution of Marks and Syllabus
Pattern For the three years
Degree Courses to be introduced from 1993 session

(Excerpted)

B.A (without major) General

Subject	1st Yr.	2nd Yr	3rd Yr
English	100	100	
GFC	-	-	100
MIL	-	100	100
Elective	100	100	100
ElectiveII	100	100	100
Elective III	100	100	100
TOTAL	400	500	500

GRAND TOTAL-1400

B.A(with major) Elective

Subject	1st Yr	2nd Yr	3rd Yr
English	100	100	-
GFC	-	-	100
MIL	-	100	-
Elective	100	100	100
ElectiveII	100	100	100
Elective III (major)	200	300	300
TOTAL	500	700	600

GRAND TOTAL-1800

Course Structure for B.A.(without major) General and B.A(with major) Elective(Public Administration)

B.A.(withcut major)General

First Year
Paper 1 : Elements of Public Administration

Second Year
Paper 2 : Administrative Theory

Thrid Year
Paper 3 : Public Administration in India

B.A.(with major) Elective

First Year
Paper 4 : Public Personnel Administration in India

Second Year
Paper 5 : Bureaucracy and Development
Paper 6 : Local Self Government in India

THIRD YEAR (ANY TWO OF THE FOLLOWING TO BE OFFERED)
Paper 7 : Economic Administration
Paper 8 : Social Administration
Paper 9 : Political and Administrative Institutions in North-East India.
Paper10 : Administration for Rural and Tribal Development
Paper11 : Police Administration

NOTE:

The first three papers- Elements of Public Administration-1(First Year),Administrative Their-2(Second Year) and Public Administration in India-3(Third Year) as inforporated under B.A.(without major) general will be common for both B.A.(without major)general and B.A.(with major) Elective.

PAPER 1 : ELEMENTS OF PUBLIC ADMINISTRATION

Max.Marks - 100
Duration - 3 Hours

UNIT 1 Concept of Society, Government and State;the meaning,nature and scope of Public Administration; Difference between Public Administration and Private Administration;Evolution of Public Administration as a discipline with effect from 1887;Public Administration as an Art or a Science;New Public Administration, Policy,Politics and Administration.

No.of periods : 25

UNIVT 2 Principles of Organisation - Hierarchy;Unity of Command; Authority and Responsibility; Coordination;Span of Control; Supervision; Centralisation and Decentralisation,Delegation; Integration Versus Disintegration.

No.of periods : 20

UNIT 3 Structure of Organisation - Formal and Informal Organisation Staff and Line agencies and their relationship;Departmental Organisation;Boards and Commissions.Public Corporations; Headquarters and Field agencies and their relationship,Methods of Headquarter's control;multitired field organisation;Field Coordination.

No.of periods: 30

UNIT 4 Accountability and Control - Concepts of Accountability and Control;Legislative,Executive and Judicial Control over Public Administration;Citizens' control on Public Administration.

No. of periods : 20

UNIT 5 Administrative Law and Causes of its growth; Delegated Legislation - Meaning, Types, Advantages, Limitations, Safeguards; Administrative tribunals.

No. of periods : 20

Contd/.../-

PAPER 2 : ADMINISTRATIVE THEORY

Max.Marks : 100

Duration : 3 Hours

(Note: This paper will be studies with reference to the ideas of the particular scholars whose names are noted at appropriate pla..).

UNIT 1
(a) The concept and meaning of Theory
(b) Kautilaya's ideas on Administration
(c) Classical Theory (Luther Gulick and Lyndall Urwick): Study of the dominant thrusts - Principles/Elements of Organisation/Administration; Structure of Organisation; Criticism.
(d) Scientific Management Theory (Frederick W. Taylor): Principles and Techniques of scientific management; Mental revolution; Impact of scientific management school; Criticisms.

No. of periods : 30

UNIT 2
(a) Human Relations (George Elton Mayo): Emergence and Meaning of Human Relations Approach Hawthorne Experiments and their effects on Management Thinking;
(b) Systems Theory : Meaning and Characteristics of System; System, Sub-system, environment; Input, conversion, output, feed-back; Contribution of Systems Theory to the study of organisations.

No. of periods : 25

UNIT 3 Decision Theory
(a) Meaning and Process of decision-making
(b) Rational-Comprehensive Model of decision-making: meaning, characteristics, criticisms; Concept of economic man.
(c) Statisficing Model of decision-making; meaning, characteristics, criticisms; Concept of administrative man,

No. of periods : 25

Contd/.../-

UNIT 4 Theories of Motivation :

(a) Maslows Hierarchy of Needs Theory;

(b) Douglas McGregor's Theory X and Theory Y ;

(c) Motivation-Hygiene Theory of Frederick Herberg.

No. of periods : 25

UNIT 5 Karl Marx and V.I. Lenin on state and administration.

No. of periods : 15

SUGGESTED READINGS

CORE READINGS

1. D.Ravindra Prasad et.al.,(Eds), Administrative Thinkers, Delhi,Sterling Publishers Pvt.Ltd.,1989.
2. M.L.Mishra,Contemporary Management Thinkers,Delhi, Associated Publishing House,1980.
3. Shum Sun Nisa Ali,Eminent Administrative Thinkers,Delhi, Associated Publishing House,1984.
4. Keith Davis,Human Behaviour at Works (4th Ed.)New Delhi, McGraw-Hill,1975.
5. R.S.Dwivedi,Human Relations and Organisational Behaviour, New Delhi,Oxford & IBH Publishing Co,1979.
6. T.N.Chaturvedi and R.K.Arora(Eds),Administrative Theory, Delhi,IIPA,1984.
7. Stephen P.Robins,Organisational Behaviour(3rd Ed.),New Delhi,Prentice-Hall,1988.
8. Ralph Miliband,Marxism and Politics,London,1977.

SUBSIDIARY READINGS

1. R.K.Arora(Ed), Perspectives in Administrative Theory, Associated Publishing House,1979.
2. R.K.Arora,Comparative Public Administration New Delhi, Associated Publishing House,1972.

Contd/.../-

3. V.I. Lenin,State and Revolution.

4. David Wells,Marxism and the Modern State, Delhi,Select book,1983.

5. Paul Hersey and Kenneth H.Blanchard,Management of Organisation Behaviour (5th Ed.), New Delhi,Prentice-Hall,1988.

RECOMMENDED JOURNALS

1. Administrative Change: Biannual(to be obtained from: Circulation Executive ,7 - Jha-5, Jawahar Nagar,Jaipur-302 004).

2. Indian Journal of Public Administration:Quarterly.(To be obtained from : Registrar, Indian Institute of Public Administration,I.P. Estate,Ring Road,New Delhi - 110 002.

Contd/.../-

PAPER 3 : PUBLIC ADMINISTRATION IN INDIA

Max.Marks : 100

Duration : 3 Hours

UNIT 1 A. Social, Economic and Political setting : Importance and role of Public Administration in India; Parliamentary democracy; federalism; planning; socialism.

B. Structure of Central Administration; Central Secretariat; Cabinet Secretary; Prime Minister's Secretariat; Ministry/Department; Detailed study of the Administrative Organisation and functions of Ministries of Finance and Home Affairs.

No. of periods : 30

UNIT 2 State Administration :
State Secretariat;
Role of Chief Secretary;
Directorates: Their Position and role;
Position and role of Deputy Commissioner/ District Collector
North Eastern Council : Aims; Organisation and role.

No. of periods : 25

UNIT 3 Local Administration in India :
Experiments in Panchayati Raj Between Balwant Rai Mehta Committee Report and Ashok Mehta Committee Report with reference to Maharashtra, Gujarat, North-Eastern State.

No. of periods: 20

UNIT 4 Public Sector in India:
Industrial Policy Resolution;
Planning Commission;
Study of organisational patterns:
departmental undertaking; public corporation; and Government Company.
Government Control over public enterprises.

No. of periods: 25

Contd/.../-

UNIT 5 Public Accountability and Constitutional Agencies:
Legislative, Executive and Judicial Control;
Comptroller and Auditor General;
Finance Commission;
Lokpal and Lokayukta.
Major Issues and Problems and Indian Administration:
Minister-Civil Servant Relationship; People's participation.

No. of periods : 25

SUGGESTED READINGS

CORE READINGS

1. S.R.Maheshwari, Indian Administration, New Delhi, Orient Longman, 1989.
2. A.Avasthi, Central Administration, New Delhi, Tata McGrawh-Hill, 1980.
3. S.R.Maheshwari, State Government in India, New Delhi, Macmillan, 1979.
4. S.R.Maheshwari, Administrative Reform Commission, Agra, Lakhmi Narayan Publications.
5. Hardwar Rai, Current Ideas and Issues in Indian Administration New Delhi, Uppal Publishing House, 1985.
6. M.V.Pylee, Constitutional Government in India, New Delhi, S.Chand and Company, 1984.
7. D.C.Basu, Introduction to the Constitution of India, New Delhi, 11th Ed. Prentice Hall, 1985.
8. R.B.Jain, Contemporary issues in Indian Administration, New Delhi, Vishal, 1976.

SUBSIDIARY READINGS

1. S.R.Maheshwari, Evolution of Indian Administration, Agra, Laxmi Narain Agarwal.
2. S.R.Maheshwari, Local Government in India, Agra, Laxmi Narain, Agarwal.
3. S.R.Maheshwari, Rural Development in India, New Delhi, Sage Publication.
4. B.N.Puri, Some Aspects of the Evolution of Indian Administration, New Delhi, IIPA.

Contd/.../-

PAPER 4 : PUBLIC PERSONNEL ADMINISTRATION

Max. Marks : 100

Duration : 3 Hours

UNIT 1 Concept, Nature, Scope and evolution of Public Personnel Administration.
Different Personnel System.
Merit System : History and Scope.
Career System : Meaning and Classifications.

No. of periods : 20

UNIT 2 Recruitment and Selection :
Meaning and significance of Recruitment.
Methods of Recruitment : Direct and Indirect.
Qualifications for Recruitment.
Merits and demerits of the different methods.
Main features of the System of Recruitment in regard to All India, Central, and State Services.
Recruiting agency :
Public Service Commissions (PSCs) at Central and at State Levels : Status, Composition, Functions and evaluation of their working.

No. of periods : 25.

UNIT 3 Classification :
Meaning and significance.
Position and Rank Classification: Meaning.
Merits and demerits.
Classification in India : Systems of Classification and bases of classification.

Training :
Aims and Objectives of Training.
Types : Pre-entry training, post entry training, in-service training, on-the-job training, off-the-job training.

Contd/.../-

Promotion :

Bases of Promotion :merit,seniority,
merit cum seniority
Advantages and disadvantages of various
bases of promotion.

UNIT 4 Conduct and Discipline :

Meaning and Significance of conduct and discipline;
Conduct Rules; Disciplinary Procedure;
Measures to maintain Conduct and Discipline;
Morale, and Motivational Techniques.
Causes of indiscipline:Problem of corruption and
disintegrity,Remedial Measures.

No. of periods : 25

UNIT 5 Retirement :

Concept, features and forms of retirement;
Retirement Benefits : pension, provident fund,
gratuity;Issues in Superannuation.

No. of periods : 15

SUGGESTED READINGS

1. O Glenn Stahl,Public Personnel Administration, New Delhi, Oxford and I.B.H. Publishing Co.,1975.
2. S.L.Goel, Public Personnel Administration,New Delhi,Sterling Publishers, 1984.
3. V.M.Sinha,Personnel Administration,Jaipur,RBSA Publishers,[illegible].
4. C.P.Bhambhri,Public Administration in India,Vikas(latest Edition).
5. Suchdeva and Sogani,Public Administration:Concepts and Application,Vol.II Associated Publishing House,1981.
6. M.P.Sharma and B.L.Sadana,Public Administration in Theory and Practice,Allahabad,Kitabmahal,1987.
7. P.Ghosh,Personnel Administration in India,Delhi,Sudha Publications.

Contd/.../-

PAPER 5 : BUREAUCRACY AND DEVELOPMENT

Max.Marks : 100

Duration : 3 Hours

UNIT 1 Seven Concepts of Bureaucracy as developed by Martin Albrow:

Types of Bureaucracy;

Elements of Bureaucracy;

Role of Bureucracy.

No. of periods : 20

UNIT 2 Theories :

Max Weber's Ideal Type of Bureaucracy :

Types of authority; Ideal Types of Bureaucracy -its characteristics and criticisms.

Marxian view of Bureaucracy: Karl Marx and Post Marxian thinkers.

No. of periods : 25

UNIT 3 Concept of Development.

Concepts of economic, political, social development.

Concept of Development Administration.

No. of periods : 20

UNIT 4 Bureaucracy and Development :

Concept of Bureaucracy and Development.

Role of Bureaucracy in development with reference to the following local level functionaries :

- Village level worker and panchayat secretary at village (Gram Panchayat) level;
- B.D.O. and Extension Officers at block (Panchayat Samiti) level;
- District development officer and district level technical officers at district (Zilla Parishad) level; and
- Chief executive officers at Municipal Corporation amd municipality levels.

Development role of the district officer (Deputy Commissioner/District Collector).

Come issues concerning the developmental Bureaucracy:

Contd/.../-

Official and non-official relationship;
Training of developmental Bureaucracy;
Re-orienting Bureaucracy for effective development.

No. of periods : 30

UNIT 5 Some issues :

Neutral Vs committed bureaucracy;
Relationship between civil servants and politicians;
Generalist Vs Specialist;
Characteristics of Bureaucracy in developing countries;
Maladies of bureaucracy.

No. of periods ; 20

SUGGESTED READINGS

CORE READINGS

1. Martin Albrow,Bureaucracy,London,Macmillan,1970,pp.84-105.
2. M.Bhattacharya,Bureaucracy and Development Administration, New Delhi,Uppal,1979.
3. C.P.Bhambhri,Bureaucracy and Politics in India,Delhi,Vikas, 1971.
4. M.P.Sharma and B.L.Sadana,Public Administration in Theory and Practice,Allahabad,Kitab Mahal,1987.
5. Haridwar Rai and Sakendra Prasad Singh,Current Ideas and Issues in Indian Administration,Delhi,Uppal Publishing House, 1979.
6. V.M.Sinha,Personnel Administration,Concept and Comparative Perspective,Jaipur,R.B.S.A.Publishers.
7. O.P.Srivastava,Municipal Government and Administration in India,Allahabad,Chugh Publications,1980.
8. V.Venkata Rao and Niru Hazarika,Local Self-Government in India,New Delhi,S.Chand & Company,1986.

Contd/.../-

SUBSIDIARY READINGS

1. T.N.Chaturvedi and R.B.Jain(Eds.),Panchayati Raj,New Delhi,1981.

2. T.N.Chaturvedi and Abhijit Datta(Eds.),Local Government,New Delhi, IIPA,1984.

3. Karl Marx, Selected Works,Progress Publishers,Mozcow.

4. S.N.Mishra,Panchayati Raj,Bureaucracy and Rural Development, Delhi,IIPA.

5. V.A.Paipanandikar,R.N.Bishnoi and O.P.Sharma,Development Bureaucracy,New Delhi,Oxford and IBH Publishing Co.,1983.

PAPER 6 : LOCAL SELF GOVERNMENT IN INDIA

Max. Marks : 100
Duration : 3 Hours

UNIT 1 Elements of Local Self Government; Characteristics of Local Government; Need for local self government Centralisation and Decentralisation,

No. of periods : 15

UNIT 2 A Brief History of Local Self Government w.e.f. 1688; legacy of the past.

No. of periods : 15

UNIT 3 Types of Local Authorities : Urban Municipalities: Formation of Municipalities; Powers/Functions, Municipal Executive-Political and non-political municipal civil service; Municipal revenue/finance; committee system; state control-legislative, judicial, and Administrative over municipalities; Necessity of this high degree of control.

Municipal Corporation: Composition, powers and functions; Authorities and their important functions; constitution of committees and their functions; sources of Revenue; state government control over municipal corporation-legislative control, judicial control and administrative control.

Notified Area Committees : Composition; powers and functions.

No. of periods : 35

UNIT 4 Improvement Trusts : Development; Composition; powers, Duties and Finance, Problems of Urban Development.

No. of periods : 15

UNIT 5 Types of Local Authorities : Rural Development of Panchayati Raj; Composition and powers and functions of panchayati raj institutions - Gram Panchayat, Panchayat Samiti and Zilla Parishad in relation to rural development; official and non-official Authorities of the three-tier Panchayati Raj Institutions; their powers/duties and relationship;

Contd/.../-

Sources of revenue/income of the three-tier P.R. institutions; village judiciary;its composition and duties;state control over the three-tier P.R. Institutions;Problems of coordination and Autonomy;Citizens participation;Problems and prospects.

No. of periods : 30

CORE READINGS

SUGGESTED READINGS

1. S.R.Maheshwari,Local Government in India,Delhi,Orient Longman,1976.
2. A.Avasthi(Ed.),Municipal Government and Administration in India, Agra,Laxmi Narain and Company,1972.
3. M.Bhattacharya,Municipal Government:Problems and Prospects,Delhi, Research,1975.
4. Ali Asharaf,Government and Politics of Big Cities:AnIndian Case Study,Delhi,Concept Publishing Co.,1975.
5. A.P.Padhy,(Ed.),Personnel Systems of Urban Bodies in India,Agra Laxmi Narain,1977.
6. M.Bhattacharya,State-Municipal Relations,Delhi,IIPA
7. IIPA,State Machinery for Municipal Supervision,Delhi,IIPA.
8. V.V.Rao and Niru Hazarika,Local Government in India,Delhi S. Chand and Company,1983.
9. Maddick Henry,Panchayati Raj:A study of Rural Local Government in India,London,Longman,1970.
10. N.R.Inamdar,Functioning of Village Panchayats,Bombay,Popular Prakashan,1970.
11. R.C.Prasad,Democracy and Development : The Grass Roots Experience in India,Delhi,Rachna Prakashan,1971.
12. S.Bhatnagar,Rural Local Government in India,Delhi,Light and Life, 1980.

Contd/.../-

13. Hoshier Singh,State Supervision over Municipal Administration : A case study of Rajasthan,Delhi,Associated Publishing House,1980.

SUBSIDIARY READINGS

1. S.K.Sharma and V.N.Chawla,(Ed.), Municipal Administration :Some Reflections,Jullunder, International,1975.
2. IIPA,Municipal Personnel System,Delhi,IIPA.
3. Ashok Mukhopadhyay,Municipal Government and Urban Development, Delhi,IIPA,1984.
4. D.V.Raghava Rao,Panchayats and Rural Development,Delhi Ashis Publishing House,1980.
5. Iqbal Narain ,Panchayati Raj Administration,Delhi,IIPA.
6. K.M.Rastogi,Local Finance : Its Theory and Working in India, Gwaliar,Kailash Pustak Sadan,1967.
7. S.N.Mishra,Panchayati Raj Bureaucracy and Rural Development, Delhi IIPA.

Contd/..../-

5:2:1:(23)

PAPER ¶ : ECONOMIC ADMINISTRATION (O)TIONAL)

Max.Marks : 100

Duration : 3 Hours.

UNIT 1 Meaning and scope of economic administration, Evolution of economic administration : Land marks in the state regulation of economy;Methods and types of regulation.

Salient characteristics of the developing economics. Causes of government intervention in economy;government's role in economic development;factors determing the extent of government intervention in India.

No. of periods :25

UNIT 2 Industrial Regulation and Promotion

Framework of Industrial Regulation in India : Its salient aspects.

Industrial Policy Resolutions 1948 and 1956;and Industrial Policy statements of 1973,1977 and 1990.

Objectives and Provisions of Industries (Development and Regulation) Act,1951.

Role of IDBI and IFCI in Industrial Promotion.

Role of Banking Industry.

No. of periods : 25

UNIT 3 State in agricultural sector

Agricultural Policy of the Government of India.

Meaning;Scope;Progress;Difficulties in implemention;and appraisal of Land reforms in India.

Cooperative Movement :

evolution and progress of cooperative movement in India; contribution of cooperatives towards agricultural development: a survey of credit cooperatives and non credit cooperatives; appraisal of cooperative movement.

Contd/.../-

Rural poverty alleviation programme : Intensive Agricultural District Programme; Intensive Agricultural Area Programme; Draught Prone Area Programme; Small Farmer's Development Agency; and Integrated Rural Development Programme.

No. of periods: 30

UNIT 4 Public Enterprises:

Concepts of Nationalisation, Public Sector, and public enterprise.

Place of Public enterprise in Indian economy.

Organisational patterns of public enterprises:

Departmental pattern,

Public corporation,

Government company : Salient Features, merits and demerits of the three patterns.

No. of periods : 20

UNIT 5 Planning Machinery and Process :

Meaning and types of economic Planning;

Evolution of economic planning in India.

Planning Machinery in India :

Planning Commission,

National Development Council :

Composition and role of the two.

Planning Process in India at Central level :

Plan Formulation, Plan Implementation, and Plan Financing.

Plan Implementation and Regional Economic Imbalances in India; Remedies.

No. of periods : 25

SUGGESTED READINGS

CORE READINGS

1. Domodar Gujarati, Government and Business, McGraw-Hill, 1984.

2. R. Datt and K.P.M. Sundaram, Indian Economy, 19th Ed., New Delhi , S. Chand & Co., 1981.

Contd/.../-

3. Lewis Haney, History of Economic Thought.

4. D.Bright Singh,Economic Development, New Delhi,Vikas (Latest Edition).

5. B.C.Tandon,Economic Planning : Theory and Practice, Allahabad, Chaitanya (Latest Ed.).

6. S.C.Kuchhal,Industrial Economy of India,Allahabad,Chaitanya (Latest Ed.).

7. A.Dusgupta and N.K.Sengupta,Government and Business in India, New Delhi, Allied Book Agency,1978,Laxmi Narain,Principles and Practice of Public Enterprise Management,Ed; New Delhi, S.Chand,1984.

8. A.K.Sharma,A Grammar of Public Enterprise, New Delhi,Uppal,1990.

SUBSIDIARY READINGS

1. William G.Shepherd and Claire Wilcox,Public Policies Toward Business, 6th Ed., Richard D.Irwin,Homewood,III,1977.

2. I.C.Dhingra,The Indian Economy, New Delhi,S.Chand & Co.,1981.

3. G.M.Meier and R.E.Baldwin,Economic Development N.Y.Wiley(Latest Ed.

4. M.L.Trivedi,Government and Business, Bombay,Multi-tech,1980.

5. J.S.Uppal,(Ed.),India's Economic Problems,Delhi,Tata McGraw-Hill, 1975.

Contd/.../-

5:2:1:(26)

PAPER 8 : SOCIAL ADMINISTRATION (OPTIONAL)

Maxm. Marks : 100

Duration :

UNIT 1 Meaning, Nature, Scope and Principles of Social Administration;

Social Administration as an academic discipline;
Meanings of the following terms :
Social Reform, Social Work, Social Change,
Social Insurance, Social Security.
How Social Administration to the following concepts and processes :
Social Welfare Administration;
Social Work Administration;
Social Policy;
Economic Administration,
Improtance of the Social Administration in the modern state.

No. of periods : 25.

UNIT 2 Social Problems :
Unemployment, Juvenile delinguency, Child Marriages, Prostitution, Beggary, Drug Addiction Old age, Orphanage, Divorce, Mental and Physical retardation untouchability.
Voluntary Agencies :
Meaning of Voluntary Agencies;
Characteristics of Voluntary Agencies;
Functions and role of Voluntary Agencies;
Appraisal of the Working of the Voluntary Agencies;
Case Study : Red Cross .

No. of periods : 30

UNIT 3 Social Welfare Planning :
Meaning and Importance of Social Welfare Planning; Brief study of Major Programmes of Social Welfare under the Five Year Plans at the Central level.

Contd/..../-

Social Legislation:
Meaning, Scope and concept of Social Legislation;
Study of Social Legislations in India:
Insurance Laws; Laws relating to Anti-Beggery,
Divorce, Juvenile delinguents.

No. of periods : 25

UNIT 4 Aspects of Administrative Structure :
Objectives, Organisation and Functions of the Central Social Welfare Board ;
State Social Welfare Advisory Boards : their aims, Organisation and Functions;
Relationship between Central Social Welfare Board and State Social Welfare Advisory Boards;
Why a Board type of organisation is created ? : Meaning of Board; distinction between Board and Government Department
Social Welfare Department at the State level : Its organisational set-up and welfare programmes run by it;
Relationship between Social Welfare Departmentsand State Social Welfare Advisory Boards;
Triball Area Development Corporation : Organisation and Function.

No. of periods : 30

UNIT 5 Personnel Administration :
Manpower Planning : Its meaning and ingredients;
The question of the creation of a special cadre of Social Welfare Personnel;
Training of Social Welfare Personnel:

Purpose of Training
Infrastructure for Training.

No. of periods : 15

Contd/.../-

SUGGESTED READINGS

CORE READINGS

1. G.B.Sharma, Social Administration in India,Jaipur,Unique 1970.
2. S.L.Goel and R.K.Jain,Social Welfare Administration:Theory and Practice,Vol.I and II, Delhi Deep and Deep Publications, 1988.
3. D.Paul Chowdhry,A Hand Book of Social Welfare Delhi,Atma Ram and Sons,1981.
4. D.Paul Chowdhry,Profile of Social Welfare and Development in India,Delhi,M.N.Publisher,1985.
5. D.Pul Chowdhry,Social Welfare Administration Through Voluntary Agencies,Delhi,Atma Ram and Sons,1962.
6. V.Jagnannadham,Social Welfare OrganisationDelhi,IIPA.

SUBSIDIARY READINGS

1. T.N.Chaturvedi and S.Kohli Chandra (Eds.),Social Administration Development and Change,Delhi,IIPA,1980.
2. Central Social Welfare Board : A study of the Programme (1953-69),Delhi,Central Social Welfare Board.
3. State Social Welfare Advisory Board : A Study, Delhi,The Central Social Welfare Board,1974.
4. Planning Commission,Social Legislation : Its Role in Social Welfare Planning,Delhi,1959.
5. K.D.Gangrade,Social Legislation in India,Vol.I and II,Delhi Concept Publishing Company,1978.
6. S.N.Dubey,Administration of Policy and Programmes for Backward Classes in India,Bombay,Somaiya,1976.
7. R.N.Saksena,Sociology and Social Policy in India,Calcutta, Orient Longman.
8. Encyclopeadia of Social Work in India,Volume I,II,III and IV,Government of India,Publications Division,1987.

Contd/.../-

PAPER 9: POLITICAL AND ADMINISTRATIVE INSTITUTIONS IN NORTH-EAST INDIA(OPTIONAL)

Max.Marks :100
Duration :3 Hours

NOTE : This Paper will be studied with particular reference to Meghalaya,Mizoram and Nagaland.

UNIT 1 Tribes in Meghalaya,Mizoram,Nagaland : their geographical Improtance;British Annexation of Meghalaya,Mizoram,Nagaland; British Relations with Tribes;Administration of Inner Line Regulation; British administration and its legacy in the Hill Areas;Economic Imbalances and Identity Crisis.

No. of periods : 25.

UNIT 2 Traditional Political Institutions(Chieftainships) in Meghalaya,Nagaland and Mizoram: Powers Functions,Position; Constitutional Status of the States under the Government of India Acts of 1919, and 1935.

No. of periods : 20

UNIT 3 Constitutional Framework; Sixth Schedule for the Administration of the Autonomous Hills Districts in North-East India;District Councils/Regional Councils:Organisation,powers and functions; Relations between the State Governments and the District Councils.

No. of periods : 20

UNIT 4 Demand for Hill States : Nagaland, Meghalaya, Mizoram; Administrative Changes in Nagaland,Meghalaya,Mizoram since 1947. North-Eastern Areas Reorganisation Act,1971;Performance of Governments in the three states-Economic Development and Social Change.

No. of periods : 20

UNIT 5 Village Administration : Traditional Village Councils in Meghalaya and Nagaland and Democratically Elected Village Councils in Mizoram : Their Composition, Powers and Working . North-Eastern Council:Its organisation and Functions;Achievements. Planning Machinery at the State Level-Meghalaya,Mizoram and Nagaland.

No. of periods : 30

Contd/.../-

SUGGESTED READINGS

CORE READINGS

1. P.R.T.Gordon,The Khasis,Guwahati,United Publishers,1975.
2. G.V.F.Homondorf,Nagas,Calcutta,Thacker Spink,1969.
3. A.Playfair,The Garos,Guwahati,United Publishers,1975.
4. N.E.Parry,The Lakhers,Aizawl,Tribal Research Institute.
5. E.A.Gait,A History of Assam,Calcutta,Thacker Spink,1963.
6. V.V.Rao,A Century of Tribal Politics in North-East India Delhi,S.Chand and Company.
7. B.Pakem,Niru Hazarika,A Century of Government and Politics in North-East India(Meghalaya),Delhi,S.Chand and Company.
8. V.V.Rao,Niru Hazarika,H.Thansanga,A Century of Government and Politics in North East India,(Vol.III Mizoram) New Delhi, S.Chand,1988.
9. R.N.Prasad,Government and Politics in Mizoram,Delhi, Northern Book Centre,1987.
10. H.Horam,Naga Polity,Delhi,D.K.Publishers.
11. S.K.Chaube,Hill Politics in North-East India,Calcutta,Orient Longman,1973.
12. B.L.Abbi ,North-East Region : Problems and Prospects of Development,Chandigarh,CRRID,1984(CRRID)
13. Durga Das Basu,Introduction to the Constitution of India, Delhi,Prentice Hall of India,1984.
14. A.G.MaCall,Lushai Crysallies,London,Luzac and Co.Ltd.
15. R.N.Prasad,Administration of the Autonomous Hill District in North-East India : A Research Note,(IN)Administrative Change,Vol.XVI No. 2, January-June,1989,Bi-annual Journal of the centre for Administrative Change,Jaipur.

Contd/.../-

SUBSIDIARY READINGS

1. Hamlet Bareh, The History and Culture of the Khasi People, Calcutta, 1967.

2. S.C. Dubey, (Ed.), Tribal Heritage of India : Ethnicity, Identity and Interaction, New Delhi, Vikas, 1977.

3. Animesh Ray, Mizoram, Dynamics of Change, Calcutta, Rearl.

4. S.M. Dubey, (Ed.) North Eastern India: A Sociological Study, Delhi, Concept Publishing Company, 1978.

5. B.P. Singh, The Problems of Change: A Study of North-East India, Delhi, Oxford University Press, 1987.

6. Akhtar Majeed, (Ed) Regionalism : Developmental Tensions in India, New Delhi, 1984.

7. B. Siva Rao, The Framing of India's Constitution, Delhi, IIPA, (5-Vols.)

8. R. N. Prasad and A.K. Agarwal, Political and Economic Development of Mizoram, Delhi, Mittal Publications, 1990.

9. B. Pakem, (Ed). Ethnicity, Nationality and Cultural Identity, Delhi, CMSCNS, 1989.

Contd/..../-

PAPER 10 : RURAL AND TRIBAL DEVELOPMENT ADMINISTRATION(OPTIONAL)

Max.Marks : 100

Duration : 3 Hours

PART A : RURAL DEVELOPMENT

UNIT 1 Meaning of Rural Development; Socio-Economic and Political context of rural development; Rural Economy and its importance in national economy.

No. of periods : 15

UNIT 2 Policies and Programmes for Rural Development : Community Development and Panchayati Raj and their role in rural development. Land Reforms; Bonded Labour relief and rehabilitation; Rural Employment; Integrated Rural Development; Rural Credit; Intensive Agricultural District Programme; Drought Prone Areas Programme; Command Area Development Programme: Achievements and Failures; Rural Development Bureaucracy; challenges/problems of Rural Development in India.

No. of periods : 30

PART B : TRIBAL DEVELOPMENT

UNIT 3 Concept of Tribal Development; Demography and Culture of Indian Tribal Community and distribution pattern. Constitutional Provisions, Strategies, Policies and Five Year Plan Programmes for Tribal Development in India and their implementation.

No. of periods : 25

UNIT 4 Agencies for implementing Tribal Development : Tribal Welfare Ministries (Central-state governments); commissioner for scheduled castes and scheduled tribes; special agencies for Tribal Development in relation to I.T.D.A.: Achievements and Failures.

No. of periods : 20

UNIT 5 Tribal Problems in India : Land Allienation; Indebtedness and Economic bondage; Emerging Classes in Tribal Areas; Cultural Identity crisis and outside influx; socio-political movements in contemporary Tribal India.

No. of periods : 25

Contd/..../-

SUGGESTED READINGS
(RURAL DEVELOPMENT)

CORE READINGS

1. A.R.Desai(Ed.),Rural Sociology in India.
2. P.R.Dubhashi,Rural Development Administration in India, Bombay,Popular Prakashan,1970.
3. Kuldeep Mathur.Administrative Institutions:Political Capacity and India's Strategy for Rural Development Delhi,IIPA,1975.
4. S.K.Sharma and S.L.Malhotra,Integrated Rural Development: Approach,Strategy,and Perspectives,Delhi,Abhinav,1977.
5. Hoshiar Singh,(Ed),Rural Development in India,Jaipur, Printwell Publishers,1985.
6. S.R.Maheshwari,Rural Development in India,Delhi,Sage Publications, 1985.
7. P.C.Joshi,Land Reforms in India : Trends and Perspectives, Delhi,Allied,1975.
8. P.D.Saikia & U.Phukan,Rural Development in North-East India, Delhi,D.K.Publications,1990.
9. N.Mohsin,Rural Development Through Government Programmes,Delhi, Mittal Publications.
10. R.Pandey,Sociology of Under-Development : Concepts, Theories and Issues,Delhi,Mittal Publications.
11. S.S.Thekkamalai,Rural Development and Social Change in India, Delhi,D.K.Publications,1990.
12. Ashok Kumar,Rural Development in India and Dimensions of its Planning,Delhi,D.K.Publications,1990.

Contd/..../-

SUBSIDIARY READINGS

1. NIRD Rural Development in India : Some Facts, Hyderabad, National Institute of Rural Development.

2. S.N.Bhattacharya, Community Development : AnAnalysis of Programmes in India, Delhi, Associated, 1973.

3. S.N.Mishra, New Horizons in Rural Development Administration, Delhi, Mittal Publications, 1990.

4. A.K.Pandey, Local Level Planning and Rural Development, Delhi, Mittal Publications.

5. C.S.Nayudu, Rural Credit in India, Delhi, Mittal Publications.

PART B

(TRIBAL DEVELOPMENT)

CORE READINGS

1. B.D.Sharma, Planning for Tribal Development, New Delhi, Prachi Prakashan, 1984.

2. B.D.Sharma, Tribal Development : The Concept and the Frame, Delhi, Prachi Prakashan.

3. B.D.Sharma, Administration For Tribal Development Delhi, Prachi Prakashan.

4. Budha Dev Choudhuri, Tribal Development in India : Problems and Prospects, Delhi, D.K.Publishers, 1990.

5. B.L.Abbi, North-East Region : Problems and Prospects of Development CRRID, 1984(CRRID)

6. D.D.Basu, Introduction to the Constitution of India, Delhi, Prentice-Hall of India, Ltd., 1985.

7. R.N.Prasad, Administration of the Autonomous Hill Districts in North-East India : A Research Note, (IN) Administration Change, Vol.XVI No. 2 2 January-June 1989, Bi-annual Journal of the Centre for Administrative Change, Jaipur.

Contd/.../-

SUBSIDIARY READINGS

1. S.N.Dubey,Administration of Social Welfare Programmes in Indi , Bombay,Somaiya,1973.

2. B.Pakem(Ed),Ethnicity,Nationality and Cultural Identity,Delhi, CSSONS,1989.

3. S.C.Dubey and Ratna Mundia,Land Alienation and Restoration in Tribal Communities in India,Bombay,Himalaya,1977.

4. 6th and 7th Five Year Plan Proposals for Assam Meghalaya, Nagaland,Mizoram and Arunachal Pradesh.

5. T.N.Chaturvedi and Chandra Kohli,(Ed.),Social Administration: Development and Change,Delhi,IIPA.

6. B.K.Roy Barman,Towards Poverty Alleviation Programmes in Nagaland and Manipur,Delhi,Mittal Publications.

7. P.C.Barua,Development Planning in North-East India,Delhi, Mittal Publications.

8. R.N.Prasad and A.K.Agarwal,Political and Economic Development of Mizoram,Mittal Publications,A-1/8 Mohan Garden,New Delhi, 1991.

Contd/..../-

PART II : POLICE ADMINISTRATION(OPTIONAL)

Max.Marks : 100

Duration : 3 Hours

UNIT 1 Importance of Law and Order ; Role of Police; Police in Federal Polity of India;Constitutional and Legal position of Police;Indian Police Acts;Criminal Procedure Code.

No. of periods : 20

UNIT 2 Role of Central Government in Police Administration; Organisation of Police at State Level : City Police;District Police, and Rural Police; Powers and Functions of Police.

No. of periods : 25

UNIT 3 (a) Crimes and Police; Nature of Crimes;Reasons for Increasing Crimes;Techniques of Criminal Investigation; Shortcomings of system.

(b) Recruitment and Training of I.P.S., and State Police Personnel.

No. of periods : 25

UNIT 4 Police and People :

(a) Student and Police
(b) Women and Police
(c) Labour and Police
(d) Press and Police
(e) Minorities and Police

No. of periods : 20

UNIT 5 (a) Grievances and Machinery for Redressal : Citizen's Grievances and Police;Grievances of Police Personnel;Unionism in Police.

(b) Organisational Difficulties of Police Administration: Political and Administrative.

(c) Reforms in Police Administration.

No. of periods : 30

Contd/..../-

SUGGESTED READINGS

CORE READINGS

1. S.K.Ghosh,Law and Order : From the Police Point of View, Calcutta,Eastern Law House.

2. R.K.Bhardwaj,Indian Police Administration,New Delhi,National Publishing House,1978.

3. S.Venugopal Rao,Police Administration,New Delhi,IIPA.

4. S.C.Mishra,Police Administration in India,Abu,National Police Academy,1970.

5. S.C.Mishra,State Police Organisation in India,New Delhi, C.R.P.F.Press,1975.

6. Charles D.Hale,Fundamental of Police Administration Boston, Holbrook Press, 1977.

7. K.M.Mathur,Administration of Police Training in India,Delhi, Gian Publishing House,1987.

8. P.D.Sharma,Police,Polity and People in India,New Delhi,Uppal Publishing House,1981.

9. G.Ram Reddy,and K.Seshadri(Eds), Developing Society and Polic, Hyderabad, Osmania University,1972.

10. O.Glenn Stahl and Richard A.Staufenberger,Police Personnel Administration,Washington D.C.,The Police Foundation,1974.

11. Sir Edmund C.Cox,Police and Crime in India,New Delhi,Manu Publication (Reprinted)1976.

12. Maureen E.Cain,Society and the Policeman's Role,London and Boston,Routledge and Kegan Paul,1973.

13.

SUBSIDIARY READINGS

1. B.N.Mullik,A Philosophy for the Police,Bombay,Allied Publishers, 1969.

2. Trilok Nath,The Indian Police : A case for a new Image,New Delhi,Sterling,1978.

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Contd/..../-

3. S.K. Ghosh, Police Administration, Organisation and Procedure, Calcutta, Eastern Law House, 1973.

4. O. W. Wilson and Roy Clinton Mclaren, Police Administration, New York, Mcgraw-Hill, 1977 (Latest Ed.)

5. S.K. Ghosh, Indian Police at the Cross Roads, Allabad, Eastern Law House.

6. V.R. Krishna Iyer, Police in a Welfare State, New Delhi, Asia, Book Centre, 1959.

7. B.R. Beotra, The Police Acts (Central and States) Allahabad, Law Book. (Latest Edition) 1970.

8. R.K. Hooda, The Constitutional and Legal Position of the Police in India, National Police Academy Magazine (November, 1967) pp. 40-56.

9. C.P. Bhambhri and Kuldeep Mathur, Students and the Policeman: Image and Counter Image, Economic and Political Weekly (13 January, 1973) pp. 79-81.

10. J. Albert Reiss, The Police and the Public, New Haven, Yale University Press, 1971.

5:2:1(39) Annexure 'C'

B.A. (Pass)

I. GENERAL PROBLEMS IN PHILOSOPHY

1. Meaning of Philosophy.
2. Relationship of Philosophy to Science and Religion.
3. Sources of Knowledge: Empiricism and Rationalism.
4. Theories of Perception: Realism and Idealism.
5. The Concepts of Substance, Causality and Space and Time.
6. Theories of Truth: Coherence, Correspondence and Pragmatic Theories.
7. God and the World: Deism, Theism, Pantheism and Panentheism.

Suggested Readings:

1. Hospers, John – An Introduction to Philosophical Analysis Delhi, Allied Publishers, 1980.
2. Walsh, W.H. – Metaphysics, London, Hutchinson University Library, 1970.
3. Russell, B. – Problems of Philosophy, O.U.P., 1912.
4. Ginet, Carl – Knowledge, Perception and Memory, Dordnecht, D. Reidel Pub. Co. 1975.
5. Hamlyn D.W. – The Theory of Knowledge, The Macmillan Press Lt. London, 1970.
6. Hamlyn D.W. – Metaphysics, Cambridgd University Press, 1984.
7. Ewing, A.C. – Fundamental Questions of Philosophy, Bombay Allied Publishers Pvt. Ltd., 1967.
8. The Problems of Philosophy- Satish Chandra Chatterjee Das Gupta and Company Limited, Calcutta-1949.

5:2:1(40)

B.A. (Pass)

II. MORAL PHILOSOPHY

1. Nature of Morality.
2. Nature of Moral Judgements.
3. Concepts of good, right and virtue.
4. Hedonism : J. Bentham and J.S. Mill.
5. Rigorism : I.Kant.
6. Niskama Karma : Bhagavad Gita.
7. Purusarthas and Varnashrma dharma.
8. M.K. Gandhi : Ahimsa and Satyagraha.
9. Freedom and Responsibility.

Suggested Readings :

1. Liliie, W. – Introduction to Ethics, Delhi, Allied Publishers, 1967.

2. Frankena, W. – Ethics, New Delhi, Prentice Hall of India. 1982.

3. Mobbot – Introduction to Ethics, London Hutchingson, 1969.

4. Sharma, I.C. – Ethical Philosophies of India, London, George Allen and Unwin, 19[illegible].

5. Warnock , M. – Ethics Since 1900, O.U.P., [illegible].

6. Kotturan, G. – Ahimsa from Gautam to Gandhi, New Delhi Sterling, 1973.

7. Prasad, R. – 'Purusharthas' – Journal of Indian Philosophy, 1961.

Hospers, J. – 'Freedom and Responsibility' from Introduction to Philosophical Analysis, London Routledge and Kegan Paul, 1967.

5·2:1(41)

B.A. (Pass)

III. SOCIAL AND POLITICAL PHILOSOPHY

1. Concepts of Society, Nation and State.
2. Social Ideals: Liberty, Equality and Social Justice.
3. The Concept of Social Contract.
4. Reform, Rebellion and Revolution.
5. Democracy, Socialism, Democratic, Socialism and Sarvodaya.
6. Public Morality and Corruption.
7. National Integration.

Suggested Readings:

1. Raphel, D.D. : Problem of Political Philosophy, London, MacMillan, 1970.
2. Quinton, A. (ed.) : Political Philosophy, London, O.U.P. 1967.
3. Laslett, P. and W.G. Runciman : Philosophy, Politics and Human Society (Relevant Essays) Oxford, Basil Blackwell, 1972.
4. Margaret MacDonald : Language of Political Theory in Logic and Language (ed.), A. Flew, Oxford Basil Blackwell, 1973.
5. Russell, B. : Authority and Individual, London, George Allen and Unwin, 1977.
6. Gandhi, M.K. : Hind Swaraj, Ahmadabad, Navajivan Publishers, House, 1938.
7. Chattopadhaya, D.P. : Societies and Cultures, Bombay, Bharatia Vidhya Bhavan, 1978, Chapter-IV.
8. De George Richard T. : 'The Paradox of Violence' Ethics and Society, MacMillan, 1968, Articles: Marcuse, H. 'Ethics and Revolution'.

S.2.1(42)

VI. SOCIAL AND POLITICAL PHI[illegible]

1. Individual, Society, Tribe, Race, Nation an[illegible]te.
2. Political and Social Obligation: Divine Right, Organismic Theory and Social Contract.
3. Liberty, Equality and Social Justice.
4. Ideologies: Totalitarianism, Democracy, Socialism, Communism and Sarvodaya.
5. Methods of Political Action: Constitutionalism, Revolution Terrorism and Satyagraha.
6. Tradition, Modernity and Social Change.
7. Rights and Duties: Natural Rights and Fundamental Rights.
8. Social Movements: Fundamentalism, Revivalism and Communalism.

Suggested Readings:

1. Quinton, A. : Political Philosophy, London, O.U.P., 1967.
2. Laslett, P. : Philosophy, Politics and Society-First Series. Oxford Basil Blackwell, 1972.
3. Russell, B. : Authority and Individual, London, George Allen and Unwin, 1977.
4. Mill, J.S. : On Liberty, Penguin Books, 1974.
5. Raphael, D.D. : Problems of Political [illegible]y, London, MacMillan, 1970.
6. Chattopadhyaya, D.P.: Societies and Cultures, Bombay, Bharatiya Vidya Bhavan, 1973 (Relevan Chapters)
7. Gandhi M.K. : Hind Swaraj, Ahemadabad Navajivan Publication, 1938
8. Jaya Prakash Narayan: Sarvodaya: Its Principles and Programmes Navajivan, Ahemadabad, 1958.
9. Narayan, S. : Vinobhaye: His Life and Works, Popular Prakashan, Bombay, 1970.
10. Fischer, Louis : The Essential Gandhi: An Anthology: His Life Work and Ideas, An Anthology New York, Vintage Books, [illegible]
11. Peter, R.S. and Benn, I. : Social Principles and the [illegible]cratic State, London, George Allen and Unwin, 19[illegible].

5:2:1(43)

History of Ancient Greek Philosophy:

1. Ionics.
2. Phythogoreans.
3. Eleatics - Parmanides and zeno.
4. Heracleitus.
5. Empedocles.
6. Atomists.
7. Anaxogoras.
8. The Sophists.
9. Socrates - Knowledge is virtue.
10. Plato - Theory of Forms.
11. Aristotle - Categories and the concept of cause.

Suggested Readings :

1. Stace, W.T. - Critical History of Greek Philosophy, MacMillan, St. Martin's Press, 1972.
2. Burnet - History of Greek Philosophy, London, MacMillan, 1914.
3. Copleston, F. - History of Western Philosophy (Relevant Volumes) Search Press, 19[illegible].
4. Russell, B. - History of Western Philosophy, London, George and Unwin, 1955.
5. Windleband - History of Philosophy, New York, Harper and Row, 1958
6. Zeller - Outlines of the History of Greek Philosophy, and Philosophy of the Greeks.

5:2:1(44)

II. INDIAN PHILOSOPHY

1. Distinctive features of Indian Philosophy.
2. Buddhism : Four-Noble Truths, Eight-Fold Path, Law of Dependent Origination and Nirvana.
3. Jainism: Anekantavada and Syadvada.
4. Sankhya : Prakriti, Purusha and Evolution.
5. Vaisesika : Categories.
6. Nyaya : Perception, Inference and Verbal Testimony.
7. Carvaka : Materialism.
8. Vedanta of Sankara and Ramanuja: Jiva, Atman, Brahman, Maya, and Liberation.

Suggested Readings:

1. Datta and Chatterjee – An Introduction to Indian Philosophy, Calcutta University, Calcutta, 1968.
2. Hiriyana, M. – Outlines of Indian Philosophy-London, George Allen and Unwin, 1967.
3. Sharma, C.D. – Critical Survey of Indian Philosophy, Delhi, Motilal, Banarsidas, 1973.
4. Radhakrishnan, S. – Indian Philosophy, Vol.I and II, London, George Allen and Unwin, 1971.
5. Mahadevan, T.M.P. – Invitation to Indian Philosophy, New-Delhi, Arnold- Heinemann Publications, (India 1974).

Articles:

1. Daya Krishna – 'Three Conceptions of Indian Philosophy', Philosophy East and West, January, 1965.
2. Daya Krishna – "Three Myths of Indian Philosophy" – Diogenes. Vol. 53, Paris.

5:2:1(45)

III. HISTORY OF MODERN EUROPEAN PHILOSOPHY/ HISTORY OF ANCIENT GREEK PHILOSOPHY.

History of Modern European Philosophy

1. Descartes : Substance, Method of Doubt, Cogito ergo sum and Ideas.
2. Spinoza : Substance, attributes and modes.
3. Leibniz : Monadology.
4. John Locke : Simple and Complex ideas, Primary and Secondary Qualities and Sensation and Reflection.
5. Berkeley : Esse Est Percipi, Solipsism, Subjectivism, God and the World.
6. David Hume : Substance, Causality, External World.
7. I. Kant : Space and Time, Categories, Synthetic a priori and Critique of Metaphysics.

Suggested Readings:

1. Falckenberg, R. : History of Modern Philosophy. Progressive Publishers, Calcutta, 1950.
2. Thilly, F. : History of Philosophy, Henry Holt and Company, Delhi, 1951.
3. Copleston, F. : History of Western Philosophy, London, Search Press, 1945 [Kelly 3 Volumes].
4. Wright, W.K. : A History of Modern Philosophy. MacMillan Company, New York, 1950.

5:2:1(46)

IV. PHILOSOPHY OF RELIGION

1. Theology and Philosophy of Religion.
2. Towards a definition of Religion.
3. Foundation of Religious Belief: Reason, Revelation and traditional arguments for the existence of God.
4. The Idea of God: Christianity, Hinduism, Buddhism and Tribal Religions.
5. The Problem of Suffering: Christianity, Buddhism and Hinduism.
6. Liberation: Buddhism, Christianity and Hinduism.
7. Religious tolerance, Conversion and Secularism.
8. Inter-religious dialogue.

Suggested Readings:

1. Hick, John : Philosophy of Religion, Englewood Cliffs, N.J. Prentice Hall, 1970.
2. Nielson, K. : Introduction to Philosophy of Religion, New York, Harper and Row, 1971.
3. Smart, N. : Phenomenon of Religion, London, MacMillan, 1973.
4. Mawrie, O. : Khasi Millieu, Delhi, Concept Publishers, 1980.
5. Panicker, R. : Intra Religions Dialogue, Paulish Press, New York, 1978.

Articles:

1. Shah, K.J. : 'My Religion and Yours' in Religion and Society of North-East India.

5:2:1(47)

VII. MORAL PHILOSOPHY

1. Nature of Moral Philosophy.
2. Concepts of Good, Right, Duty, Obligation and Virtue.
3. Nature of Moral Judgement.
4. Moral Standard: Hedonism (Bentham Mill and Spencer), Rigorism (Kant), Niskama Karma (Geeta).
5. Ahimsa and Satyagraha, Purusarthas and Varnashrama dharma.
6. Naturalism, Emotivism and Prescriptivism.
7. Freedom and Determinism.
8. The Concept of Punishment: Theories of Punishment.

Suggested Readings:

1. Lillie, W. – Introduction to Ethics, London, Methuen, 1951.
2. Sharma, I.C. – Ethical Philosophies of India, London, George Allan and Unwin, 1965.
3. Warnock, G.J. – Contemporary Moral Philosophy, London, MacMillan, 1970.
4. Warnock, M. – Ethics Since 1900, London, O.U.P., 1971.
5. MacIntyre, A. – A Short History of Ethics, London, Routledge and Kegan Paul, 1964.
6. Kottturan, G. – Ahimsa from Gautam to Gandhi, New Delhi, Sterling, 1973.
7. Frankena, W.E. – Ethics, Eagle-wood Cliffs, NJ. Prentice Hall, 1973.
8. Kovessi, J. – Moral Notions, London, Routledge and Kegan Paul, 1967.
9. Hospers, J. – 'Freedom and Determinism' (Relevant Chapters) from An Introduction to Philosophical Analysis, Routledge and Kegan Paul, 1967.

5:2:1(48)

VIII-A. MEDIEVAL PHILOSOPHY

1. St. Auselm: Ontological Argument.
2. St. Augustine: Problem of Evil.
3. St. T. Acquinas: Creation and Causation, Hylomorphism, Arguments for the existence of God doctrine of analogy.
4. Bonaventure: Voluntarism.
5. Duns Scotus: Universals.

Suggested Readings:

1. Copleston, F. : History of Western Philosophy, Vol. II and IV. London, Search Press, 1946.
2. Encyclopaedia of Philosophy, Relevant Chapters on St. Auselm, Bonaventure and Duns Scotus.

VIII-B. EXISTENTIALISM

1. Concepts of Man and Freedom:

   Heidegar: Analysis of Human existence and dasein.

   Kierkegaard: Subjectivity and truth, stages of life, Satre, Freedom, authenticity and bad faith.

   Marcel: Problem, Mystery and Hope.

Suggested Readings:

1. Warnock, M. : Existentialism, London, O.U.P. 1970.
2. Blackham, H.J. : Six Extentialist Thinkers. Routledge and Kegan Paul, London, 1951.
3. Copleston, F. : History of Western Philosophy, Vol.9 London, Search Press, 1946.
4. Kierkegaard : Stages on Life's way. Walter Lowry (Trans.) Princeton University Press, 1945.
5. Warnock, M. : Philosophy of Satre, London, Hutchinson University, 1965.

5:2:1 (49)

V. LOGIC

1. Logical appraisal.
2. Truth and Validity.
3. Meaning, Sense and Reference..
4. Sentences, Judgements, Statements and Propositions.
5. Subject, Predicate and Copula.
6. Laws of Thought-Modern Interpretation.
7. Object Language and Meta Language.
8. Class, Null Class, Class Inclusion and Class Membership, Union and Intersection of Classes.
9. Constant and Variable: The Nature of Logical connective Paradox of Material Implication.
10. Symbolisation.
11. Testing of Validity by Propositional Logic: Direct Proof.

Suggested Readings:

1. Stebbing, A.C. - Introduction to Modern Logic, S.A. Publi- Publishing House, Calcutta.
2. Cohen H.R. and Nagel-E. - Introduction to Logic and Scientific Method, London, Routledge and Kegan Paul, 1963.
3. O'Conner D.J. and Basson, A.H. - Symbolic Logic, London, University Tutorial Press, 1970.
4. Strawson, P.F. - Introduction to Logical Theory, London Methuen, 1971.
5. Strawson, P.F.(ed.)- Introduction to Philosophical Logic, London, O.U.P., 1968.

5:2:1(50)

B.A. (Honours)

1. EPISTEMOLOGY AND METAPHYSICS.

1. Theory of Knowledge and Metaphysics.

2. Philosophy and Language : Vagueness and ambiguity, meaning and definition, analytic, synthetic and synthetic a priori propositions, logical, empirical and technical possibilities and meaning and verification.

3. Sources of Knowledge : Empiricism, Rationalism and Intuitionism.

4. Concepts of substance, causality and space and time.

5. Theories of Reality : Realism, Idealism and Phenomenalism.

6. Theories of Truth : Coherence, Correspondence and Pragmatic theories.

7. Mechanical, Teleological and Creative theories of evolution and Philosophical Implications of Darwin's and Lamarck's theories of evolution.

8. Knowledge of ourselves and others.

Suggested Readings :

1. Hospers, John - Introduction to Philosophical Analysis. Delhi, Allied Publishers, 1980.
2. Hamlyn, D.W. - Theory of Knowledge. MacMillan Press, London, 1980.
3. Hamlyn, D.W. - Metaphysics. C.U.P. 1984.
4. Walsh, W.H. - Metaphysics, London, Hutchinson University, Library, 1900.
5. Russell, B. - Problems of Philosophy, O.U.P., 1912.
6. Ayer, A.J. - Metaphysics and Common Sense, London, MacMillan, 1973.
7. Ayer, A.J. - Central Questions of Philosophy, London, Weidenfeld and Nicolson, 1973.

5:2:1(51)

VIII-C. PHILOSOPHY OF MIND.

1. Philosophy of Mind and Psychology.
2. Chief Theories of Mind: Brain-mind identity theory, Behaviorism, Mind-body dualism.
3. The Concept of Mind in Indian Philosophy.
4. The Concept of Privacy and Self-knowledge.
5. Feeling and Emotion.
6. Volition.
7. Dreaming and Imagination.
8. The Unconscious.
9. Analysis of four states of Consciousness with reference to Mandukya Upanishads: Jagrata, Svapna, Susupti and Turiya.

Suggested Readings:

1. Shaffer : Philosophy of Mind, Englewood Cliffs, N.J. Prentice, Hall, 1968.
2. Edeard, P. (ed.): Encyclopaedia of Philosophy (Relevant chapters).
3. MacIntyre : The Unconscious, London, Routledge and Kegan Paul, 1958.
4. Geach, P. : Mental Acts, London, Routledge and Kegan Paul, 1971.
5. Malcolm, N. : Dreaming, London, Routledge and Kegan Paul, 1977.
6. Ryle, G. : Concept of Mind, Harmandsworth, Penguin Books, 1963.
7. Hiriyana, M. : Outlines of Indian Philosophy, London, George Allen and Unwin, 1967.
8. Mandukya Upanishad (Relevant portions).
9. Lewis, H.D. : The Elusive Mind, London, George Allen and Unwin, 1969.

Annexure-D

5:2:1(42)

B.Sc. 3 Year - Integrated Degree Course in Chemistry

	Theory	Practicals	Total Marks
B.Sc. (General)	280	120	400
B.Sc. (Major)	560	240	800

B. Sc. (General)

Year	Paper	Theory	Practicals	Total marks
I	I	70 (Inorganic, Organic, Physical)	30 (Organic)	100
II	II	47 Inorganic	60 (Inorganic)	200
	III	47 Organic		
	IV	46 Physical		
III	V	70 Inorganic Organic Physical	30 (Physical)	100
		280	120	400

5:2:1(52)

II

B.Sc. (Major)

Year	Paper	Theory	Practicals	Total Marks
I	I	70 Inorganic Organic Physical	30 (Organic)	100
	VI	70 Inorganic Organic Physical	30 (Organic)	100
II	II	47 Inorganic	60 (Inorganic)	200
	III	47 Organic		
	IV	46 Physical		
	VII	70 Inorganic Organic Physical	30 (Inorganic)	100
III	V	70 Inorganic Organic Physical	30 (Physical)	100
	VIII	46 Inorganic		
	IX	47 Organic	60 (Physical-45) (Organic -15)	200
	X	47 Physical		
		560	240	800

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III

N O T E S

I. INORGANIC CHEMISTRY

1. GROUP DISCUSSION includes the following:

   (a) Position in the periodic table (long form);

   (b) electronic configuration;

   (c) physical properties (e.g., trends of atomic and ionic radii, electronegativity, ionization potential, electron affinity);

   (d) oxidation states - explanation from electronic configuration;

   (e) peculiarity of any element in the group; and

   (f) chemical property (e.g., oxides, oxyacids, hydrides, chlorides).

2. STUDY means the following:

   Preparation, important reactions and uses.

II. ORGANIC CHEMISTRY

All reactions should be discussed with emphasis on reaction mechanisms.

III PHYSICAL CHEMISTRY

Numerical problems based on all the topics must be covered.

 5:2:1(55)

PAPER - I

Max. Marks : 70 Time : 3 Hours.

Each part has to be answered in separate answer books

PART A : INORGANIC CHEMISTRY 24 marks.

Unit 1

1. Structure of Atom - I

Brief revision of cathode rays and discovery of the electron; mass and charge of the electron; Rutherford's model of atom; positive rays; x-rays and their production; Moseley's work on the x-ray spectra of elements; elementary idea of line spectra; Bohr's atomic model and hydrogen spectrum; Sommerfeld's modification; elementary ideas on the wave properties of the electron; quantum numbers and their significance; Pauli's exclusion principle; Aufbau principle; Hund's rule; electronic configuration of the atom; shapes of s, p and d orbitals.

2. Nucleus and Radioactivity - I

Brief revision of radioactivity; composition of the nucleus --- proton-electron theory of the nucleus; fundamental particles (electron, proton, neutron, positron, neutrino and mesons); nuclear binding energy, mass defect and packing fraction; half-life and average life period; important applications of radioactive isotopes; unit of radioactivity; group displacement law; balancing of nuclear reactions; artificial radioactivity; elementary ideas of fission, fusion, controlled fission reactions and atomic energy.

3. Periodic Classification of Elements - I

Brief revision of Mendeleef's periodic classification; Bohr's Table --- long form of the periodic table; classification in blocks; types of elements on the basis of electronic configuration; periodic properties --- atomic and ionic radii, ionization potential, electron affinity, electronegativity, diagonal relationship.

4. Chemical Bonding - I

Brief revision of chemical bonding; hybridization of orbitals (s and p only); electronic structures and shapes of covalent molecules (NH_3 , H_2O , BeF_2 , BF_3, $SnCl_2$, O_3 , H_2S , CO_2 , BO_3^{3-}) ; electronic strudtures of the following compounds --- NaCl, LiH, CaO, AlF_3 , $AlCl_3$, $MgCl_2$, NaOH, MgS, $BF_3 \leftarrow NH_3$.

5. Atomic Weight (Relative Atomic Mass)

Chemical and physical scales of atomic weights; the unified C-12 scale; atomic mass unit; determination of atomic weights (Stas' and Richard's methods).

 5.2:1(96)

Unit-2:

1. Redox Reactions:

Oxidation and reduction in terms of electron transfer; concept of oxidation number; common oxidant and reductant; redox reactions; calculations of oxidation number; calculation of equivalent weight of oxidant and reductants.

Balancing of redox reactions by ion-electron methods and by oxidation number method. The following reactions ar to be considered:

(i) $Cr_2O_7^{2-} + H^+ + Fe^{2+}$

(ii) $Cr_2O_7^{2-} + H^+ + I^-$

(iii) $Cr_2O_7^{2+} + H^+ + SO_2$

(iv) $Cr_2O_7^{2-} + Sn^{2+} + H^+$

(v) $MnO_4^- + H^+ + C_2O_4^{2-}$

(vi) $MnO_4^- + H^+ + H_2O_2$

(vii) $MnO_4^- + H^+ + Sn^{2+}$

(viii) $MnO_4^- + H^+ + Fe^{2+}$

(ix) $MnO_2 + H_2SO_4 + FeSO_4$

(x) $Sn^{2+} + Fe^{3+}$

(xi) $S_2O_3^{2-} + I_2$

(xii) $HNO_3 + H_2S$

(xiii) $H_2O_2 + KI + HCl$

(xiv) $C + HNO_3$

(xv) $Fe^{3+} + I^-$

(xvi) $Cu + NO_3^- + H^+$ (conc. HNO_3)

(xvii) $BiO_3^- + Mn^{2+} + H^+$

(xviii) $P + Cu^{2+} + H_2O$

(xix) $P + HNO_3$

(xx) $C + H_2SO_4$

5:2:1(88)

2. Noble Gases

Position of noble gases in the periodic table; natural sources of noble gases; separation and isolation of helium, neon and argon from liquid air.

3. Hydrogen

Position in the periodic table; isotopes of hydrogen; atomic hydrogen; ortho and para hydrogen; heavy water; hydrogen peroxide (important reactions and structure).

4. s-Block Elements of Group I A (ALKALI METALS)

Group discussion; extraction of lithium from silicate ores; study of the following compounds --- lithium hydride, sodium thiosulphate, sodium peroxide, potassium chlorate, potassium cyanide, potassium bromide, potassium iodide, potassium thiocyanate, potassium perchlorate.

5. s-Block Elements of Group II A (ALKALINE EARTH METALS)

Group discussion; study of the following compounds --- calcium carbide, nitrolim, superphosphate of lime, barium chloride, lithopone.

PART B : ORGANIC CHEMISTRY 23 Marks.

Unit 1

1. Bonding in Organic Molecules

Nature of the covalent bond and its orbital representation (simple molecules as listed below); hybridization of orbitals; implications of hybridization on the concept of bond length, bond energy, bond angles and shapes of molecules with the following examples :

(i) CH_4 , H_3O^+ , $^-CH_3$, RNH_2 ; (ii) ethylene, $^+CH_3$, BF_3 , $AlCl_3$, carbonyl compounds ; and (iii) acetylene, R-CN, allene.

2. Bronsted-Lowry and Lewis concepts of acids and bases; electronegativity; polarity of the bond and dipole moment; inductive effect and its role in halogenated acids; hydrogen bonding and its effect on boiling point and solubility of organic molecules.

5:2:1(98)

3. Conjugation, resonance, hyperconjugation (propene and toluene); homolytic and heterolytic bond cleavage; electrophiles, nucleophiles, carbocations, carbanions, free radicals and their stability (with simple examples).

4. Stereochemistry of Organic Molecules

Classification of stereoisomerism --- configurational and conformational isomerism; configurational isomerism --- geometrical isomerism, configuration of geometrical isomers, E and Z system of nomenclature, geometrical isomers of oxime; optical isomerism --- optical activity, enantiomers, chiral carbon atoms, elements of symmetry.

Unit 2

1. Alkanes

Introduction; chemical reactions (oxidation, cracking, aromatization); reaction profiles, activation energy, transition state and intermediates; mechanism of free radical halogenation (chlorination of methane), nitration and sulphonation.

2. Cycloalkanes

General method of preparation of cycloalkanes (up to cyclohexane) and their reactions with halogens, HX and catalytic reduction; Bayer's strain theory --- its limitations and modification.

3. Alkenes and Alkynes

Introduction to alkenes; chemical reactivity, mechanisms of hydrogenation, bromination, hydration, halohydration, hydroboration and Markonikoff's rule; mechanisms of radical addition, peroxide effect, epoxidation, ozonolysis, polymerization.

Introduction to alkynes; chemical reactivity; electrophilic addition reactions (halogenation, hydration, HX, HOX), ozonolysis, alkynides (Na, Cu and Ag) and polymerization; comparative acidity of ethane, ethene and ethyne.

4. Aromatic Hydrocarbons and Aromaticity

Introduction; structure of benzene; valence bond and molecular orbital picture of benzene ring; resonance energy; aromaticity; Huckel's (4n+2) rule and its applications to simple molecules; electrophilic substitution reactions in aromatic hydrocarbons; effect of substituent groups (activating groups, deactivating groups and directive influence) using the following examples --- nitration, sulphonation, halogenation, formylation, Friedel-Crafts alkylation and acylation.

5:2:1(58)

UNIT 2 : PHYSICAL CHEMISTRY 23 Marks.

Unit 1

1. Gaseous state - I

States of matter; kinetic theory of gases; assumptions and derivation of an expression for the pressure exerted by a gas; deduction of gas laws; dimensions of the gas constant (SI units); deviations from ideal behaviour; causes of deviations, van der Waals equation of state and its limitations; continuity of state: principle of liquefaction of gases and critical phenomena; critical constants; principle of corresponding states; vapour density; abnormal vapour density; determination of molecular weight by limiting density.

2. Dilute Solutions

Colligative properties; osmosis and osmotic pressure (determination by Pfeffer's and by Berkeley-Hartley methods); isotonic solutions; lowering of vapour pressure; Raoult's law; Henry's law; elevation of boiling points; depression of freezing point; determination of molecular weight based on colligative properties ; van't Hoff's law of dilute solutions and its limitations; analogy between ideal gases and dilute solutions; relation between colligative properties.

Unit 2

1. Thermodynamics - I

Definitions of work function, pressure, volume, enthalpy; first law of thermodynamics; heat capacities at constant pressure and constant volume ($C_p - C_v = nR$, derivation is required); Kirchoff's equation (derivation is required); thermodynamic derivation of an ideal gas; reversible and irreversible processes; adiabatic and isothermal processes; Joule-Thomson coefficient and inversion temperature.

2. Thermochemistry

Exothermic and endothermic reactions; explanation of sign conventions; heat of reaction; heat of formation; heat of combustion; heat of neutralization; heat of solution; heat of dilution; Hess's law of constant heat summation.

5:2:1(69)

PAPER - II

INORGANIC CHEMISTRY

Max.Marks: 47 Time : 2 Hours.

Unit 1

1. p-Block Elements of Group III A (BORON FAMILY)

   Group discussion; study of alundum, lithium aluminium hydride; analytical applications of borax.

2. p-Block Elements of Group IV A (CARBON FAMILY)

   Group discussion; study of the following compounds -- silicon tetrafluoride, silicon tetrachloride, trimethyl silyl chloride, tetramethyl silane, fluorosilicic acid, silica, carborundum, metastannic acid, lead tetraacetate, lead dioxide, sugar of lead.

3. p-Block Elements of Group V A (NITROGEN FAMILY)

   Group discussion; study of the following compounds --- hydrazine, hydrazoic acid, hydroxylamine, hyponitrous acid, nitrous acid; oxides and oxyacids of phosphorus; chlorides and oxychlorides of phosphorus.

4. p-Block Elements of Group VI A (CHALCOGENS)

   Group discussion; study of the following compounds --- oxides and oxyacids of sulphur (formulae and electronic structure only); sulphur hexafluoride, thionyl chloride, sulphuryl chloride, sulphur monochloride, chlorosulphonic acid; selenium dioxide.

5. p-Block Elements of Group VII A (HALOGENS)

   Group discussion; peculiarities of fluorine; study of the following compounds --- oxides and oxyacids of chlorine, iodic and periodic acids, potassium bromate, potassium iodate.

6. Study of the following :

   Active nitrogen, activated charcoal, allotropy, isomorphism, alloys and amalgams; principles of iodometry and iodimetry; resins --- cationic and anionic exchange resins; corrosion and passivity; molecular sieves.

5:2:1(60)

Unit 2

1. Elements of Group - II B (FERROUS METALS)
Comparitive study of iron, cobalt and nickel; metallurgy of nickel (Mond's process); separation of cobalt and nickel by potassium cyanide method; study of the following compounds --- Mohr's salt, sodium nitroprusside, nickel tetracarbonyl, potassium ferrocyanide, potassium ferricyanide, hexammine cobaltic chloride, sodium cobaltinitrite.

2. d-Block Elements of Group I B (COINAGE METALS)
Group discussion; cyanide process for the extraction of gold; separation of copper and cadmium by potassium cyanide method; study of the following compounds --- cuprous chloride, aurous chloride; auric chloride; fulminating gold; uses of silver salts in photography; purple of cassius.

3. d-Block Elements of Group II B (ZINC FAMILY)
Group discussion; peculiarities of mercury; study of the following compounds --- Millon's base, Nessler's reagent; reactions of ammonia with mercuric and mercurous compounds.

4. d-Block Elements of Group VI B (CHROMIUM FAMILY)
Metallurgy of chromium; study of the following compounds --- chromium (III) oxide, chromium(VI) oxide, potassium dichromate, potassium chromate, chromyl chloride, chromium(II) chloride, chromium(III) chloride, chrome alum, blue chromium peroxides; uses of potassium dichromate as an analytical reagent.

5. d-Block Elements of Group VII B (MANGANESE FAMILY)
Extraction of manganese frm pyrolusite; study of the following compounds --- potassium permanganate, manganese dioxide, manganese sulphate; uses of potassium permanganate as an analytical reagent.

5.2.1(62)

Unit 3

1. Atomic Structure - II

Determination of e/m of electron(Thomson's method); determination of electronic charge (Milliken's experiment); photoelectric effect; dual nature of electron; Planck's quantum theory; Uncertainty ptinciple; Schrodinger's wave equation; significance of ψ and ψ^2 (deduction not required).

22. Periodic Classification of Elements - II

Bond lengths of covalent molecules and atomic radii of bonded atoms; oxidation states; trend of chemical properties of oxides and hydrides.

3. Chemical Bonding - II

Elementary concept of lattice energy; energy consideration of the sodium chloride molecule; formation of covalent bond (energy considerations): elementary concept of the Heitler and London theory; hybridization in inorganic molecules --- sp^3d and sp^3d^2 (suitable examples of each).

4. Chemical Bonding - III

Concept of additivity of covalent radii; ionic distortion and partial covalent character of ionic compounds --- application of Fajan's rule; hydrogen bonding and its application; clathrate compounds; dipole-dipoe interaction; ion-dipole and dipole-induced dipole interaction; elementary concept of metallic bond.

5. Nucleus and Radioactivity - II

Neutron-proton ratio in a nucleus and its implications; radioactive equilibrium; radioactive constant; principles of separation of isotopes --- gaseous diffusion method, method of electrolysis, electromagnetic method; theory of radioactive disintegration; differences between chemical reactions and nuclear reactions; isotopic labelling of compounds.

5:2:1(63)

Unit 4

1. Acid-Base Concept

Arrhenius concept; solvent system concept; Bronsted-Lowry concept; Lewis concept; strengths of acids; relative strengths of acids and bases; general trends in acid strengths.

2. Coordination Chemistry - I

Explanations of the following terms --- double and complex salts, effective atomic number, chelation, coordination number; brief review of the terms --- ligands, coordination sphere.

3. Coordination Chemistry - II

Stability constant; perfect and imperfect complexes; inner sphere and outer sphere complexes; naming of coordination compounds; Werner's theory of coordination compounds; electronic interpretation of complex compounds (Sidgwick's theory); stereochemistry of 4-coordinated and 6-coordinated complexes with reference to iron, cobalt and nickel.

4. Noble Gases

(a) Study of the following compounds --- $XePtF_6$, XeF_2 , XeF_4 , XeF_6 , XeO_3 and $XeOF_4$.

(b) Elementary idea of inter-halogen compounds and pseudo-halogen compounds.

5. Symmetry

Introduction to the elements of symmetry and symmetry operations.

NOTES :

1. GROUP DISCUSSION ; includes the following :
(a) position in the Periodic Table (long form); (b) electronic configuration; (c) physical properties such as trends of atomic radii, ionic radii, electronegativity, ionization potential, electron affinity; (d) oxidation states --- explanation from electronic configuration ; (e) peculiarity of any element in the group; and (f) chemical property, e.g., oxides, oxy-acids, hydrides, chlorides.

2. STUDY ; means the following :
(a) preparation ; (b) important reactions ; and (c) uses.

5.2.1(68)

PAPER - III

ORGANIC CHEMISTRY

Max.Mark: 47 Time : 2 Hours.

Unit 1

1. Alkyl and Aryl Halides

   (a) Alkyl halides : Introduction; chemical reactivity; nucleophilic substitution reactions (SN^1, SN^2 and SN^i); reactions of alkyl halides with different nucleophiles (hydrogenolysis, aqueous and alcoholic KOH, NH_3, KCN, $AgNO_3$, KNO_2, RCOOAg, RONa, Mg and Li); elimination reactions (E_1 and E_2); reactions of Grignard reagents with water and carbon dioxide.

   (b) Aromatic halogen compounds : Introduction; preparation and chemical reactivity; nuclear and side-chain halogenations (one example each); electrophilic substitution reactions; nucleophilic aromatic displacement reactions.

2. Alcohols

   Introduction; classification of alcohols; methods of preparation including hydroboration; chemical reactivity; distinction between primary, secondary and tertiary alcohols (Victor Meyer's test); industrial preparation of ethyl alcohol (from molasses and starch); short notes on methylated spirit, absolute ethyl alcohol and power alcohol; preparation and chemical reactions of glycol and glycerol.

3. Phenols

   Preparation, physical properties and acidic character of phenols; chemical reactions of phenols including Kolbe's reaction, Riemer-Tiemann reaction, nitration and phenol-formaldehyde resin.

Unit 2

1. Aldehydes and Ketones

   Introduction; methods of preparation of aldehydes and ketones (both aliphatic and aromatic); chemical reactivity of carbonyl groups; nucleophilic addition and addition-elimination reactions (with HCN, $NaSO_3H$,, NH_2OH, hydrazine, phenylhydrazine, $NH_2CONHNH_2$) and Cannizzaro reaction; acidity of α-hydrogen in carbonyl compounds and formation of enolates; aldol condensation; Perkin reaction and reactions with Grignard reagents; benzoin condensation; reduction and oxidation reactions (Clemensen and Wolff-Kishner reductions)

2. Carboxylic acids and their derivatives

   Introduction; effect of substituents on the acidity of carboxylic groups; chemical reactivity; methods of preparation and reactions of oxalic acid, succinic acid and citric acid; preparation and properties of acetyl chloride, acetamide and ethyl acetate.

5:2:1(55)

Unit 3

1. Coal, Petroleum and Petrochemicals

Origin of coal; carbonization of coal; coal gasification; coal tar based chemicals; mode of formation of petroleum; cracking, knocking, octane number, flash point, L.P.G. ; synthetic petrol and petrochemicals.

2. Active Methylene Compounds

Active methylene group; tautomerism; difference between tautomerism and resonance; (keto-enol tautomerism); use of the following compounds in organic synthesis --- ethyl acetoacetate, diethyl malonate, cyano ethyl acetate, acetyl acetone and nitromethane.

Unit 4

1. Amines

Various methods of preparation of amines; basicity and effect of substituents; chemical reactivity (acylation, action of nitrous acid, action of CO_2, carbylamine reaction, condensation with carbonyl groups, ring substitution); distinction between primary, secondary and tertiary amines; separation of primary, secondary and tertiary amines.

2. Diazo compounds

Preparation and stability of diazonium compound (aliphatic and aromatic); reactions of benzene diazonium chloride.

3. Urea

Preparation of urea; reactions of urea with HNO_3, H_2O, HNO_2, NaOX, CH_3COCl, C_2H_5OH, NH_2NH_2, and diethyl malonate, formation of biuret.

PAPER - IV
PHYSICAL CHEMISTRY

Max.Marks. 46 Time : 2 Hours.

Unit 1

1. **Colloids**

Definition and classification of colloids; preparation of colloids (reduction, oxidation, hydrolysis, double decomposition, Bredig's method); peptization and purification of colloids; properties of colloids (Tyndall effect, Brownian movement, electrophoresis); protective colloids and gold number; electrokinetic phenomena (elementary idea); zeta potential (derivation not required).

2. **Macromolecules**

Characteristics of macromolecules; degree of polymerization; concepts of number and weight average molecular mass; determination of average molecular weight by osmometry, centrifugation and diffusion methods.

Unit 2

1. **Adsorption**

Differences between absorption and adsorption; types of adsorption; theories of adsorption; Freundlich's adsorption isotherm and Langmuir's adsorption isotherm (derivations and limiting cases).

2. **Catalysis**

Criteria and classification (homogeneous, heterogeneous and autocatalysis); theories of catalysis (adsorption theory and intermediate compound formation theory); promoters, catalytic poisons; applications of catalysis to the following processes --- manufacture of ammonia by the Haber process, manufacture of sulphuric acid by the Lead Chamber and Contact processes, and the manufacture of nitric acid by the Ostwald process.

Unit 3

1. **Chemical Equilibria**

Reversible and irreversible reactions; law of mass action; thermodynamic derivation and experimental verification of the law of mass action with reference to the reaction $H_2 + I_2 \rightleftharpoons 2HI$; relation between K_p and K_c ; Le Chatelier principle and its application to the equilibria $H_2 + I_2 \rightleftharpoons 2HI$, $PCl_5 \rightleftharpoons PCl_3 + Cl_2$, and $N_2 + 3H_2 \rightleftharpoons 2NH_3$; homogeneous equilibria in liquid systems (esterification of acetic acid); equilibria in heterogeneous systems (dissociation of calcium carbonate).

5;2;1(58)

2. Chemical Kinetics I

Definitions of velocity, specific reaction rates, order and molecularity of reactions; pseudo unimolecular reactions; first order and second order reactions; derivations of the equations for specific reactions rates for first order and second order reactions (one example of each type of reaction); determination of the order of the reaction.

Unit 4

Phase Equilibria

(a) Phase rule ($F = C - P + 2$) --- explanation of the terms; applications of the phase rule to the following :

(i) one-component systems (water and sulphur systems);

(ii) two-component systems involving eutectics (KI - H_2O system), congruent melting points (iron - carbon system), and incongruent melting points (NaCl - H_2O system).

(b) Liquid-liquid mixtures; azeotropes (ethanol-water system); partial miscibility of liquids; lower critical solution temperature (nicotine-water system) ; upper critical solution temperature (phenol-water system); steam distillation (aniline-water system); Nernst distribution law and its application to solvent extraction.

 5:2:1(62)

PAPER - V

Max.Marks: 70 Time : 3 Hours.

Each part has to be answered in separate answer books.

PART - I : INORGANIC CHEMISTRY 23 Marks.

Unit-1

1. Elementary idea of the production of man--made elements.

2. Boron hydrides--general properties of boranes

3. General Chemistry of Silicones.

4. Peroxides and peroxy acids of Carbon and Sulphur.

5. Platinum metals--members of the family, representative oxidation states, quadrivalent palladium and platinum; brief Chemistry of bivalent palladium and platinum; uses of Pt and Pd.

6. Variable oxidation states of Cr, Mn, Fe, Co, Ni; most common oxidation states of each of them--classification of high and low oxidation states with one example of each; common oxidation states of Ti, Zr, Hf, V, Nb, Ta, with examples.

7. General group studies of chromium, molybdenum and tungsten.

8. ENVIRONMENTAL CHEMISTRY:

Elementary idea of air, soil and water pollution with reference to their origin; and depletion of ozone layer.

Unit-2.

1. LANTHANIDES

General study; electronic configuration; oxidation states; complexation behaviour; Lanthanide contradtion; separation of lanthanides.

2. ACTINIDES

Discovery; electronic configuration; oxidation state; comparison with lanthanides.

3. ORGANO-METALLIC COMPOUNDS

Definition and classification; synthesis, properties, structures and applications of organometallic compounds of lithium, magnesium, boron and tin.

4. SEPARATION METHODS

(a) Solvent Extraction: Principles and process of solvent extraction; the distribution law and the partition coefficient; Batch extraction; continuous extraction and counter-current distribution.

(b) Chrmmatography: Classification of chromatographic methods; Principles of differential migration; adsorption phenomenon; nature of the adsorbent; solvent systems and Rf values.

5. PRINCIPLES OF QUALITATIVE AND QUANTITATIVE ANALYSIS & ESTIMATION:

General concept ; relations involved in identification of cations and anions, removal of interfering radicals; group separation; standard solutions; theory of washing.

PART B: ORGANIC CHEMISTRY 24 Marks.

Unit-1:

(1) Carbohydrates:

Introduction, classification, interrelationship among monosaccharides. Reaction of glucose and fructose with Br_2, HCN, Tollen's reagent, Fehling's solution, Hydroxylamine, Phenylhydrazine, HNO_3 and osazone formation. Elucidation of pyranose and furanose structures. Determination of ring size. Howarth projection formula, configuration of glucose and fructose. Epimerisation, interconversion of aldoses and ketoses. Ascending and descending series.

(2) Amino acids:

Introduction and classification. Synthesis of α-aminoacids by direct ammonolysis of α-haloacids and Gabriel syntheses of glycine, alanine, phenyl alanine; glutamic and aspartic acids.

Physical properties, Isoelectric points and zwitterionic structure. Elementary ideas of proteins and peptides (camosine and oxytocine).

Unit-2

1. Heterocyclic compounds-I

Introduction, Resonance molecular orbital pictures, preparation and electrophilic substitution reactions of pyrrole, furan and thiaphene; structure, preparation and reactions of pyridine; comparative basicity of pyrrole/pyridine, pyrrole/pyrrolidine and pyridine/piperidine.

2. Fat, oils, soaps and detergents

Animal and vegetable oils, drying and nondrying oils. Hydrogen, Iodine value, RM value and saponification value of oils, soaps and detergents: Toilet and washing soap, synthetic detergents. Mechanism of cleansing action of soap and detergents. Superiority of detergents to soaps.

3. Dyes:

Relationship between colour and constitution, chromophore, auxochrome, chemical classification of dyes. Syntheses of methyl orange, Bismark Brown, Malachite Green and Phenolphthalein.

PART:C : PHYSICAL CHEMISTRY 23 Marks.

Unit-1:

1. Thermodynamics-II:

Spontaneous process and criteria for thermodynamic equilibrium; second law of thermodynamics; Carmot's cycle; efficiency of reversible heat engines; thermodynamic temperature scale; entropy; entropy changes for an ideal gas; entropy change for a spontaneous process; definition of free energy and chemical potential.

Unit-2: Electrochemistry-I

1. Conductance

Specific, equivalent and molar conductance; measurement of conductance; variation of conductance with dilution (explanation through interionic attraction); conductometric titrations

involving strong acids and strong bases; classification of electrolytes based on conductance measurments; Kohlrausch's law; conductance ratio and degree of dissociation; transference number and its determination (Hittorf's and moving boundary methods); abnormal transference numbers.

2. Ionic Equilibria:

Ostwald's dilution law; ionization of water, hydrogen ion concentration; pH; buffer solutions; strengths of acids & bases (detn. not required); concept of hydrolysis; derivation of hydrolysis constant for salts of (i) strong acid and weak base (ii) weak acid-strong base (iii) weak acid-weak base (experimental determination not required); solubility, solubility product and common ion effect; applications of solubility product and common ion effect in analytical chemistry; theory of acid-base indicators.

5:2:1 (B2)

PRACTICALS
INORGANIC CHEMISTRY (GENERAL)

PART I : QUALITATIVE ANALYSIS.

Inorganic mixtures containing radicals/ions to be prepared from the following list:

Ag^{+} , Pb^{2+}, Hg_2^{2+}, Hg^{2+}, Bi^{3+}, Cu^{2+}, Cd^{2+}, As^{3+}, Sb^{3+},

Sn^{2+}, Sn^{4+}, Fe^{2+}, Fe^{3+}, Al^{3+}, Cr^{3+}, Zn^{2+}, Mn^{2+}, Co^{2+},

Ni^{2+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Mg^{2+}, K^{+} , Na^{+} , NH_4^{+} :

Cl^{-} , Br^{-} , I^{-} , SO_4^{2-}, SO_3^{2-}, S^{2-}, NO_3^{-} , NO_2^{-} , $S_2O_3^{2-}$;

PO_4^{3-}, BO_3^{3-}, AsO_4^{3-} , F^{-} , CrO_4^{2-} .

Every mixture shall contain one interfering radical/ion.

PART II : QUANTITATIVE ANALYSIS

1. Volumetric Estimation --- Redox titrations involving potassium permanganate and potassium dichromate for the estimation of Fe^{2+} and Fe^{3+} and Ca^{2+}, and the iodometric estimation of Cu^{2+} .
2. Gravimetric Estimation --- Gravimetric estimation of Cl^{-} and Ba^{2+} ions.

PRINCIPLES OF ALL EXPERIMENTS ARE TO BE EXPLAINED.

5:2:1 (73)

PRACTICALS

ORGANIC CHEMISTRY (GENERAL)

Systematic qualitative organic analysis of compounds containing one functional group.

(a) Detection of elements (N, Cl, Br, I, S).

(b) Detection of the following functional groups :

COOH; NH_2; NO_2; OH (Phenolic); CO (Carbonyl group).

5:2:1(75)

PRACTICALS

PHYSICAL CHEMISTRY (GENERAL)

The following experiments should be performed.

(1) Determination of the heat of neutralisation of a strong acid against strong base.

(2) Determination of the molecular weight by Rast's method.

(3) Determination of the velocity constant of the reaction between hydrogen peroxide and potassium permanganate, using ferric chloride as the catalyst.

(4) Study of the heat of dilution of sulfuric acid, and hence to determine the strength of an unknown acid.

(5) Study of the adsorption of oxalic acid on charcoal and verification of Freundlich's adsorption isotherm.

(6) Determination of the solubility of a salt at ($BaCl_2$/ Benzoic acid) two temperatures, and to determine the heat of solution.

(7) Verification of Hardy-Schulze law - preparation and coagulation of arsenious sulfide (AS_2S_3) sol, using NaCl, $BaCl_2$ and $AlCl_3$ solutions.

 5.2.1(B)

PAPER-VI

Max. Marks:70 Time : 3 Hours

Each Part has to be answered in separate Answer Books

PART A : INORGANIC CHEMISTRY 23 Marks

Unit-1

1. EVALUATION OF ANALYTICAL DATA

Accufacy and precision; Methods for their expression; classification of errors; detection and correction of determinate and indeterminate errors; The Normal Law of Distribution of Indeterminate errors.

Statistical Tests of Data: The F test and the T test; rejection of data; The method of Least Squares; propagation of errors in computation; significant figures.

2. THEORY OF QUANTITATIVE ANALYSIS

Applications of chemical equilibrium to analytical separations and estimations.

The equilibrium constants; activity co-efficients; Acid-base equilibria; solubility equilibria; distribution equilibria; complex ion equilibria and stability constants.

Gravimetric methods; Theory of indicators; theory of precipitation and purification of precipitates; co-precipitation; post-precipitation; Acid-base and redox titrations; volumetric analysis. Chemistry of separation and estimation illustrated with examples of Fe--Ca, Ca-Ba and Fe-Cu.

Unit-2:

1. Oxidation-Reduction

Electrochemical cell; standard electrode potential; Nerust equation; electrochemical series; applications of redox potential; Formal [illegible].

2. ACID-BASE AND RELATED PHENOMENA

Relative strengths of acids and bases (Inorganic) pK_a and pK_b values; variation of acidity; concept of hard and soft acids and bases (SHAB concept).

3. NON-AQUEOUS SOLVENTS:- Classification and importance; Reactions in liquid ammonia and liquid sulphur dioxide; (i) action of metals on liq. ammonia, (ii) neutralisation reactions, (iii) precipitation reactions, (iv) complex formation reactions, (v) Redox reactions and (vi) solvolysis reactions.

4. STUDY OF: [illegible]:

(A) Inorganic paints and pigments.

(B) Rusting of Iron, corrosion and passivity.

(C) Carbides, includes structures.

3:2:1(86)

(D) Iso- poly acids and hetero- poly acids.

(E) Electrochemical and-thermal industries, e.g. silicon carbide, calcium carbide and alundum.

(F) Nitrogeneous and phosphatic Fertilisers.

PART-B: ORGANIC CHEMISTRY 23 Marks

Unit-1:

1. Acid-base concept.

Bronsted-Lowry concept, relative strengths of acids and bases, scales of acidity and basicity(pKa concept).

Effect of resonance, inductive effect and hybridisation on acidity and basicity of molecules.

Definition of Lewis acids and bases.

2. Polynuclear aromatic hydrocarbons:

Introduction, Structure of naphthalene, reactions, mechanism and orientation of electrophilic substitution.

Preparation and reactions of - and -naphthols (Azo-coupling, reaction with HNO_2 and $FeCl_3$).

Preparation and reactions of Anthracene.

Unit-2:

1. Stereochemistry--II

Nomenclature of enantiomers (R and S) Configuration-Relative and Absolute, Inversion, Retention, Racemisation and resolution.

Conformation and conformational isomerism in ethane and n-butane Conformation of cyclic compounds--Cyclohexane, monosubstituted and disubstituted cyclohexanes.

Stereochemical aspects of addition of bromine to alkenes.

2. Polymer Chemistry:

Introduction to dienes: Conjugated, isolated and Cumulated dienes.

Types of polymers and polymerisation processes, addition polymers, stereocontrolled copolymers, condensation polymers.

Manufacture and applications of following polymers:

(i) Natural rubber and synthetic rubber

(ii) Synthetic fibres; polyesters, polyamides, polyacrylates

(iii) Plastics: Polythene and polystyrene, Thermo plastic and thermosetting polymers-Bakelite and polyurethanes.

(iv) Foaming agents: Plasticisers and stabilisers.

5:2:1(B)

PART:C:Physical Chemistry 24 Marks.

Unit-1

Gaseous State-II

Average Kinetic energy of translation, Boltzmann constant, root-mean square velocity; Maxwell distribution law of molecular velocities; molecular velocities and energy distribution as a a function of temperature, Calculation of the most probable, average and root mean square velocities of molecules, Maxwell-Boltzmann distribution, Degrees of freedom of motion, principle of equipartition of energy, molecular basis of heat capacity, mean free path collision diameter and collision frequencies.

Unit-2

Thermodynamics-III

Gibbs function (G) and Helmholtz function (A); Gibbs-Helmholtz equation ; variations of Gibbs and Helmholtz free energies with temperature, pressure and volume; clausius-clapeyron equation; Trouton's rule; Chemical potential and its applications; Vant Hoff isotherm and isochore; Maxwells relations; Nernst heat theorem; third law of thermodynamics and its applications to the determination of entropy changes.

5:2:1(B)

PAPER - VII

Max.Marks:70 Time: 3 Hours.

Each part has to be answered in separate answer books.

Unit-1 PART A : INORGANIC CHEMISTRY 24 marks.

1. STRUCTURE OF ATOM-II

Wave mechanical concept; idea of de Broglie matter waves; uncertainity principle; Physical basis of wave-mechanics; Schrodinger's wave equation; significance of ψ and ψ^2; angular dependence of wave functions; signs of plots of angular part of wave functions of different orbitals; Normal and orthogonal wave functions.

2. Nuclear Chemistry and Radio-activity-III

(A) Detection and measurement of radioactivity (G.M. Counter method); Decay kinetics--first order rate equation for radio-active disintegration; Theory of Radioactive disintegration; Radio-active series--uranium; magic number concept; uses of radio-active and non-radioactive isotopes; transmutation of of elements; purity and strength of radiosisotopes, Radio chemical principle in the use of Tracers.

(B) Size of Nucleus; nuclear forces; nuclear binding energy; the possible forces between n-n, p-p and n-p; nuclear reactions--spallation.

Basic principles and types of nuclear reactors; atomic energy and Q values of nuclear reactions (MeV).

Unit-2

CHEMICAL BONDING - IV

1. Ionic bonds in terms of the Born-Haber Cycle; variable electrovalency; inert pair effect; orbital theory of covalency; maximum covalency; structure and dipole moments;

2. Valence Bond theory; Resonance-its applications to inorganic molecules; hybridisation of atomic orbitals; Molecular Orbital theory of covalent bond (LCAO-method)--its applications to inorganic molecules like H_2, N_2, O_2 CO, NO, NO^+ inert gases; Incomplete octet and expansion of octet; odd electron molecules; VSEPR---theory and geometry of molecules (examples of following systems: AB_2, AB_3, AB_2E, AB_4, AB_3E, AB_2E_2, AB_5E, AB_4E_2); multicentre bond in electron deficient molecule.

5:2:1(68)

PART-B : ORGANIC CHEMISTRY 23 Marks

Unit-1:

1. Introduction to organic synthesis: Formation of carbon-carbon bond, electrophilic and nucleophilic carbon species, base catalysed condensations (Knoeven agel, Michael, Wittig reaction, Reformatsky reaction, Stobbe condensation, Mannich reaction and Merwein-Pondorf-Verley reduction).

2. Formation & acid-assisted cleavage of acetals, ketals and aminals; Mechanisms of formation and hydrolysis of esters and amides.

3. Molecular Rearrangements:

Carbonium ion rearrangement (Pinacol-Pinacolone, Wagner--Merwein and dienone-phenol rearrangements, Beckman, Wolff, Hofmann, curtius, Lossen, Schmidt, Benzil-Benzilic acid, Benzidine-semidene, Favorskii, Fries and Claisen rearrangement.

Unit-2:

1. Organic Photochemistry:

Molecular energy and photochemical energy, excitation of molecules, Franck-Condon Principle, dissipation of energy and Jablonski diagram and singlet-triplet states, photosensitization and quenching, quantum yield.

Introduction to the photochemical reactions of carbonyl compounds-Norrish Type I and Type II cleavages.

2. Pericyclic reactions:

Definition of pericyclic reactions.

(i) Electrocyclic reactions:
Introduction, stereochemistry of electrocyclic reaction, conrotatory-disrotatory ring closure and ring opening (with simple examples like 1,4-disubstituted 1,3-butadiene; 1,6-disubstituted- 1,3,5-hexatriene; 1,8-disubstituted-1,3,5,7-octatetraene) Woodward-Hofmann's rule for electrocyclic reactions (No correlation diagram required).

(ii) Cycloaddition reactions :

Definition of dienes and dienophiles, Supra-supra, Antara-Antara modes of cycloadditions ($\pi_s^4 + \pi_s^2$; $\pi_s^4 + \pi_a^2$; $\pi_s^2 + \pi_s^2$; $\pi_s^2 + \pi_a^2$)
by taking examples of simple dienes and dienophiles.

5:2:1(89)

PART C : PHYSICAL CHEMISTRY 23 Marks.

Unit -1

1. Physical Properties and Molecular Structure

Additive and constitutive properties; molar volume; surface tension (determination by capillary rise and drop volume methods); parachor; viscosity and its determination by Ostwald's viscometer method; dielectric constant and molar polarization; refractive index; molar refraction (experimental determination not required); definition and determination of dipole moment (Debye's method); dipole moment and ionic character.

2. Solid State

Heat capacities of solids; atomic heat capacity; derivation of Einstein's equation for the specific heats of solids; Debye's equation (derivation not required); variation of atomic heats with temperature; elements of crystal structure - plane of symmetry, axis of symmetry, centre of symmetry, space lattice, crystallographic ratios, Miller indices and crystallographic systems; diffraction of X-rays by crystal Bragg's equation, determination of crystal structure of sodium chloride by Laue's method and powder method.

Unit-2

1. Chemical Kinetics-II

General review of orders of reactions (zero, first, second and third orders); activation energy; Arrhenius equation; theories of reaction rates (collision theory and transition state theory; examples of opposing, competing, consecutive and chain reactions (derivations not required); acid-base catalysis; enzyme catalysis (Michaelis-Menten equation).

2. Photochemistry:

Absorption of radiation; Grotthus-Draper Law, Beer-Lambert's Law; Stark-Einstein's Law of photochemical equivalence; quantum yield; application to the photolysis of ammonia, decomposition of hydrogen iodide, decomposition of hydrogen chloride (derivations not required); Chemiluminescence; actinometers; photosensitizers; photosynthesis.

PAPER - VIII

INORGANIC CHEMISTRY

Max.Marks:46 Time : 2 Hours.

Unit-1:

1. COORDINATION CHEMISTRY

Detection of complex formation in solution; naming of coordination compounds (mono-nuclear and poly-nuclear); simple and complex ligands; chelation; stereochemistry of 4,5 and 6 coordination compounds--different types; factors influencing complex formation; stereo-iosmerison; optical isomerism; Inner metallic complex; high and low Oxidation states in coordination compounds; uncommon oxidation states and their stabilisation; application of coordination compounds in analytical chemistry.

Valence Bond theory of coordination compounds; crystal field theory with respect to the following points: (i) Splitting of d-orbitals by electro-static fields (octahedral, tetrahedral and square planar), (ii) magnetic properties from CFT---e.g. octahedral tetrahedral and square planar; (iii) Spectrochemical series; (iv) electronic absorption spectra (octahedral and tetrahedral complexes)--d^1-d^9 system; d^2-d^8 system; introduction to adjusted CFT.

2. MAGNETO-CHEMISTRY

Explanation of the terms Diamagnetism, paramagnetism, ferromagnetism, antiferromagnetism, origin of paramagnetic moment; magnetic susceptibility; electron spin moment; orbital angular moment; Curie's law; Curie-Weiss law; Bohr Magneton; magnetic moment from magnetic susceptibility; explanation of the magnetic behaviour of the following

$K_4[Fe(CN)_6]$; $K_3[Fe(CN)_6]$; $[Co(NH_3)_6]Cl_3$

$K_2[Ni(CN)_4]$; $K_3[CoF_6]$; $[Ni(NH_3)_4]SO_4$

$K_3[FeF_6]$; $[Cu(NH_3)_4]SO_4$; $K_3[Mn(CN)_6]$

$K[CrO_3Cl]$

5:2:1 (82)

UNIT-2

1. Study of following metals:

Uranium; thorium and radium; major compounds of quadrivalent, pentavalent and hexavalent uranium; importance of U-235 and its separation techniques.

2. Use of organic reagents in inorganic analysis, Oxine, α-nitroso β-naphthol, Cupferron, Cupron, Dithiazone, Acetylacetone, Salicyladoxime, Alizarin-S, Dimethylglyoxime and Rhodamine-B.

3. Study ofthe following topics:

(i) Redox and Adsorption indicators,

(ii) Principle of Argentometric and complexometric titrations

(iii) Mononuclear and dinuclear metal carbonyls } Preparation, Structure-bonding only.

(iv) Metal Nitrosyls (only terminal) }

UNIT-3

1. BIO-INORGANIC CHEMISTRY:

Essential and trace elements in biological systems; Metalloporphyrins, chlorophyll, heme proteins (hemoglobin, myoglobin); role of cobalt in vitamin B_{12}; Enzymes; Metalloenzymes (Zn) and their characteristics and functions; Non-complexing cations in biochemical processes (Na and K). Role of metals and non-metals in metabolism; metal and non-metal deficiency and toxicity.

2. INORGANIC POLYMERS

Types of inorganic polymers; comparison with organic polymers; Important Synthesis, structural aspects and application of silicons and phosphonitrilic halides.

3. ENVIRONMENTAL CHEMISTRY AND POLLUTION

Man and Environment; ecological balance--meaning and degradation; Pollution--Air, Water and Soil; Common Pollutants; Oxone in Stratosphere; Acid Rain; Smog; Prevention of Pollution.

UNIT-4.

1. SOLIDS

Band theory of solids - Metals, semi-conductors and insulators; Frenkel and Schottky defects.

2. Application of the following techniques in Inorganic analysis (d^1, d^9 systems):

(a) UV and visible spectrophotometry Lambert-Beer's Law; Principles and applications; study of spectra of octahedral complexes of d^1 & d^9 system; Fluorescence Phosphorescence.

(b) IR spectrophotometry: Basic principles; spectral studies of compounds with reference to metal-oxygen, metal-nitrogen and metal-halogen (F,Cl,Br,I) bonds.

(c) Atomic Absorption Spectroscopy:
Types, atomiser, absorption and emission spectroscopy; general idea of theory and application.

(d) Polarimetry: Theory and brief outlines of procedure and application.

5:2:1(22)

PAPER-IX

ORGANIC CHEMISTRY

Max. Marks:47 Time : 2 Hours.

Unit-1:

1. Disaccharides:

Maltose and Sucrose - their reactions and structure. Structure of Cellulose and starch (detailed study not required; Preparation of cellulose nitrate, cellulose acetate, Rayon and cellophane.

2. Natural Products

(i) Terpenoids: Introduction, isoprene rule, classification, isolation, structural elucidation and synthesis of citral and Gerinol.

(ii) Alkaloids: Introduction, classification, physiological action, extraction and synthesis of nicotine and cocaine.

Unit-2:

1. Peptides, proteins and vitamins

(i) Peptides: Definition, preparation of di- and tripeptides from α-amino acids (carnosin and oxytocene)

(ii) Proteins: Introduction, primary, secondary, tertiary and quaternary structures of proteins. α-and β- proteins. Helical and sheet structures.

(iii) Vitamins: Definition, classification & biological importance of vitamins. Carotenoids-occurence, isolation and synthesis. β-carotene as a source of vitamin A_1. Synthesis of vitamin A_1 and Ascorbic acid.

2. Heterocycles-II

Introduction to condensed five and six-membered heterocycles. Preparation add reactions of Indole, Quinolene and Isoquinolene with special reference to Fischer-Indole synthesis, Skraup Syntheses and Bischler-Napierlski Synthesis.

Unit-3: Spectroscopy for structural analysis:

(a) Mass spectrometry (EI): Principle, Types of ion produced in Mass spectrometer, molecular ion peak, base peak and meta-stable ion. Determination of molecular weight of organic compounds.

(b) Ultra-violet and visible spectroscopy. Basic principle of UV and visible spectroscopy. Application of UV to conjugated polyenes, carbonyl compounds and $\alpha\beta$-unsaturated carbonyl compounds. Woodwards rule.

(c) Infrared spectroscopy: Basic principle, characteristic vibrational frequency of carbonyl compounds, hydroxy and amino compounds.

(d) Nuclear Magnetic Resonance spectroscopy: Principle, chemical shifts, shielding and deshielding of protons, chemical shift and Magnetic equivalent protons. NMR-peak area, and proton counting.

Characteristic protons, chemical shifts and coupling constants for the following molecules: Ethylbromide; toluene, p-xylene, o-and p-nitro toluene, anisole, ethyl alcohol and ethylacetate.

Unit-4: Topics in Biological Chemistry

(a) Enzymes:

Introduction, nomenclature and characteristics. Mechanism of enzyme action (a general picture) Co-enzyme: Co-enzymes derived from niacin and thiamine; lipoic acid: Co-enzyme A. Energy production in biological system (role of ATP and ATP-ADP cycle), glycolysis and tricarboxylic acid cycle.

(b) Purines, Pyrimidines and Nucleic Acids: Introduction, preparation and structure of adenine, guanine, cytosin, uracil, thymine and caffeine. Structure of nucleosides, nucleotides and DNA. Replication of DNA.

5:2:1(86)

PAPER-X

Physical Chemistry

Max.Marks:47 Time : 2 Hours

Unit-1

Electrochemistry-II

1. Conductance:

Applications of conductance measurements for the following:-

(i) Solubility of sparingly soluble salts,
(ii) degree of hydrolysis,
(iii) Conductometric titrations (acid-base precipitation); theory of strong electrolytes; ionic atmosphere; asymmetry effect, electrophoretic effect, explanation of Debye-Huckel-Onsager equation (derivation not required).

2. E.M.F:

Galvanic cells; reversible cells and reversible electrodes. EMF andits measurement by Poggendorf's compensation method; free energy changes in cells; derivation of an expression for the EMF of a reversible cell; single electrode potentials and sign conventions; electromotive series; reference electrodes; concentration cells (with and without transference) derivations of expresions for their EMF's; applications of EMF measurements- potentiometric titrations (acid-base and redox); concept of activity and activity coefficients; determination of ionic activities by EMF method; decomposition potential, electrolytic polarization, over-voltage.

Unit-2

Statistical thermodyanmics:

Limitations of classical thermodynamics; concepts of distribution of energy; thermodynamic probability; Boltzmann distribution law; partition functions and thermodynamic quantities; partition functions for molecules with different types of energy (translational, rotational and vibrational energies); heat capacities of solids from partition functions.

Unit-3.

Quantum Chemistry:

Black body radiation; Plank's quantum theory; photoelectric effect (Einstein's equation), Bohr model of an atom; failure of Bohr's model; wave-particle duality of light and matter; Heisenberg uncertainty principle; standing waves and progressive waves; Schrodinger wave equation; treatment of particle in a box; idea of quantization for bound particles; shapes of s and p orbitals; probability distribution of electrons using wave functions.

Unit-4.

Molecular Spectroscopy

Electromagnetic radiation; interaction of electromagnetic radiation with molecules and quantization of different forms of energy (translational, rotational, vibrational and electronic); condition of resonance and energy of absorption for various types of spectra; classical equation of vibration (Hooke's Law); linear harmonic oscillator; vibrational energies of diatomic molecules; force constant and bond strength; anharmonicity; Morse potential; fundamental frequencies; overtones; evaluation of force constants from fundamental frequencies; Raman spectra--classical and quantum mechanical concept; rule of mutual exclusion; Franck-Condon principle; electronic transitions; singlet and triplet states; fluorescence and phosphorescence; effect of solvents on electronic transition energies.

5:2:1(88)

PRACTICALS

INORGANIC CHEMISTRY (MAJOR)

PRINCIPLES OF ALL EXPERIMENTS ARE TO BE EXPLAINED

PART I : QUALITATIVE ANALYSIS

1. Inorganic mixtures containing five radicals/ions to be prepared from the following list :

   Ag^+ , Pb^{2+}, Hg_2^{2+}, Hg^{2+}, Bi^{3+}, Cu^{2+}, Cd^{2+}, As^{3+}, Sb^{3+} , Sn^{2+}, Sn^{4+}, Fe^{2+}, Fe^{3+}, Al^{3+} , Ba^{2+} , Cr^{3+} , Zn^{2+} , Mn^{2+} , Co^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Mg^{2+}, K^+ , Na^+ , NH_4^+ ; Cl^- , Br^- , I^- , SO_4^{2-}, SO_3^{2-}, S^{2-}, CrO_4^{2-} , PO_4^{3-} , NO_3^- , NO_2^- , BO_3^{3-} , F^- , AsO_4^{3-} , $S_2O_3^{2-}$.

   Every mixture shall contain one interfering radical/ion.

2. Special mixtures for separation and identification to be selected from mixtures containing :

   (a) Cl^- , Br^- & I^- ; (b) NO_3^- & NO_2^- ;

   (c) NO_3^- , Br^- & I^- ; (d) PO_4^{3-} , AsO_4^{3-} & AsO_3^{3-} :

   (e) CO_3^{2-} & SO_3^{2-} ; (f) Cl^- , Br^- or I^- ;

   (g) S^{2-} , SO_3^{2-} , SO_4^{2-} and $S_2O_3^{2-}$.

PART II : QUANTITATIVE ANALYSIS

1. Volumetric Estimation --- Estimations of the following :

   (a) Cl^- by Mohr's and Vohlard's methods ;
   (b) Ag^+ by Mohr's method ;
   (c) Fe^{3+} and Cl^- from a mixture containing $FeCl_3$ & KCl ;
   (d) Ca^{2+} and Cl^- from $CaCl_2$;
   (e) Cu^{2+} and Cl^- from $CuCl_2$;
   (f) Ba^{2+} and Cl^- from $BaCl_2$; and
   (g) Zn^{2+} and Cl^- from $ZnCl_2$.

2. Gravimetric Estimation --- Estimations of Ag^+ , Pb^{2+}, Zn^{2+} , Ba^{2+} , Mg^{2+} , SO_4^{2-} .

5:2:1(88)

3. Estimation of the constituents from the following mixtures (volumetrically or gravimetrically) :

Iron - Calcium ; Iron - Copper ; Iron - Manganese;; Copper - Zinc ; Silver - Copper ; Calcium - Barium ; Calcium - Lead ; Calcium - Manganese .

4. Complexometry using EDTA --- Estimations of Mg^{2+}, Ca^{2+}, Zn^{2+}.

PART III : INORGANIC PREPARATIONS

Preparations of the following compounds :

(a) Cuprous chloride ; (b) Potassium chlorochromate(VI) ;

(c) Sodium cobaltinitrite ; (d) Sodium peroxoborate ;

(e) Potassium trioxalato chromate ;

(f) Tris (thiourea) copper(I) sulphate ;

(g) Hexammine cobalt(III) chloride ; and

(h) Mercuric tetrathiocyanate cobaltate(II) .

5:2:1(90)

PRACTICALS

ORGANIC CHEMISTRY (MAJOR)

1) Systematic qualitative organic analysis of compounds containing two functional groups :

(a) Detection of elements (N,Cl, Br,I,S)

(b) Detection of the following functional groups :

-CHO; -C=O; -COOH; -OH(Phenolic); SO_3H; $-NH_2$; $-NO_2$; $CO-NH_2$; unsaturation.

(c) Determination of the melting point/boiling point.

(d) Identification of the compound with the help of a reference book.

(e) Preparation of one derivative and determination of its melting point.

2) Organic preparation

Preparations of the following organic compounds :

phthalimide (from phthalic anhydride); m-dinitrobenzene (from nitrobenzene); picric acid (from phenol); benzoic acid (from toluene); aspirin (from methylsalicylate); p-bromoacetanilide (from acetanilide).

3) Organic Separation

(a) Separation of binary organic mixtures based on acid-base concept.

(b) Determination of melting points and characterization of the components.

PRACTICALS
PHYSICAL CHEMISTRY (MAJOR)

1. Determination of the surface tension of the given liquids by the drop volume method.
2. Determination of the Viscosity Composition (v/v) curve of the ethanol-water system and to determine the composition (v/v) of a given mixture.
3. Determination of: (a) the partition Coefficient of iodine between (i) CCl_4 and water and (ii) Kerosene and water, (b) the partition coefficient of benzoic acid between benzene and water.
4. Determination of the velocity constant of (a) the hydrolysis of methyl acetate catalysed by an acid; and (b) the saponification of ethyl acetate.
5. Determination of the strength of hydrochloric acid solution (approx.N/10) by titration against standard sodium hydroxide solution, conductometrically (use oxalic acid for the standardization of sodium hydroxide conductometrically).
6. Determination of the strength of the given ferrous sulfate solution, potentiometrically.
7. Verification of Beer-Lambeets law, using copper sulfate/ $KMnO_4/K_2Cr_2O_7$ colorimetrically; determination of the concentration of the above solution.
8. Acid-alkali titration, using the potentiometer.
9. Decomposition of hydrogen peroxide, using ferric chloride as catalyst, and to determine the activation energy.
10. To study the kinetics of the reaction between potassium persulfate and potassium iodide at two temperatures.
11. Determination of strengths of halides, potentiometrically, using silver nitrate.
12. Determination of the heat of solution of solid calcium chloride and to calculate the lattice energy of calcium chloride by the Born-Haber cycle.
13. Verification of the law of additivity of refraction of the given mixtures (Methylethyl Ketone-acetone; glycerol-H_2O)
14. Determination of the critical solution temperature of the phenol-water system.

5:2:1(82)

Books Recommended (Inorganic Chemistry)

* 1. Selected Topics in Inorganic Chemistry
by W.U. Malik, G.D. Tuli and R.D. Madan.
(S.Chand & Company Ltd. New Delhi) (5th edn.)

2. Advanced Inorganic Chemistry
by Gurdeep Raj, Vol. I & II 1992
Goel Publishing House, Meerut.

3. Advanced Inorganic Chemistry
by F.A. Cotton and G. Wilkinson (Wiley Eastern Ltd.) 3rd Edn.

4. Essentials of Nuclear Chemistry
by H.J. Arnikar (Wiley Eastern Ltd.)

5. Basic Inorganic Chemistry
by F.A. Cotton and G. Wilkinson (Wiley Eastern)

6. A Textbook of Inorganic Chemistry
by A.K. Dey (Wiley Eastern)

7. Practical Inorganic Chemistry
by A.K. Dey (Science Book Agency, Calcutta)

8. Inorganic Chemistry Part I and Part II
by R.L. Dutta (The New Book Stall, Calcutta-9)

9. A Text Book of Qualitative Inorganic Analysis
by A.I. Vogel

10. A Text Book of Quantitative Inorganic Analysis
by A.I. Vogel

11. Instrumental Methods of Chemical Analysis
by G. Chatwal & S. Anand. 1988
Himalaya Publishing House, Bombay.

12. Principles of Inorganic Chemistry
by B.R. Puri, L.R. Sharma & K.C. Kelia. 1990
Shaban lal Nagin Chand & Co., Jalandhar.

* For B.Sc.(General) All books recommended for B.Sc.(Major)

5:2:1(93)

Books Recommended (Organic Chemistry)

1.	Organic Chemistry Vol. I & II	: I.L. Finar ELBS Publication.
*2.	Advanced Organic Chemistry	: B.S. Bahl and A. Bahl (S. Chand, Delhi)
*3.	Organic Chemistry Vol. I, II, III	: S.M. Mukherjee, S.P. Singh and R.P. Kapoor Wiley Eastern Ltd., 1991.
4.	Organic Chemistry	: Morison and Boyd Prentice Hall of India
5.	Stereochemistry	: P.S. Kalsi Wiley Eastern Ltd.
6.	Reaction Mechanism in Organic Chemistry.	: S.M. Mukherjee and S.P. Singh Macmillan.
7.	A Guide Book to Mechanism in Organic Chemistry.	: Peter Sykes Orient Longman.
8.	Molecular Reactions and Photochemistry.	: Depuy and Chapman Prentice Hall of India.
9.	Organic Molecular Absorption Spectroscopy.	: John R. Dyer Prentice Hall of India.
10.	Organic Absorption Spectroscopy.	: Y.R. Sharma (S.Chand & Co., Delhi 1992).
11.	General Organic Chemistry	: S.K. Ghosh Central Book Agency, Calcutta, 1992.
12.	Organic Chemistry	: M.K. Jain Shoban Lal Nagin Chand & Co., Jalandhar, 1991.

* For B.Sc.(General); All books recommended for B.Sc. (Major).

Books Recommended (Physical Chemistry)

*1.	Sharma K.K., Sharma L	: A Text book of Physical Chemistry
*2.	Palit S.R.	: Physical Chemistry (Sarat Book House, Calcutta, 1980).
*3.	Rakshit P.C.	: Physical Chemistry (Sarat Book House, Calcutta, 1980).
*4.	I.V.S. Jain and S.P. Jauhar	: Physical Chemistry : (Tata Mcgraw Hill, New Delhi, 1988)
*5.	Glasstone S, and Lewis D.	: Elements of Physical Chemistry (Macmillan) (for reference)
6.	Barrow G.M.	: Physical Chemistry (Mcgraw Hill, 1983)
7.	Puri B.R., Sharma L.R. and Pathania M.S.	: Principles of Physical Chemistry (Shoban Lal Nagin Chand & Co., Jalandhar, 1990)
8.	K.L. Kapoor	: Elements of Physical Chemistry, Part I,II & III (Macmillan India Ltd. 1987)
9.	A.S. Negi and S.C. Anand	: A Text book of Physical Chemistry (Wiley Eastern Ltd., New Delhi 1991).

* For B.Sc.(General); All books recommended for B.Sc.(Major)

SNB/MKM/SA/GT/HL
25-11-1992.

Annexure E

DEPARTMENT OF ANTHROPOLOGY

B.Sc./B.A. MAJOR (HONOURS) COURSE.

YEAR	PAPER	TITLE OF THE PAPER	NO OF UNIT	NO OF LECTURES	MARKS
I	I(PASS)	PHYSICAL ANTHROPOLOGY.	6 2	50 25	TH:75 PR:25
I	I(HONS)	RACE AND HUMAN VARIATION	6 2	50 25	TH:60 PR:40
II	II(PASS)	SOCIAL ANTHROPOLOGY	6 1	50 25	TH:75 PR:25
II	II(HONS)	HUMAN GENETICS	6 2	50 25	TH:60 PR:40
II	III(HONS)	TOOLS AND TECHNIQUES OF ANTHROPOLOGICAL RESEARCH	6	75	TH:100
III	III(PASS)	PREHISTORIC ARCHAEOLOGY.	6 1	50 25	TH:75 PR:25
III	IV(HONS)	ANTHROPOLOGICAL THEORIES	6	75	TH:100
III	V:I(HONS)*	TRIBAL DEVELOPMENT	5 1	50 25	TH:50 PR:50
III	V:II(HONS)*	ADVANCE PHYSICAL ANTHROPOLOGY	5 1	50 25	TH:50 PR:50
III	V:III(HONS)*	ARCHAEOLOGICAL ANTHROPOLOGY	5 1	50 25	TH:50 PR:50

* Students having 'major' may opt for any one of these three OPTIONAL Subjects in the Third Year of their course.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc./B.A. Major (Honours) Course

FIRST YEAR

PAPER I : RACE AND HUMAN VARIATION

FULL MARKS : 100(THEORY : 60 + PRACTICAL : 40)

SECTION A : THEORY

1. Processes of racial classifications: Classifications of Indian population by Risley and Guha.

2. Racism, Race and Culture : Controversies on race; UNESCO Statement on race; Genetic significance of races.

3. Race formation and adaptive significance of the races: Geographical and Local ; Micro-races.

4. Physical characteristics of the peoples of North-East India with special reference to the Khasi and the Naga.

5. Morphological and ecological variation in the human populations.

6. Genetic variation in the human populations.

SECTION B : PRACTICAL

7. Anthropometric measurements:
Stature, height sternale, height ilio-spinale, height tibiale, height spherion, height tragus, height dactylion, minimum frontal diameter, facial height, superior facial height, mouth breadth, horizontal circumference of head, chest breadth and chest circumference.

8. Craniometry :

A. Linear measurements : Maximum cranial length, maximum cranial breadth, greatest occipital breadth, nasion-inion length, biauricular length, minimum frontal breadth, bizygomatic breadth, nasal length, nasal breadth, frontal chord, parietal chord, occipital chord, frontal arc, parietal arc, and occipital arc.

B. Angular measurements : Facial profile angle, nasal profile angle, metopic angle, frontal angle of Schwalbe, Lambda angle of Schwalbe, bregma angle of Schwalbe.

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Ist Year
PAPER - I

RACE AND HUMAN VARIATION

RECOMMENDED READINGS:

1. Boyd, W. 1952 : Genetics and Races of Man Boston; little, Brown.

2. Coon 1962 : The Origin of Races, New York, Alfred A. Knopf.

3. Harrison, Lt.al, 1964 : Human Biology: An Introduction to Human Evolution and Growth. Oxford, Clarendon Press.

4. Montagu, A.M.F. 1951 : An Introduction to Physical Anthropology, Springfield, III: C. Thomas, (2nd edition)

5. Majumdar, D.N. 1973 : Races and Culture of India, Bombay, Asia Publication House.

6. Sarkar, S.S. 1954 : Aboriginal Races of India. Calcutta, Boonland Ltd.

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DEPARTMENT OF ANTHROPOLOGY

BSc/B.A. Major (Honours) Course
SECOND YEAR
PAPER II : HUMAN GENETICS
FULL MARKS : 100 (THEORY : 60 + PRACTICAL : 40)

SECTION A. : THEORY

1. Definiton, aim and scope of human genetics and its significance in anthropology; Study of genetics of character at the population level.

2. Single factor inheritance.

3. Multiple Allelism and blood groups (ABO, MN, RH).

4, Principles of genetic equilibrium; Hardy-Weinberg Law; Deviations from genetic equilibrium.

5. Factors of evolution: Mutation, selection, migration, mating-systems, isolation, admixture, genetic drift.

6. Genetic polymorphism - balanced, transient and neutral.

SECTION B. : PRACTICAL

7. Blood groups : a) ABO, MN, Rh
b) Dermatoglyphics (finger ball patterns).

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SECOND YEAR
PAPER II

HUMAN GENETICS

RECOMMENDED READINGS

1. Baker, P.T. & Weiner, J.S. 1966 : The Biology of Human Adaptatibility, Clarandon, Oxford.

2. Burdette W.J. : Methodology in Human Genetics. (ed), San Francisco, Holden-Day.

3. Cavalli-Sforza, L.L. & Bodmer, W.F. : The Genetics of Human Populations, San Francisco, W,H. Freeman & Co.

4. Cox, P.R. 199? : Demography. New Delhi, Universal Book Stall.

5. Crow, J.F. & M. Kimura 1970 : An Introduction of Population Genetics Theory. New York, Harper and Row.

6. Hauser, P.M. and O.D. Duncan. 1959 : The Study of Population: An Inventory and Appraisal, Chicago, University Press.

7. Li, C.C. 1955 : Population Genetics. Chicago, University of Chicago Press.

8. Vogel, F. and A.G. Motulsky. 1986 : Human Genetics: Problems and Approaches. Berlin, Springer-Verlag.

9. Wright, S. 1967 : Evolution and Genetics of population Vol.I), Chicago, Genetic and Biometric Foundation.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc./B.A. Major (Honours) Course

SECOND YEAR

PAPER : III : TOOLS AND TECHNIQUES OF ANTHROPOLOGICAL RESEARCH

FULL MARKS : 100 (THEORY : 60 + PRACTICAL : 40)

SECTION A : THEORY

1. Anthropological Research: Survey and review of literature, statement of the problem, limitation and scope, formulation of hypothesis, research design and time plan.
2. Main features of field work: acquaintance and rapport, native language, informants, field diary and reporting. Ethics of field work.
3. Qualitative and quantitative data: nature and use; sampling.
4. Techniques of data collection: interview, observation, schedule/questionnaire, case study and genealogy/pedigree. Use of personal, official and historical data. Importance of oral tradition.
5. Statistical methods: mean, median, mode, standard deviation, standard error and tests of significance - T test and Chisquare.
6. Processing of data : Classification, tabulation, and presentation through diagrams, histograms, pie-chart. Analyses of data.

SECTION B : PRACTICAL

7. (1) Preparation of questionnaire and drawing of genealogy.
   (2) Statistical analysis and graphical presentation of data.

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5.2.1 (101)

IInd Year
Paper:III

TOOLS AND TECHNIQUES OF ANTHROPOLOGICAL RESEARCH

RECOMMENDED READINGS:

1. Evans, Pritchard,E. 1972 : Social Anthropology, Routledge and Kegan Paul, London.

2. Epstein,A.L. (ed) 1978 : Craft of Social Anthropology. Hindustan Publication. New Delhi.

3. Firth, R. (ed) 1957 : Man and Culture: An evaluation of the Work of Bronislaw Mabinowski: Routledge and Kegan Paul, London

4. Goode,J. & P.K. Hatt, 1952 : Methods of Social Reasearch, McGraw-Hill Kogakusha,Tokyo.

5. Gottschak, L. 1945 : Use of Personal Documents in History, Anthropolgy and Sociology, Social Science Research Council,New York.

6. Kroeber,A.(ed) 1953 : Anthropology Today, Chicago University Press.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc/B.A. Major (Honours) Course

THIRD YEAR

PAPER XIV : ANTHROPOLOGICAL THEORIES

FULL MARKS : 100

1. Evolutionism : Nineteenth Century evolutionism and its basic assumption; Neo-evolutionism.

2. Diffusion and tradition: German and British diffusionists and their main assumptions; American distributionists and their contributions.

3. Functionalism : Malinowski. Structural - functionalism - Radcliffe-Brown, Firth, Fortes and Nadel.

4. Structuralism : Levi-Strauss and Leach.

5. Conflict Theories : Marxian and non-Marxian - Simmel, Marx, Althusser, Dahrendorf, Coser and Gluckman; Critique of Marxism: Mill and Popper.

6. Configurationalism : Pattern, ethos and eidos; basic personality structure and model personality.

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IIIrd YEAR
PAPER IV

ANTHROPOLOGICAL THEORIES

RECOMMENDED READINGS

1. Evans-Pritchard, E. 1972 : Social Anthropology, Routledge and Kegan Paul, London.

2. Firth, R. 1971 : Elements of Social Organisation. Tavistock. London

3. Firth, R. (ed), 1957 : Man and Culture: An Evaluation of the Work of Bronislaw Malinowski. Routledge and Kegan Paul, London.

4. Harris, M 1969 : Rise of Anthropological Theory: a history of theories of culture. Routledge and Kegan Paul, London.

5. Leach, E. 1970 : Levi-Strauss. Collins. London

6. Levi-Strauss, C. 1963 : Structural Anthropology (Vol: I & II), Penguin Books.

7. Manners, R and D. Laplan (eds) 1968 : Theory in Anthropology: a source book. Routledge and Kegan Paul, London

8. Merton, R.K. 1972 : Social Theory of Social Structure, Amering. New Delhi.

9. Nadel, S.F. 1986 : The Theory of Social Structure, Routledge and Kegan Raul. London.

10. Nagel, E. 1961 : The Structure of Science, Routledge and Kegan Paul, London.

11. Radeliffe-Brown, A.R. : Structure and Function of Primitive Society,

12. Sarana, G. 1975 : The Methodology of Anthropological Comparisions: an analysis of comparative methods in social and cultural anthropology. The University of Arizona Press.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc/B.A. Major (Honours) Course : Optional - 1
THIRD YEAR
PAPER V : TRIBAL DEVELOPMENT
FULL MARKS : 100 (THEORY : 50 + DISSERTATION : 50)

SECTION A : THEORY

1. Definition of tribe; Distribution and classification of tribes; Primitive tribes of India.

2. Colonial policy of tribal administration; Post colonial Constitutional safeguards and provisions for the scheduled tribes (Fifth and Sixth schedules of the Constitution).

3. Land and tribes: Land alienation, land reforms, Shifting Cultivation; Forests and tribals; Impact of industrialisation and Urbanisation; Displacement of tribals as a result of land acquisition for projects and their rehabilitation.

4. Planning and development: Scheduled tribes in Five Year Plans. Strategies of development: SMPT block, TD blocks and Tribal sub-plans.

5. Tribal movements: Reforms and religious movements; Political and identity movements.

SECTION B : PRACTICAL

6. Project Report: Each student is required to collect data for preparation of his/her Project Report. The Project Report should contain 30 pages or 7000 words at the minimum

The department will approve the research project on tribal development or allied themes and also allot a supervisor for research guidance.

All the Project Reports are to be submitted to the department, one month before the commencement of the final University Examination, which will be examined by two subject experts, (External and Internal), appointed by the University for this purpose.

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IIIrd Year
Paper : V.

TRIBAL DEVELOPMENT

RECOMMENDED READINGS:

1. Bose, N.K. : Tribal Life in India, National Book Trust, New Delhi.

2. Beteille, A. 1987 : Essays in Comparative Sociology, Oxford University Press, Delhi.

3. Elwin, V. 1963 : A New Deal for Tribal India, Ministry of Home Affairs.

4. Ghurye, G.S., ed. 1963 : The Scheduled Tribes, Popular Prakashan, Bombay.

5. Majumdar, D.N. 1973 : Race and Cultures of India. Asia Publication House. Bombay.

6. Ministry of Home A 1960 : Report of the Committee on Special Multipurpose Tribal Block.

7. Ministry of Home Affairs. 1984 : Report of Committee on Forest and Tribals in India.

8. Planning Commission 1969 : Report on the Study Team on Tribal Development Programme.

9. Planning Commission 1981 : Report on Development of Tribal Areas.

10. Sachchidananda, 1989 : Shifting Cultivation Concept Publishing, New Delhi.

11. Singh, K.S. 1969 : Tribal Situation in India Institute of Advanced Study. Simla.

12. Sharma B.D. : Basic Issues in Tribal Development, NEHU, Shillong

13. Sharma B.D. 1984 : Planning for Tribal Development Prachi Prakashan, New Delhi.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc/B.A. Major (Honours) Course : Optional - 2.

THIRD YEAR

PAPER V : ARCHAEOLOGICAL ANTHROPOLOGY

FULL MARKS : 100 (THEORY : 50 + PRACTICAL : 50)

SECTION A : THEORY

1. Methods of study in archaeological anthropology: Chronology - relative and absolute dating methods.
2. The first tool makers : Homo habilis; Biface technology; Homo erectus.
3. Development of flake tool technology : archaic Homo sapiens; colonization of temperate regions; first burials and rituals.
4. Salient features of palaeolithic, mesolithic and neolithic industries in Indian sub-continent.
5. Earliest civilizations; salient features of Indus Valley civilization. Main features of Indian megaliths.

SECTION B : PRACTICAL

6. Project Report : The students shall carry out a brief project report as prescribed by the department on a known archaeological site. The dissertation should contain 30 typed pages or 7000 words, at the minimum. The Department will approve the research project, and also allot a supervisor for research guidance. All the dissertations are to be submitted to the department one month before the commencement of the final University Examination, which will be examined by two subject experts (External and Internal), appointed by the University for this purpose.

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THIRD YEAR
PAPER V
ARCHAEOLOGICAL ANTHROPOLOGY

RECOMMENDED READINGS

1. Allchin, B. 1982 : The Rise of civilisation of India. Cambridge University Press, Cambridge

2. Bordes, AF. 1962 : The Old Stone Age, Weidfield & Nicholson, London

3. Campbell, B.G. 1982 : Humankind Emerging, Little Brow and Co. Boston.

4. Clark, G. 1974 : Archaeology and Society Methuen.

5. Clark, G. : World Prehistory: A New Perspective, Cambridge University Press.

6. Clark, G. & S. Piggott 1969 : Prehistoric Societies. Penguin Middlesex-

7. Hole,F. & R.F. 1973 :: Introduction to Prehistoric Archaeology, Holt. Rinehart & Winston, New York.

8. Mellaart, J. 1965 : The Earliest Civilization of the Near East, Thames and Hudson, London.

9. Oakley, K.P. 1950 : Man the Tool Maker, British Museum, London.

10. Pfeiffer, J.L. 1969 : The Emergence of Man. Harper and Row, New York.

11. H.D. Sankalia, 1979 : Prehistory of India. Munshiram Manoharlal, New Delhi.

DEPARTMENT OF ANTHROPOLOGY

F.32/B.A. Major (Honours) Course: Optional - 3.
THIRD YEAR
PAPER V : ADVANCE PHYSICAL ANTHROPOLOGY
FULL MARKS : 100 (THEORY: 60 + PRACTICAL : 40).

SECTION A : THEORY

1. Study of human skeleton; identification, structure and function of different bones of skeleton.

2. Age determination from skull, deciduous and permanent dentition.

3. Sex determination from skull and pelvis.

4. Applications of anthropology: designing, occupation, health and sports.

5. Applications of serology and dermatoglyphics: disputed paternity and personal identification.

SECTION B : PRACTICAL

6. Project Report: The students shall carry out a brief project report as prescribed by the department. The report should contain 30 pages or 7000 words.

The Department will approve the research project, and also allot a supervisor for research guidance. All the dissertations are to be submitted to the department one month before the commencement of the final University examination which will be examined by two subject experts (External and Internal), appointed by the University for this purpose.

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IIIrd Year
PAPER V

ADVANCE PHYSICAL ANTHROPOLOGY

RECOMMENDED READINGS

1. Avand Alexander, Jr. 1980 : To Be Human : An Introduction to Anthropology Columbia University, Newberg Award Record, Inc.

2. Buttner Janusch, J. 1966 : Origins of Man : New York HJohn Witley and Sons, Trc.

3. Dobzhansky, T. 1962 : Mankind Evolving. Yale University Press, New Haven.

4. Howells, W.W. 1959 : Mankind in the making. Gurden City N.Y. Doubleday & Co.

5. Jolly, C.J. & Plog. Fred. 1987 : Physical Anthropology and archaeology. Alfred A. Knopf, New York.

6. Volpe, E.P. 1989 : Understanding Evolution, New Delhi, Universal Book Stall.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc/B.A. MINOR (PASS) COURSE

YEARR	PAPER	TITLE OF THE COURSE	NO OF UNIT	NO OF CLASSES	MARKS
I	I	PHYSICAL ANTHROPOLOGY	9	50	TH: 75 PR: 25
II	II	SOCIAL ANTHROPOLOGY	8	50	TH: 75 PR: 25
III	III	ARCHAEOLOGICAL ANTH-ROPOLOGY.	8	50	TR: 75 PR: 25

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DEPARTMENT OF ANTHROPOLOGY

B.Sc/B.A. [illegible] Pass, Course
FIRST YEAR
PAPER I : PHYSICAL ANTHROPOLOGY
FULL MARKS : 100 (THEORY : 75 + PRACTICAL : 25)

SECTION A : THEORY

1. Meaning and scope of physical anthropology. Its relation to the other subdivisions of anthropology and other biological sciences.

2. Theories of organic evolution: Lamarckism, Drawinism, and Neo-Darwinism.

3. Man's place in the animal kingdom: Order Primate and their Chief characteristics; The Great Apes and Man.

4. Fossil evidence for the emergence of man: Australopithecines, Homo, Pithecanthropines and Homo-neanderthalensis.

5. Structure of cell and cell division: Mendelian principles of heredity.

6. The concept of race and the major races of the World.

SECTION B : PRACTICAL

7. Human Osteology: Identification, description and drawing of major human bones. (1) Skull, (2) Pelvis, (3) and Long bones.

8. Somatology: (a) Somatometric measurements- Height Vertex Sitting height vertex, height acromion Biacromial diameter, head length, head breadth, Bizygomatic breadth, bigonial breadth, nasal length and breadth, and body weight.

(b) Somatoscopic observation: hair (Texture, colour, form); skin (colour); Nose(form); eye (form and colour); chin (form), and face (form).

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1st YEAR
PAPER I.

PHYSICAL ANTHROPOLOGY

RECOMMENDED READINGS

1. Avend Alexander Jr. 1980 : To Be Human: An Introduction to Anthropology. Columbia University, Newberg Award Record. Inc.

2. Buttner Janusch, J 1966 : Orinins of Man : New York, John Witley and Sons, Inc.

3. Dobzhansky, T. 1962 : Mankind Evolving. Yale University Press, New Haven.

4. Howells, W.W. 1959 : Mankind in the making. Garden City N.Y. Doubleday & Co.

5. Jolly, C.J. & Plog. Fred 1987 : Physical Anthropology and Archaeology. Alfred A. Knopf. New York.

6. Volpe, E.P. 1989 : Understanding Evolution. New Delhi, Universal Book Stall.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc./B.A. Honour (Pass) Course
SECOND YEAR
PAPER II : SOCIAL ANTHROPOLOGY
FULL MARKS : 100 (THEORY : 75 + PRACTICAL 25)

SECTION A : THEORY

1. Meaning and scope of social anthropology: Its relationship with other subdisciplines of anthropology and with other social sciences.

2. Basic concepts of social anthropology : Society, Community institution, group, social structure and function, culture, socialization, folkways, mores, customs, norms, tradition, civilization, tribe and caste.

3. Social organisation : Definition and forms of marriage, Incest and incest taboo. Definition and forms of family, The joint family in India;

   Kinship - Descriptive and Classificatory systems according to Morgan and Murdock; descent and descent groups : Clan, phratry and moiety; Residence and usages.

4. Exchange: barter, reciprocity and redistribution, markets exchange.

5. Religion : Animatism, 'Animism', naturism and other theories of religion; Magic and religion.

6. Attributes of culture. Environmental determinism and culture ecology.

SECTION B : PRACTICAL

7. Identification, description and sketching of material cultures :

   (a) Agricultural Implements
   (b) Fishing Implements
   (c) Hunting Implements
   (d) Dress and ornaments.

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IInd Year
Paper:II.

SOCIAL ANTHROPOLOGY

RECOMMENDED READINGS

1. Beattie, J. 1976 : Other Cultures: aims, method and achievements in Social Anthropology. Routledge and Kegan Paul, London.

2. Belshaw, C. 1975 : Traditional Exchange and Modern Markets, Prentice Hall, New Jersey,

3. Beteille, A. 1974 : Six Essays in Comparative Sociology, Delhi: Oxford University Press.

4. Dalton, G. (ed) 1975 : "Tribal and Peasant Economics" in Readings in Economic Anthropology. American Museum of Natural History, Washington.

5. Forde, D. 1934 & 1970 : Habitat Economy and Society, A geographical Introduction, London

6. Herskovits, M.J. 1954 : Cultural Anthropology, Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, Bombay, Calcutta.

7. Herskovits, M.J. 1975 : Economic Anthropology. Eurasia Publications, New Delhi.

8. Kreobar, A.L. 1953 : Anthropology Today, Chicago University Press.

9. MacIver and Page, 1950 : Society: an Introductory analysis: Macmillan, London.

10. Madan, T.N. & Majumdar.D.N. 1956 : Introduction to Social Anthropology, Asia, Bombay.

11. Pritchard E. Evans 1972 : Social Anthropology, Routledge and Kegan Paul, London.

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DEPARTMENT OF ANTHROPOLOGY

B.Sc/B.A. Minor (Pass) Course

THIRD YEAR

PAPER III : PREHISTORIC ARCHAEOLOGY

FULL MARKS : 100 (THEORY : 75 + PRACTICAL : 25)

SECTION A : THEORY

1. Meaning and Scope of Prehistoric Archaeology: Prehistory, Protohistory, history; Relationship of prehistoric archaeology with other sub-divisions of anthropology and other sciences.

2. Geological time scale : pliestecene period and its subdivisions; Glaciation-stratigraphic and other evidences (river terraces, moraines and climatic fluctuations); Himalayan glaciations-Pluvials and interpluvials.

3. Stone Age Tools : technology and typology.

4. Age of palaeolithic savagery : Chief subdivisions of European palaeolithic, its stratigraphic and technological features.

5. Mesolithic complex in Europe and corresponding stone age industries.

6. Chief features of the Neolithic Revolution.

SECTION B : PRACTICAL

7. Identification, sketching and description of mesolithic, palaeolithic and neolithic tools.

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IIIRd Year
PAPER: III

PREHISTORIC ARCHAEOLOGY

RECOMMENDED READINGS

1. Alkhin, B. 1982 : Rice of Civilization In India and Pakistan. Cambridge University Press.

2. Border, F. 1965 : The Old Stone Age. Weidenfeld and Nicholson, London.

3. Burkitt, M. 1933 : Old Stone Age. Cambridge

4. Childe, V.G. 1936 : Man Makes Himself, Mentor Book. New York.

5. Childe, V.G. 1964 : What Happened in History, Harmondsworth, Penguin Books.

6. Fried, M. H. 1973 : Lxplorations In Anthropology: Readings in Culture, Man and Nature. Thomas Y. Growell. New York.

7. Oaklay, K.P. 1950 : Man the Tool-Maker, British Museum, London.

8. Shapiro, H.L. (ed), 1971 : Man, Culture and Society, Oxford University Press.London

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Annexure-F

The revision of B.Com Syllabus has been long overdue. The matter however has not been given attention due to the fact that the University has been contemplating to switch over from the present Two Year B.Com (Pass) and Three Year B.Com (Hons) into Three Year integrated B.Com (General) and B.Com (Major) for the past three years. Finally, the Academic Council in its 44th meeting approved the switch over, accepted the recommendations of the Committee appointed for this purpose and decided to introduce the change from 1993. As such, there will be two streams in B. Com Programme. One is B.Com (3-year) General Programme. The second is B.Com (3- year) Major programme. A student will have to study Nine (9) papers in Commerce when he chooses Three-Year B.Com General Programme. Whereas a student will have to study fourteen (14) papers when he choose Three Year B.Com Major programme. There will be nine (9) papers in Commerce common to both the streams. A student can switch over from Major stream to General Stream. However from General stream to Major stream, he is not permitted to switch over.

Following the guidelines recommended by the Committee and approved by the Academic Council, the syllabus for both the streams have been structured. In addition, it is kept in mind that a student at the undergraduate stage shpuld be given as much exposure as possible to the world of Commerce. This comes definitely in the way of reserving many subjects under the category of optional papers in the major stream. It is therefore decided that out of fourteen (14) papers, only two papers are reserved for optionals. A student therefore will have to choose one of the optional groups in the third year B.Com Major programme. Each optional group consists of two papers carrying two hundred (200) marks. A student in B.Com General programme however will not have any option. All the subjects are required subjects. Another important point that is born im mind in carrying out this excise is the national pattern which has been

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developed by the UGC-sponsored Committee. At the same time, the local constraints and infrastructure facilities have not been forgotten while carrying out this exercise. The Department has the benefit of many scholars who have earlier visited and given their valuable suggestions. The discussions that were carried in the previous BUGS meeting have now been given due consideration in finalising the syllabi for both the streams in the B.Com programme. The teachers in the Post Graduate Department of Commerce of the University richly shared their experiences in finalising the syllabi.

DEPARTMENT OF COMMERCE
NORTH EASTERN HILL UNIVERSITY
NAGALAND CAMPUS KOHIMA : KOHIMA - 797 001

B.Com 3 year General Programme	1st Year	2nd Year	3rd Year
Elective - 1	BC.G.1. 1 Financial Accounting -I	B.C.G. 2.1 Financial Accounting II	BC.G.3.1. Cost Accounting
Elective - 2	BC.G.1.2 Business Organisation & Mgmt.	BC.G.2.2 Business Laws	BC.G.3.2 Auditing & Income Tax.
Elective - 3	BC.G.1.3 Business Economics	BC.G.2.3 Theory & Practice of Banking.	BC.G.3.3 Business Statistics

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DEPARTMENT OF COMMERCE
NORTH EASTERN HILL UNIVERSITY
NAGALAND CAMPUS : KOHIMA - 797 001.

B.Com 3 Year Major - Programme.

	1st Year	2nd Year	3rd Year
Elective - 1	BC.H.1.1 Financial Accounting - I	BC.H.2.1. Financial Accounting - II	BC.H.3.1 Cost Accounting
Elective - 2	BC.H.1.2 Business Organisation & Management	BC.H.2.2 Business Laws	BC.H.3.2 Auditing & Income Tax
Elective - 3	BC.H.1.3 Business Economics	BC.H.2.3 Theory & Practice of Banking	BC.H.3.3 Business statistics
Elective - 4	BC.H.1.4 Business Mathematics and Computer Awareness	BC.H.2.4 Business environment	BC.H.3.4 Optional
Elective - 5		BC.H.2.5 Indian Financial System	BC.H.3.5 Optional

Optionals :

Group - I	1. Income Tax Law & Practice
	2. Advanced Auditing
Group -II	1. Advanced Financial Accounting
	2. Advanced Cost Accounting
Group-III	1. International Trade
	2. Public Finance
Group -IV	1. Macro-Economics
	2. Monetary Economics.

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Financial Accounting - I

OBJECTIVE:

The objective of this course is to provide knowledge of accounting principles and their application in different business situations.

COURSE CONTENTS

Unit I Introduction -

Accounting - A financial information system, inputs and outputs of the accounting system; Generally accepted accounting principles, conventions and postulates; The accounting equation. Mechanised system of accounting.

Unit II Business Income, Final Accounts, Depreciation and Reserves-

(a) Business Income- measurement; Accounting concept of income; Analysis of changes in income.

(b) Final Accounts and Statements - Construction of trading, manufacturing, profit and loss accounts and balance sheet of single enterprises and partnership concerns.

(c) Depreciation and Reserves - Accounting for depreciation, Reserves, provision and funds.

(d) Accounts of Non Trading concerns and Accounts of Incomplete Accounts.

Unit III Advanced study of Partnership Accounts- Accounting problems related to admission, retirement, death of a partner, dissolution and amalgamation of firms.

Unit IV Advanced study of Company Accounts - Accounting for shares and debentures; Final accounts; Acquisition of sole proprietorship and partnership firm.

Unit V Financial Statement Analysis- Reporting of Published Accounts and Statements- modern trends; Analysis of financial statements- Significance; Major user groups; Techniques with special reference to financial ratios.

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Suggested Books

1. Agarwal. ... : Higher Science of Accountancy-- (Allahabad, Kitab Mahal,.

2. Shukla & Grewal : Advanced Accounts --(Delhi, S.Chand)

3. Jain & Narang . Advanced Accountancy - (Ludhiana , Kalyani Publishers)

4. Gupta R.L. : Advanced Accountancy - (Delhi, S.Chand)

5. Pickle : Accountancy - (Delhi, S.Chand)

6. Gillespie . Accounting System ; Procedures & Methods-- (Delhi, Prentice Hall India Ltd.)

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Business Organisation and Management.

OBJECTIVES.

To acquaint students with the fundamentals of business organisation and management as a body of knowledge.

COURSE CONTENTS.

Unit I Forms, Location & Size of Business Units-

(a) Introduction - Meaning, types and objectives; Social responsibility.

(b) Forms of Business Units - Objectives and distinctive features of different forms of business organisation- sole proprietorship, partnership, company, cooperative and public enterprise.

(c) Location and Size - Theories of Location and factors affecting it, optimum size; Factors affecting it; Scale of operation.

Unit II - Main Issues of Business Organisation -

(a) Forms of Trading Organisation- Wholesalers, retailers, departmental stores, mail order business, chain stores, super markets.

(b) Scientific Management- Meaning, principles elements; Merits and opposition.

(c) Rationalisation - Meaning, features, advantages and limitations.

(d) Stock Exchanges and Business combinations.

Unit III - Nature of Management-

Meaning, Evolution and approaches; Levels; Principles of Management; Management of Change. Management styles and trends in India.

Unit IV Functions of Management (1)-
Classification of functions; Planning-nature of types; steps in planning; Importance and limitations of planning; Organising elements and process; Types of organisation; Delegation of authority; Centralisation and decentralisation.

Unit V Functions of Management (2)-
Staffing- meaning and importance; Direction-nature and principles; Communication-types and importance; Motivation-meaning and theories; Leadership-meaning and types quality and functions of leader; Controlling-nature-process and techniques; Coordination.

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Suggested Books

1. Shukla. M.C. : Modern Business Organisation - (Delhi, S. Chand,.

2. Sharlekar, S.A. : Modern Business Organisation and Management- (Bombay, Himalaya Publishing House)

3. Prakash, J.: Business Organisation & Management.. (Allahabad, Chaitanya Pu lishing House).

4. Agarwal, R.D. : Organisation and Management - (Delhi, Tata McGraw Hall Publishing Company Ltd).

5. Massie. J.L. Essentials of Management - (Delhi, Prentice Hall).

6. Brech E.F.L (Ed) : Framework of Organisation - (Longmans Green).

7. Koontz and O'Donnel : Essentials of Management- (Calcutta, Tata McGraw Hills).

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Business Economics

OBJECTIVES :

To acquaint the students with principles of Business Economics.

COURSE CONTENTS :

Unit I Introduction -
Defination, Scope, Micro and macro economics; Significance of economics role in Business decisions, Economics systems.

Unit II Demand Analysis and Forecasting -

Utility analysis of consumers' demand; Indifference curves; Consumers' equilibrium; Elasticity of demand and its measurement; Demand distinction- durable and non-durable goods, derived and autonomous demand, industry and company demand Demand forecasting- purpose and methods.

Unit III Production and Supply -

Factors of production; Land - its characteristics; Labour - Theories of population; division and efficiency of labour; Capital - its characteristics and formation; Organisation; Laws of returns; Production functions; Linear programing; Supply curve.

Unit IV Cost Analysis & Price Determination -

(a) Cost Analysis - Cost concepts and classification; Cost-output relationship, Determination of cost and its importance in decision making; Cost control and cost reduction.

(b) Price Determination - Market - its defination and Classification; Price and output determination under perfect and imperfect competition and under monopolistics condition; Pricing policies; Statutory price fixation in India.

Unit V Income Distribution -

Marginal Productivity Theory; Theories of the Determination of rent, wages, interest and profit. National dividend; Distribution and economic welfare. Public Finance; characteristics of good Tax System- Incidence of Taxation- shifting Tax- Taxable capacity - Direct and Indirect Tax - Burden and Repayment of Public Debt - Principles of public Expenditure.

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Recommended Books

1. Devett. [illegible] Modern Economic Theory - (Delhi. S.Chand)

2. Ghosh and Ghosh [illegible] Business Economics & Planning - (Ludhiana, Kalyani Publishing House)

3. Ghosh. A. Ghosh [illegible] Managerial economics - (Ludhiana, Kalyani Publishing House)

4. Maheshwari [illegible] Managerial Economics - [illegible] Delhi, S.Chand & Co.)

5. Stonier and Hague [illegible] A Text Book of Economics Theory (E L B S : London)

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Financial Accounting - II

OBJECTIVE :

The objective of this course is to provide knowledge and develop skills in the construction of accounts of companies and specialised business entities.

Unit I Company Accounts (1)-

Profit prior to incorporation; Disposition of profits; Redemption of Preference shares; Amalgamation, absorption and reconstruction of companies; Alternation and reduction of capital. Liquidation of companies.

Unit II Company Accounts (2) -

(a) Accounts of Holding Companies - Legal provisions; Preparation of consolidated profit and loss account and balance sheet with one subsidiary.

(b) Shares and Goodwill - Valuation methods.

Unit III Banking and Insurance Companies-

Final accounts and schedules.

Unit IV Funds Statements and Inflation Accounting -

(a) Funds Flow and Cash Flow Statements : Meaning and distinction; Statement of Changes in financial position; Estimation of working capital; Preparation of Funds Flow and Cash Flow Statements.

(b) Inflation Accounting - Accounting for price level changes with special references to Current Cost Accounting.

Unit V Specialised Accounting - Hire purchase and instalment purchase systems; Branch and Departmental Accounts; Double Accounts for Electricity Companies only.

Suggested Books

1. Jain & Narang : Company Accounts -(Ludhiana, Kalyani Publishing House).
2. Shukla & Grewal : Advanced Accounts - (Delhi, S. Chand).
3. Gupta, K.L. :Adveced Accounts - (Delhi, Sultan Chand)
4. Chakrawarti. H. Advanced Accountancy - (Calcutta, Oxford University Press).
5. Agarwala.B.D. : Financial Accounting - Advanced - (Delhi, Pitamber Publishers).
6. Myer, J.N. : Financial Statements Analysis - (Englewood Cliff Prentice Hall).
7. Helfert, E.A. : Techniques of Financial Analysis- (Homewood, Richard D. Irwin).
8. Agarwal .A.N. : Higher Science of Accountancy - (Allahabad Kitab Mahal).

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Business Laws

OBJECTIVE :

To impart to the students basic knowledge of important laws applicable to business, trade and industry.

COURSE CONTENTS :

Unit I The Law of Contract -

Agreement and contract; Void and Voidable contracts; Capacity of parties; Free consent; Legality of object and consideration; Performance and discharge of contracts; Indemnity and Guarantee : Bailment and Agency.

Unit II The Laws Relating to Sale of Goods, Carriage of Goods and Partnership -

(a) The Law Relating to Sale of Goods - Sale and agreement to sell; Conditions and warranties; Transfer of property ; Doctrine of Caveat Emptor; Auction sale; Unpaid seller.

(b) The Laws Relating to Carriage of Goods -

Introduction ; Carrigage by land; Carrigge by sea ; Carriage by air.

(c) The Partnership Act - Nature, test and types of partnership; Partnership deed; Rights and liabilities of partners; Registration; Dissolution.

Unit III The Law Relating to Companies -

Defination and types of companies; Promotion and incorporation ; Memorandum and Articles of Association and Prospectus; Shares and debentures; Borrowing Powers, Directors; Meetings and resolutions; Winding up.

Unit IV The Law Relating to Industries -

Factories Act- Industrial Disputes Act- Minimum wages Act- Workmen Compensation Act.

Unit V The Laws Relating to Economic Offences, Consumer Protection and Industrial Sickness-

(a) The Laws Relating to Economic Offences and Consumer Protection - Main provisions of MRTP , FERA and Consumers' Protection Act.

(b) The Laws Relating to Industrial Sickness.

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Suggested Books

1. Chawala & Garg : Commercial Law - (Ludhiana, Kalyani Prakashan).

2. Anson, W.R. Law of Contract - (U.K. English Language Book Society).

3. Pandiya . : Mercantile Law.

4. Maheshwari & Maheshwari . Business Law - (Delhi, National Publishing House).

5. Shukla .M.C : A manual of Mercantile Law - (Delhi, S.Chand)

6. Kulshrestha, U.C. : Business Law (Delhi, Vikas Publishing House).

7. Shah , S.M. : Lectures on Company Law - Bombay .M.M. Tripathi)

8. A.K. Sen and J.K. Mitra : Commercial Law (World Press)

9. N.D. Kapoor . Commercial and Industrial Law (Sultan Chand).

10. N.K Sharma . Company Law (Sahitya Bhavan, Agra)

11. N.K. Sharma : Company Law and Secretarial Practice (Sahitya Bhavan, Agra).

Theory and Practice of Banking

OBJECTIVE :

The objective of the course is to impart knowledge to the students with basic concepts and principles of commercial Banks and their operation.

COURSE CONTENTS :

Unit I — Introduction

(a) Nature of Commerical Banks - Definition - classification - Functions - Investment Policy - credit creation.

(b) Commercial Banks in India - Social control - Nationalisation - present structure and organisation - current problems.

Unit II — Commercial Bank operations.

(a) Banker and customer Relationship - Bank Accounts - Negotiabel Intruments.

(b) Collection and payment of cheques and Bills - clearing house operations.

Unit III — Central Banking and Reserve Bank of India.

(a) A detailed study of the Central Banking Theory.

(b) A detailed study of the Reserve Bank of India.

Unit IV — Banking Law (1)

Evolution of Banking Legislation in India. A study of the main provisions of Banking Regulations Act 1949. Banking Companies (Acquisitions & Transfer of Undertakings) Act 1970.

Unit V — Banking Law (2)

Reserve Bank of India Act 1934, and Negotiable Intruments Act, 1881.

Suggested Books

1. K.C. Shekar : Banking Theory and Practice (Vikas Publishing House).
2. P.K. Srivastava. : Banking Theory and Practice. (Himalaya Publishing House).
3. R.R.S. Mehta. : Fundamentals of Banking (Himalaya Publishing House.
4. Radhaswami Vasudevan. : Banking Law, Practice & Theory (S. Chand Company).
5. S.N.L. Nigam. : Banking Law & Practice (Kunark Publisher Pvt. Ltd.).

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Cost Accounting

OBJECTIVE :

To acquaint the students with the basic concepts and tools used in Cost Accounting components of cost, their accounting and management control.

COURSE CONTENTS :

Unit I Nature and Accounting for Material and Labour Cost-

(a) Nature- Meaning, Scope and importance of Cost Accounting; Concept, analysis and elements of Cost, Distinction between Cost; Financial and Management Accounting.

(b) Accounting for Material - Purchasing, storing and issuing procedures; Methods of inventory valuation; Material accounting.

(c) Accounting for Labour Cost - Computation of labour cost; Treatment of idle time; overtime wages; Leave with wages etc.; Labour turnover; Principal methods of remuneration; Various incentive wage systems.

Unit II Accounting for Overhead Cost -

Classification, collection, allocation, apportionment and absorptions of overheads, Need for using estimated overheads rates; Treatment of under and over absorption of overheads.

Unit III Methods of Costing (1)-
Unit Costing; Batch costing; Contract costing; Process costing; Joint product and By-Product Accounting.

Unit IV Methods of Costing (2)-

Operation costing; Unit and output costing; Integral Accounting; Reconciliation of cost and financial accounting.

Unit V Marginal and Standard Costing and Budgetary Control

(a) Marginal Costing - Basic concepts; Cost-Volume-profit analysis; Differential costing and application of Marginal costing in decision making.

(b) Standard Costing - Uses and uses; Variance analysis - material, labour, overheads (two-day only).

(c) Budget and Budgetary Control - Meaning, Objectives, merits and limitations; Functional budgets; Flexible budgets; Process and administration of budgetary control; Zero-base budgeting.

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Suggested Books:

1. Nigam, Narang & Sehgal : Principle & Practice of Cost Accounting. (Delhi, S. Chand).
2. Rao, V.S.P.& P.S. Narayana : Cost Accountancy- Text and Cases - (New Delhi Konark).
3. Nigam & Sharma : Cost Accounting, Principles & Application-(Bombay, Himalaya Publishing House).
4. Ghosh, P.K. : Cost Accountancy- (Delhi, National Publishing House).
5. Jain & Narnag : Cost Accounting (English) Ludhiana, Kalyani Publishing House
6. Prasad, N.K. : Cost Accounting - (Calcutta, Academic Press).
7. Bigg, W.W. : Cost Accounting - (USA, P.T.H)
8. B. Banerjee : Cost Accounting (World Press).

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OBJECTIVE :

To impart knowledge of the principles, methods and techniques of auditing and their application.

COURSE CONTENTS :

Unit I Audit and Audit Process -

(a) Audit - The attest function, meaning, importance objects and various classes of audit.

(b) Audit Process - Internal control; Internal audit and internal check; Planning the audit; Audit Programme; Evidence and working papers; Audit Sampling.

Unit II Audit Procedures -

Routine checking; Vouching; Verification and valuation of assets and liabilities.

Unit III Audit of Limited Companies and Public Undertakings-

Qualifications and appointment of company auditor; Their powers, duties and liabilities; Audit of share capital and debentures; Share transfers and managerial remuneration; Depreciation and reserves; Divisible profits & dividends; Audit of public undertaking.

Unit IV Audit of Specialised Units and Investigation-

(a) Audit of Specialised Units- Special features of audit of banking companies, educational institutions and co-operarive societies.

(b) Investigation -Meaning, difference between auditing and investigation and various classes of investigation.

Unit V Auditor's Communication and Recent Trends-

(a) Auditor's Communication - Standard and qualified reports; Statutory report.

(b) Recent Trends in Auditing - Cost audit; Tax audit, Management audit; Efficiency audit; Propriety audit VFM Audit.

(c) Income Tax Basic Terms - Sources of Income- Exemptions and Deductions - Computation of Taxable Income in case of individuals(Salaries and House Properties only).

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Suggested Books

1. Howard : Auditing - (Delhi, S. Chand)

2. Mehta & Annadhanam : Rights, Duties Liabilities of Auditor - (Delhi, S. Chand).

3. Saxena R.G. : Principles of Auditing (Theory & Practice)- Bombay, Himalaya Publishing House).

4. Stattler : Auditing Principles - (Delhi, Prentice Hall of India).

5. Prakash , J. : Auditing - Principles and Practice -(Ludhiana, Kalyani Publishing House).

6. Gupta, Kamal : Contemporary Auditing (Delhi, McGraw Hill).

7. Spicer & Pejler : Practical Auditing - (India Edition)

8. F.R.M., De. Paula : The Principles of Auditing.

9. D.K. Chakraborty : First Step : Income Tax(Ravindra Library Calcutta).

10. B.N. Tandon :Auditing (S. Chand, New Delhi).

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Business Statistics

OBJECTIVE:

To acquaint students with the techniques of Statistical measures and analysis.

COURSE CONTENTS :

Unit I Introduction -

Meaning, Scope and limitation of statistics; Relationship with other science; Types of data; Collection and Editing of data; Diagramatic and graphic representation of data; Statistical unit and errors; Concepts of Probability and Sampling. Statistical Quality control.

Unit II Statistical Measures -

(a) Measures of central tendency- Mean, median, mode, geometric mean, harmonic mean.

(b) Measures of Variation - Range, inter quartile range, mean deviation, standard deviation and quartile deviations; Skewness; Moments; Kurtosis.

Unit III Correlation and Time Series Analysis -

(a) Simple Correlation - Karl Pearson's Coefficient of Correlation; Rank Correlation: Correlation between Short Time Oscillations of two series.

(b) Time Series Analysis Trend and its measurement; Short-term oscillations, seasonal variations; Regular & irregular fluctuations.

Unit IV Index Numbers and Interpolation-

(a) Index Number - Concept and uses; Construction of various types of Index Numbers.

(b) Interpolation and Extrapolation - Meaning, methods and limitations.

Unit V Statistical Data -
Forecasting; Interpretation; Inductive and deductive reasoning; Official organisations for collection of data in India.

Suggested Books

1. Shukla & Gulshan : Statistics (Delhi, S.Chand).
2. Gupta, S.P. : Fundamentals of Statistics (Bombay Himalaya Publishing House).
3. Gupta C.B. : Introduction to Statistical Method (Delhi Vikas Publishing House).
4. Asthana B.N. : Elements of Statistics (Allahabad Chaitanya Publishing House).
5. Elhance D.N. : Fundamentals of Statistics (Allahabad Kitab Mahal).
6. Bowley, A.L. : Elements of Statistics (London)
7. N.G. Das : Practicals Statistics (A.K. Mukherjee).
8. N.K. Sharma. : Practical Statistics (Sahitya Bhavan).

Business Mathematics and Computer Awareness

OBJECTIVE :

The objective of this course is to develop basic mathematical skills and provide an awareness of computer applications.

COURSE CONTENTS :

SECTION I — Business Mathematics — 60 Marks

Unit I — Theory of Sets and Algebra-

(a) Set Theory - Defination, elements and types of Sets; Operations on Sets; Relations and Functions of Sets.

(b) Algebra - Ratio of Proportion and Variation; Indices; Surds; Arithmatical, Geometrical and Harmonical Progressions; Permutations and Combinations; Binomial Theorem; Logarthim, Exponential and Logarithmic Series; Interest and Annuities.

(c) Metrics and Determinanats.

Unit II — Plane Analytic Geometry-

Cartesian Co-ordinate System; Length of a line segment; Section Formulae (ratio); Gradient of a Straight Line; Equations of a Straight Line; Circle Parabola, Ellipse and Hyperbola (Standard forms only).

Unit III — Calculus

Number System - Natural Numbers, Integers, Rational and Irrational Numbers, Prime Numbers and Complex Numbers; Variables, Constants and Functions; Graphical Representation of Functions; Limits of Algebric Functions; Derivatives; Rules of Differentiation; Maxima and Minima of Algebric Functions; Integration (Integration by substitution and by parts).

SECTION II — Computer Awareness — 40 Marks

Unit IV — Introduction and Computer Architecture-

(a) Introduction- History of Computers, the definition, significance of computers; The limitations of computers. Types of computer-(MICRO, MINI, MAIN FRAME).

(b) Social Issues- Economic implications regarding growth and employment- human relations impact, security aspects, privacy, Future trends.

(c) Computer Structure - Input unit; C.P.Y.; Data representation inside the computer; Secondary Storage; Memory unit; Output unit; Program; Raw data; Final result, Binary System.

(d) Devices- Input devices; Output devices Backing store.

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Unit V Computer Language and Application-

(a) Computer Language - Machine language; Assembly language; Higher Level language; Algorithms; Flowcharting; Compilers & Interpreters.

(b) Computer Applications- Scientific research; Commercial applications; Industrial control; Government records; Library system; Meteorology; Public utilities.

(c) Personal Computer - Meaning and applications; Limitations of P.C.

Suggested Books.

Business Mathematics and Computer Awareness.

1. Sancheti.D.C, Kapoor V.K. : Business Mathematics-(Delhi, S.Chand).

2. Zameeruddin, Khanna, Bhambri: Business Mathematics- (Delhi Vikas Publishing House).

3. Prasad, Gorakh : Differential Calculus -(Allahabad Pathishala).

4. Prasad Gorakh : Integral Calculus-(Allahabad, Pothishala).

5. Hall, Knight : Higher Algebra - (Macmillan Student edition).

6. Draper & Klingman : Mathematical Analysis-Business and Economic Application-(New York Harper Row Publication).

7. Br.Eric S.D' Souza : Clipping in (New Delhi, SKW Enterprises)

8. French, C.S. : Computer Studies - (Delhi, Galogidia Book Stores).

9. Donal H. Sanders: Computers in Business - An Introduction.

10. Rajaraman ; Fundamentals of Computer - (Delhi, Prentice Hall of India)

11. Kakkad & Vaswani : Fundamental of Computer Science- (Bombay, Himalaya Publishing House).

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Indian Financial System

OBJECTIVE :

To Familiarize students with the organisation and functioning of various bank and Non Bank institutions in the money and capital market of India.

Unit I Introduction

Structure and characteristics of Indian Financial System ; Functions and Roles of bank and non bank financial institutions.

Unit II Institutional Structure (1)

A detailed study of the structure of institutions operating for money markets of India. Instruments of money market.

Unit III Institutional structure (2)

A detailed study of the structure of Institutions operating gor capital market of India; Instruments of capital market.

Unit IV Statutary Framework.

A detailed study of the Statutory Framework for money and capital Markets of India.

Unit V International Monetary System.

A detailed study of the Institutions involved in the International Monetary System; Problems of International liquidity.

Suggested Books

1. M.Y. Khan : Indian Financial System (Vikas Publishing House)
2. L.M. Bholey : Financial Methods and Institutions (Mc Graw Hill Pub).
3. B.M. Bhatia : New Issue Market of India (Vora Publication (P) Ltd.)
4. Ross Peter and F. Donald. : Financial Institutions (Irwin Dorsey Ltd).

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Business Environment

OBJECTIVE :

The objective of this course is to provide a general understanding of the various aspects of business environment of the country.

COURSE CONTENTS :

Unit I — Introduction -

Concept and significance of business environment; Industrial policy and licencing policy; Role of Public and private sector ; Basic features of Indian planning.

Unit II — Resources -

(a) Human Resources Size, composition and growth rate of population; Problems and policies relating to population in India.

(b) Natural Resources- A brief study of land, minerals, water, power and fisheries resources of India and their significance in the process of economic development . Aforestation and maintenance of ecological balance and control of pollution.

Unit III — Agriculture -

Place of agriculture in Indian economy; Principal crops and growth rates in agriculture. Green and white revolutions, Main problems. Role of cooperative movement inrural life of India.

Unit IV — Industries -

(a) Principal Industries - A bried study of present position, recent development, problems and future prospects of iron and steel, Cotton textile, cement, sugar; jute and fertilizer industries of India; Government policy.

(b) Small Scale and Cottage Industries - Their role, Problems and prospects in India.

Unit V — Foreign Trade and Transport. -

(a) Foreign Trade- Recent trends, structure and direction of foreign trade of India Tariff Policy; Non-resident investment.

(b) Transport - Its significance in economic development; Principal modes of transport - railway road, air and shipping.

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Suggested Books

1. Agarwal , A.N. : Indian Economy - (Delhi, Vikas Publishing House).

2. Cherunilam Francis : Business Environment - (Delhi, Himalaya Publishing House).

3. Datta & Sundaram : Indian Economy - (Delhi, S. Chand).

4. Khan. Farooq. A. : Business & Society - (Delhi, S. Chand)

5. Alak Bhosh : Indian Economy - (Calcutta, World Press).

6. Bearley, Michand & Evans, Tom Helen) : Corporate Social Responsibility- - London,

7. M. Adhikary : Economic Environment of Business (Sultan Chand and Sons, New Delhi).

8. P.K. Ghosh : Business and Government (Sultan Chand and Sons , New Delhi).

9. D. Amarchand : Government and Business (Tata Mc Graw Hill Pub. Co. New Delhi).

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Income Tax Law and Practice

OBJECTIVE :

To provide an understanding of the main provisions of Income Tax Act, 1961 and their application.

COURSE CONTENTS :

Unit I Conceptual Framework and Exemptions-

(a) Conceptual Framework - Income, Agricultural Income ; Residential status and incidence of tax; Casual Income.

(b) Exemptions and Exclusions - Rebatable income and incomes not included in total income.

Unit II Computation of Income (1)-

Salaries; Income from house property.

Unit III Computations of Income (2) -

Profits or gains of business or profession; Capital gains and income from other sources; Clubbing provisions; Set-off and carry- forward of losses; Deduction from gross total income.

Unit IV Computation and payment of Tax -

Computation of total income of various taxable entities (including an elementary treatment of company taxation). Computation of tax for various taxable entities; Deduction of tax at source; Advance payment of tax and payment of tax when demanded.

Unit V Assessment and Appeals Procudure -

Tax authorities and assessment procedure; Rectification of mistaken; Appellate procudure- appeals and revision; Appellate authorities. Penalties- Penalties and prosecution.

Leading Cases -

- Dhakeshwari Cotton Mills Ltd. CIT (1954) 26 ITR 775 (SC)
- CIT .V. Vegetable Products (1973) 88 ITR 192 (SC).
- CIT.V. Raja Benoy Kumar Sahas Roy (1057) 32 ITR 466 (SC)
- Mc Dowell & Co. Ltd. V. CTO (1965) 154 ITR 148 (SC)
- CITV. Shaw Wallace & Co. AIR (1932) PC 138.
- G. Venkataswamy Naidu & Co. V. CIT (1959) 35 ITR (SC).

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Suggested Books

1. Mehrotra, H.C. : Income Tax Law & Practice - (Agra, Sahitya Bhavan).

2. Gaur & Narang : Income Tax Law & Practice- (Ludhiana, Kalyani Publishing House).

3. Prasad, Bhagwati: Income Tax Law & Practice - (Aligarh, Navman)

4. Singhania, V.K. : Direct Taxes Law & Practice - (Delhi, Taxman Publication).

5. Bhattacharya, Shanker : Indian Income Tax Law and Practice- (Calcutta, Eastern Law House).

6. D.K. Chakraborty : Practical Approach to Taxation(Rabindra Library, Calcutta).

5:2:1(143)

Advanced Auditing

OBJECTIVE :

To impart advanced knowledge of the Principles, methods and techniques of auditing and their application.

Unit I Government Accounts and their Audit.

A detailed study of the nature of Government of Indian Accounts and their Audit practice.

Unit II Audit of Cost Accounts

A detailed study of the audit of cost Accounts.

Unit III Management Audit & Social Audit

A detailed study of the management Audit and Social Audit.

Unit IV Internal Auditing

A detailed study of internal auditing and its management.

Unit V Internal Audit Reports.

The process of Internal Audit Report writing - The form and content of Internal Audit Reports - Internal Auditing as a profession.

Suggested Books

1. Kamal Gupta : Contmeporary Auditing(Mc Graw-Bill).
2. B.N. Tandon : Practical Auditing (S. CHand).
3. J. Prakash : Auditing (Kalyani publishers).
4. L.R. Howard : Auditing (E.L.B.S. Publication).
5. A.D. Chambers : Internal Auditing (Pitman).

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Advanced Financial Accounting

OBJECTIVE :

The objective of the course is to impart knowledge and skills in some advanced Financial Accounting topics.

Unit I Controllership and Group Accounts

Controllership Functions - property control, legal function of control and management functions of control-Holding company- and Group Accounts-Consolidated statements-pooling method-pooling and purchase method.

Unit II Specialised Accounts -

Farm Accounting -Hotel Accounting- Accounting in Transport organisations: Principles, formats, books, Ledgers, and Final Accounts.

Unit III Accounting for Leases

Financial and operating Leases:Principles and practices of accounting for leases in USA;UK; and India. Evaluation of Leases.

Unit IV Current Issues

Zero-Base Budgeting: Concept and Application-Social Accounting- Accounting for Research and Development-National Accounting System-Cost Benefit Analysis.

Unit V Accounting for Government Projects.

Classification of Government Projects-Evaluation Techniques- Review and control Techniques - Accountant's Role in organisation, planning, Evaluation, and control in Government projects.

Suggested Books

1. Sukla and Grewal : Advanced Accounts (S. Chand).
2. Jain and Narang : Company Accounts (Kalyani Publishing House).
3. R.L. Gupta : Advanced Accounts (S. Chand).
4. H. Chakraborty : Advanced Accountancy (Oxford Uni. Press).
5. Raj, Kishore Srivastava : Encyclopedia of Government Accounting, (Kitab Mahal).
6. Raj Kishore Srivastava: Government Budgeting and Accounting (Kitab Mahal).
7. Government of India : Introduction to Indian Govt. Accounting.

5:2:1 (145)

Advanced Cost Accounting

OBJECTIVE :

The objective of this course is to provide knowledge and develop skills in advanced cost Accounting areas.

Unit I — Relevance, Pricing, and decision Process

Information and decision Process; Meaning of relevance; conribution approach to Pricing; irrelevance of past costs; Role of Income Tax; Problem of uncertainty.

Unit II — Uniform costing and Interfirm comparison.

A detai ed study of Uniform costing and techniques of Inter-firm comparisn.

Unit III — Value Analysis, Cost Reduction, and Productivity

A detailed study of various aspected related to value Analysis, cot Reduction, and productivity.

Unit IV — Information system and Data Processing

Information for various levels of Managment; A detailed study of Information system and Data processing fundamental aspects.

Unit V — Operation Research and Quantitative Techniques

Operation research and Cost Accountant: Tachniques of operation Research; Linear programming Simplex Method; The trasportation Problem; The Assignment Problem; PERT ; CPM; Queing Theory.

Suggested Books

1. Charles T. Horngren : Cost Accounting (Prentice Hall of India)
2. N.K. Prasad : Principles and Practice of Cost Accounting (Book Syndicate (P) Ltd.)
3. Nigam & Sharma : Advanced Cost Accounting (Himalaya Publ Publishing House).
4. Jain & Narang : Cost Accounting (Kalyani Publishers).

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INTERNATIONAL TRADE

OBJECTIVE :

To provide an insight into the concepts, theories, agreements and regulatory framework relating to international trade, and to expose the students to the contemporary problems in the area.

COURSE CONTENTS:

UNIT I : Introduction -

Economics and rationale of international trade; Theories of international trade- Comparative Cost Theory; Heckscher- Oholin's Theory of International Trade; Leontief Paradox.

UNIT II - Regulation of International Trade -

Gains from international trade and its measur-ment; Terms of trade- different concepts ; Theory of Reciprocal Demand; Factors affecting terms of Trade; Fre Traders. protection; Tariffs, Quota and Dumping.

UNIT III- Foreing Exchange and Balance of payment -

(a) Foreign Exchange - Fluctuations is foreign exchange- causes, consequences and limitations; Foreign exchange rates importance and determination; Fixed parity with IMF and its abandonment; Emergence of floating rates; Exchange control- meaning, objects and methods; Exchange control in India.

(b) Balance of Payment - Concept and importance; Balance of payment and balance of trade; Disequilibrium in balance of payment- kinds, causes and measures for correction.

UNIT IV - International Institutions and Trade Agreements-

Bilateral and multilateral trade systems; Customs union; GATT; UNOTSD, ECM, COMECON and concept of Asian Common Market.

UNIT V - India's Foreign Trade -

Brief history and recent trends regarding volums, composition and direction. Export promotion, and import substitution; Foreign exchange problems in India; FERA.

Suggested Books

1. Bhagawat, J.(ed) : International Trade (Penguin Books)
2. Elesworth, P.T : International Economy- (New York, Macmillan).
3. Haberler G : Theory of International Trade-(London, William Hdge & Co.)
4. Seth, M.L. : Money Banking & International Trade- (Agra, Educational Publishers).
5. Chatterjee, A.K. : Principles of Foreign Exchange Vol. I & Vol II (Bombay, Himalaya Publishing House)

Public Finance

OBJECTIVE :

To impart knowledge of the concepts and theories of Public Finance and their application in India.

COURSE CONTENTS :

Unit I — Introduction -

Nature and Scope; Private and Public Finance; Public Finance and other sciences; Theory of Public Finance; The Principle of Maximum Social Advantage.

Unit II — Budget -

Concepts - Incremental Budgeting, Preformance Budgeting and Zero-Base Budgeting; Monetoring and concurrent Evaluation; Budget balancing; preparation of a budget its legislatiob and execution; Budgetary control in India.

Unit III — Public Revenues -

Meaning and classification; Sources-tax and non-tax reavenue; Canons and Basis of taxation; Kinds of taxes; Impact and Indidence of taxes; Effects of taxes; Taxable capacity ; Tax structure in India.

Unit IV — Public Expenditure and Public Debt -

(a) Public Expenditure - Nature, objectives and classification; Canons of public expenditure; Effects of expenditure ; Public expenditure in India.

(b) Public Debt - Meaning and importance ; Private a and public debt; Classification; Sources; Effects Repayment and servicing of Public debt in India; Linit of public debt; Debt management policy .

Unit V — Specific Issues of Public Finance in India -

Union -State Financial Relations; Finance Commission; Local Finance; Deficit Financing; Taxation of Indian agriculture.

Suggested Books

1. Musgrave & Musgrave : Public Finance in Theory & Practice (Mc Graw - Hill).
2. Dalton : Public Finance -
3. Sung .S.K. : Public Finance in Develop & Developing Countries - (Delhi , S. Chand).
4. Bhatia H.L. : Public Finance -(Delhi, Vikas Publishing House).
5. Bhargave, P.K. : Essays on India Public Finance (Allahabad, Chugh Publications).
6. Allen & Brouhlee : Economics of Public Finance.
7. Prest, A.R. : Public Finance in Theory & Practice (Weider Field).

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Macro Economics

OBJECTIVE :

To provide understanding of economic principles and issues at macro-level and to develop ability to analyse and apply them to current economic issues.

COURSE CONTENTS :

Unit I — Introduction -

Definition, Scope and importance of Macro Economics; Limitations of Macro Economics; Capitalism; Socialism; Communism and Gandhism. Mixed Economy and new Economic Order; The concept of Welfare Economics.

Unit II — Income Determination -

The concepts of Income, savings and investment; Theories of Income determination; The National Income Accounts; Consumption and investment spending; Equilibrium income and full employment; Income Lags; The principle of Multiplier and Acceleration; Social Accounting.

Unit III — Business Cycles -

Phases; Theories; Control of business cycles- monetary and fiscal policies.

Unit IV — Economic Issues -

Inflation, stagflation and deflation, Price stability and full employment; Money supply and price; Control of money supply. Expansionary Monetary policy M_1 , M_2 , M_3 ; Capital formation and economic growth.

Unit V — International Economics -

The theories of international trade ; The international payment mechanism and international liquidity; Issues in foreign exchange; Foreign exchange risk management.

Suggested Books

1. Schumpeter, Joseph, A : Capitalism and Democracy-(Allen and Irwin).
2. Mathur, J.S. & A.S. (Ed). :Economic Thought of Mahatma Gandhi (Allahabad, Chaitnya Publishing House)
3. Gardner Ackley . Macroeconomics : Theory and Policy- (Macmillar).
4. Turnovasky .S.J. : Macroeconomic Analysis and Stabillization Policy (Cambridge, Indian Reprint, 1962).
6. Kindleberger, C.P. International Economics - (Richard. D. Irwin)
6. Sodersten. B. : International Economics-(Macmillan).

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Monetary Economics

OBJECTIVE :

To impact knowledge of the significance of money in the modern context and monetary theories, systems and policies including national income.

COURSE CONTENTS :

Unit I — Money and Monetary Standards -

Concept; Classification, functions and significance of money. Non-Metallism, bimetallism and managed currency standard; Paper currency.

Unit II — Theories of Value of Money -

Inflation, deflation and stagflation; Fisher's Quantity Theory; Cambridge Equation; Milton-Friedman's restatement of Quantity Theory and Keyne's Saving and Investment Theory.

UNit III — The Money Market -

Bank and non-bank financial institutions. The Indian money market - Bill market.

Unit IV — Central Banking and Monetary Policy -

(a) Central Banking -

Meaning and functions of Central Banks; R.B.I. - Functions, achievements & faliures.

(b) The Monetary Policy -

Objectives; Quantitative and quantitative Instruments of credit control; Monetary Policy in India.

Unit V — National Income&Employment Theories -

Concept and measurement of national income; Classical, Keynesian and post- Kenesian Theories of employment.

Suggested Books

1. Sethi , T.T. : Monetary Economics-(Delhi, S.CHand)
2. Gupta, S.B. : Monetary Economics- Institutions, Theory and Policy - (Delhi, S.Chand)
3. Thingan, M.L. : Monetary Theory- (Delhi, Konark Publishing House)
4. Bhatia, H.L. : Monetary Theory- (Delhi, Vikas Pub. House)
5. Seth, M.L. : Money Banking, International Trade& Public Finance-(Agra, L.N.Agarwal Publisher).
6. Gupta, S.B. : Monetary Planning for India-(Delhi, Oxford University Press).
7. Chandler, L.V. : The Monetary Financial System-(New York, Harbat & Row).

S.2:1(150) Annexure-G

Annexure

Note

1. B.A. General without Major, with Sanskrit shall consist of three papers - I, II and III. These papers shall be studied by the students concerned in I, II and III years respectively.

2. B.A. with Major with Sanskrit shall consist of Eight Papers I - VIII. Of these eight papers, the first three, I- III are common with B.A. General without Major. Students doing B.A. Major will study I and IV papers in I year; II, V and VI papers in IInd year; and III, VII and VIII papers in third year.

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Syllabus for B.A. General without Major:

SANSKRIT Ist year

Paper I : Poetry and Prosody	100 Marks
A. Poetry (Texts)	75
1. Ramayana (selected Cantos) Ayodhyakānda	15
2. Kirātārjunīyam - Canto I....	30
3. Manusamhitā Chapter VII	30
B. Textual Grammar from Kirātārjunīya (Samasa, Kāraka, Derivation)	10
C. Prosody -	15

Metres - Anustubh; Vamsasthavila; Upendravajrā; Indravajra; Upajati; Mālini; Vasantatilakā; Mandākrāntā; Sragdharā; Sārdulavikriditam, Sateni. (Definitions and examples only)

Book Recommended:

1. Gangadhara: Chandamanjari (A. Shastri)
2. Kirātarjunīyam (A Shatri)
3. Manusamhitā (A Shastri)

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IInd year

Paper II — 100 Marks

Drama, Translation and Composition

A. Drama: texts	75
1. Abhijnānaśākuntalam	50
2. Svapnavāsavadattam	25
B. Translation From English to Sanskrit	15
C. Sanskrit Composition (Paragraph writing in simple Sanskrit on simple topics)	10

Books Recommended

1. Śakuntalam – M.R. Kale
   R. Bose
   S. Roy

2. Svāpnavāsavadattam – M.R. Kale
   A. Shastri
   B. Karmarkar

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Third Year . Marks - 100

PAPER - III

Prose; History of Classical Literature; Grammer and Translation From Unseen Sanskrit Passage To English.

A. Prose Text 25

Dasakumaracarita.

Selected piece - Rajavahanacarita.

Dasakumara Cartan - 1. A. Shastri
2. M.R. Kale (Part - I)

B. History of Literature 40

Ramayana; Mahabharata; Purana; Mahakavyas; Historical Kavyas; Prose Romance; Fairy Tales and Fables; Lyrics; Drama.

C. Grammar 20

A general Knowledge of Elementary Grammar. Taddhit.

D. Translation From Unseen Sanskrit Passage to English 15

Books Recommended For History of Sanskrit Literature:

1. A.A. Macdonell : A History of Sanskrit Literature.
2. A.B. Keith : A History of Sanskrit Literature.
3. S.K. Dey And S.N. Das Gupta : A History Of Classical Sanskrit Literature.
4. Krishnanachariya : History of Skt. Literature
5. G.N. Sastri : History of Skt. Literature

Grammar : Books Recommended.

M.R. Kale : A Higher Sanskrit Grammar.
V.S. Apte : A Guide To Sanskrit Composition.

Syllabus for B.A. with Major (Sanskrit)

Papers I, II and III of B.A. General without Major as given above. Students doing B.A. major with Sanskrit shall have to study the following additional papers - IV to VIII.

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First Year (Major)

Paper - IV

Marks - 100

Advance Prose Texts And Linguistics.

A. Prose Texts.....70

1. Bānabhatta : Kādambarī.

[From Ujjayinīvarnana To Sutikāgrhavarnanā] 45

2. Kautilya : Arthasastra 25

[Mantrādhikāra]

B. Elements Of Linguistics 30

Some Phonetic Laws and Tendencies.

Grimm's Law; Verner's Law; Grassman's Law; Assimilation; Dissimilation; Metathesis; Prathesis; Apenthesis; Haplology; Anaptyxis; Accents And Ablaut.

Books Recommended:

Thomas Burrow : Sanskrit Language

(Only relevant portions)

I.J. S. Taraporewala : Elements of Science of Language.

(Chapter Viii - Phonetic Tendencies in Language And Phonetic Change.

P.D. Gune : Introduction To Comparative Philology.

Whitney : Sanskrit Grammar.

B.K. Ghosh : Linguistic Introduction to Sanskrit

Sukumar Sen: Bhāsār Itivrtta.

Satyaranjan Banerjee: Outline of Sanskrit Philology.

IInd Year (Major)

Paper - V Marks - 100

Vedic Texts Including Vedic Grammar
And History Of Vedic Literature.

A. Vedic Texts Indluding Vedic Grammar.....70

The Following Selections From the Vedic Texts From the 'Vedic Selection' published by the 1. Calcutta University. and also. 2. New Vedic Selections- N.K. Telang And V.K. Varma. Agni (1.1); Indra (II,12); Surya (1.115); Aksa (x. 34); Prīsana (vi: 54); Devīsūkta (X. 125); Satapathabrāhmana (viii. 1)- Legend Of Manu

And Matsya;

Isopanisad (I-10); Svetasvataropanisad (Chapter III)

Book Recommended For Vedic Grammar.

1. A.A. Macdonell : Vedic Grammar.
2. M.R. Sharma : Mechanisms of Vedic Accents.

B History Of Vedic Literature 30

Book Recommended:

Winternitz : A History Of Indian Literature. Vol- I.

Second Year. (Major

Paper - vi 100 Marks

Grammar And Poetics

A. Grammar 40

Siddhanta Kaumudi with Balamanarama Sanja ; Karaka.

B. Poetics 60

Sahityadarpana.

Chapter - vi and X.

Edited By - Haridas Siddhanta Vagisha.

Third year (Major)

Paper VII 100 Marks

Poetry Drama and Composition

A. Poetry	55
1. Meghaduta (Purvamegha)	25
2. Bhattikavya (canto XII)	30
B. Drama	30
Ratnavali	30
C. Summarising Unseen Simple Sanskrit passages	15

Books Recommended

1. Meghadutam - M.R. Kale S.K. Roy & K. Roy
2. Bhattikavya- " " "

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III Year Major

Paper - viii

Later Vedic Literature; Elementary Philosophy And Essay.

A. Later Vedic Literature 50

1. Aitareya Brāhmana 25
   (Eight Pancika- Mahābhiseka)

2. Tai Harīyopanisad 25
   (Sikshāvallī)

B. Elementary Philosophy 30

1. Tarkasamgraha 30
   (Annamabhatta)

Exceptions Anumans

C. Essay 20

F.2.1(157) Annexure-H.

DEGREE NEPALI(ELECTIVE)

100 Marks FIRST PAPER

Poetry - 60 Marks.

Text Book - Sammelan Kavita Sangrah,
Edited by Lakhi Devi Sundas, Nepali Sahitya Sammelan, Darjeeling.

1. Prithivi Narayan - Subanand Das.
2. Taralai Arti - Bhanubhakta Acharya.
3. Ganga-Gauri (Fifty Four lines only) - Lekhnath Paudyal.
4. Kina - - Dharnidhar Sharma.
5. Mero Nuhauney Kotha-- Balkrishna Sam.
6. Dui Kavita (Ek Bihan)- Laxmi Prasak Deokota.
7. Harshit Puspa - Tulsi Apatan.
8. Hamro Akashmani Pani Huncha Ujyalo - Agam Singh Giri.
9. Feri Pani Shylock Airahecha - Gopi Narayan Pradhan.
10. Man ta Falamkai Bhaye Ashal Huncha - Haribhakta Katuwal.

Drama - 40 Marks.

1. Amar Singh - Balkrisna Sam.
2. From Nepali Rachanawoli (one act plays)-
   (i) Mang - Lilbahadur Chettri
   (ii) Kati Galti - Bhavilal Lamichaney.

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DEGREE — NEPALI (ELECTIVE)

100 Marks — SECOND PAPER

Essay, Novel and Short Stories - 40+40+20.

ESSAY -

(Text book - Laxmi Niband Sangrah and Nepali Rachanawoli)

From Laxmi Niband Sangrah -

1. Sri Ganesaya Nam.
2. Lekhnath Paudyal ko Bisaima.
3. Pahari Jiwan.
4. Nai Hai Angreji.
5. Satya Sojho Huncha.

From Nepali Rachanawoli -

1. Shikcha ko Udeshya - Chandramani Adhikari.
2. Mani Singh Gurung - Dhrubanath Joshi.
3. Pipal ko Chahari - Krishna Prashad Gewali.

Novel -

Brahmaputra ko Chewchou - Lilbahadur Chettri.

Short Stories -

(Text books - Nepali Rachanawoli and Kathakusum)

From Nepali Rachanawoli -

1. Jaisarako Rup - Ganusingh Gurung.
2. Timro Basita Paisa Chaina - Birbikram Gugung.
3. Ama - Rup Narayan Singh.

From Kathakusum -

1. Phukeko Bandhan - Balkrishna Sam.
2. Bida - Guru Prasad Mainali.
3. Sipahi - Biswasher Prasad Koirala.

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DEGREE

NEPALI (ELECTIVE)

THIRD PAPER

100 Marks

(a) History of Nepali Literature - 50 Marks.
(b) Literary Criticism - 30 Marks.
(c) Chanda and Alankar - 20 Marks.

History of Nepali Literature

Books Recommended -

1. Nepali Sahitya ko Itihas - Taranath Sharma
2. Hamro Sahitya Ra Sahityakar - Dilliram Timsena
3. Nepali Sahityako Samchipta Itihas - Daya Ram Shrestha Ra Mohan Raj Sharma

Literary Criticism

Books Recommended -

1. Nepali Sahitya ko Saun Akchar - Parasmani Pradhan
2. Samalochana ko Sidhanta - Yadhunath Khanal
3. Sahitya Pradip- Somnath Singdal
4. Sahitya Prakash - Keshav Prasad Upadhaya
5. Sahitya Parichaya - Mohan Himansu Thapa

Alankar and Chanda

Alankar -

Yamak; Slesh; Anupras; Upoma; Rupak; Utprcksha; Deepak; Atisoyukti; Dristanta; Bhranti.

Chanda -

Jhaurey; Sawai; Sardulbikridita; Shikhirini; Totak; Basant Tilaka; Anusthup; Mandakranta; Malini.

Books Recommended ;-

1. Dilliram Timsena Ra Madhav Bhandari's Chanda Ra Alankar.
2. Somnath Singdyal's Sahitya Pradip.
3. Mohan Himansu Thapa's Sahitya Parichaya.

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DEGREE

NEPALI

(Modern Indian Language)

PAPER - I

Poetry - 40 Marks
Essay - 30 Marks
Short Stories - 30 Marks

(i) Two general questions of 15 marks each and one explanation of 10 marks from "POETRY"

(ii) One general question of 20 marks and one explanation of 10 marks from "ESSAY"

(iii) Two general questions of 15 marks each from "SHORT STORIES"

Text Prescribed - NEPALI RACHANAWALI
Edited by Dr. Iswar Baral, Ramlal Adhikari, Gopi Narayan Pradhan

A. POETRY -

The following poems only :-

1. Nachinine Bhayechhau - Agam Singh Giri
2. Bhranti - Gopal Singh Nepali
3. Rodan - Narendra Kumai
4. Kavikc Mrityu - Gopi Narayan Pradhan
5. Asha - Pushpalal Upadhyay
6. Bhanubhakta - Tulsi 'Apatan'
7. Hanuman Ravana Sambad - Padma Prasad Dhungana
8. Matri Bhasa - Ram Chandra Upadhyay.

B. ESSAYS -

The following essays only:

1. Jivan Ra Sahitya - Ramkrishna Sharma
2. Hamro Shabda Bhandar Ek Vichar - Kumar Pradhan
3. Hasya - Raj Narayan Pradhan
4. Dharma Nirpekshta ko Adarsha - Dhruva Singh Rawat
5. Mahakavi Deokota Mero Drishtima - Basanta Raj Joshi

C. SHORT STORIES -

The following short stories only:

1. Madhu - Indra Sundas
2. Tika - Shiv Kumar Rai
3. Jaymaya Aphoo Matra Lokhapani Aaipugi - Indra Bahadur Rai
4. Yo Lash Ani Mera Ichhaharu - M. M. Gurung
5. Teeto Bilauna Meetho Milan - Nar Bahadur Rai
6. Mero Euta Naga Huki - Hari Prasad 'Gorkha' Rai

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DEGREE

NEPALI
(Modern Indian Language)

PAPER - II

Drama - 30 Marks
Novel - 30 Marks
Essay
Writing - 20 Marks
Grammer &
Composition- 20 Marks

(i) One general question of 20 marks and one explanation of 10 marks from DRAMA.
(ii) Two general questions of 15 marks each from NOVEL.

Text Prescribed - (a) 'Prahlad'-(Drama)
Bal Krishna Sama
(b) Bhramar' - (Novel)
Rup Narayan Singh

Grammar & Composition:-

Sandhi; Samas; Karak Ra Bibhakti; Kri-ya; Kridanta- Tadditanta; Kaal; Visheshan; Kri-ya Visheshan.

For Composition questions will be generally bases on correct Nepali Usage, Nepali Idioms and Nepali Proverbs, Gender, Tense, Forms etc, Biparitarthak-Shabda, Sar-Shabda.

Unseen- It will consist of either precis writing or Para-phrase of a given piece or a passage for comprehension and questions related to the piece set for comprehension.

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DEGREE — B.COM
NEPALI (MIL)

Total - 100 Marks.

1. Text Book - Nepali Nibandha by Raj Narayan Pradhan
(Shyam Brothers Prakashan, Darjeeling) - 30 Marks.

Pieces to be read: (a) Charitra - Bal
(b) Parishram
(c) Sikeha ko Madhyam
(d) Sahakarita Andolan
(e) Sahitya Ra Samaj

2. ESSAY - 20 Marks
3. PRECIS WRITING - 15 Marks
4. LETTER WRITING - 10 Marks
5. EQUIVALENT COMMERCIAL TERMS - 10 Marks
6. TRANSLATION FROM ENGLISH INTO NEPALI - 15 Marks

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5:5:Examination Matters.

TIMELY DECLARATION OF RESULTS, EXISTING PRINCIPLES EVALUATION ETC - REPORT OF THE COMMITTEE

A Committee was constituted in term of Resolution No.44:92:5:05(iii)adopted at the 44 Academic Council Meeting, to examine the (1)possibility of bringing out results in time (2) the existing principles on re-evaluation and (3) the possibility of allowing honours students the facility of improvement of result.

The Report of the Committee is placed at Annexure 'A' for persusal and consideration of the Council.

Following the recommendation of the Committee vide para (v) the Examination Department has suggested the following rates of remuneration for setting of P.U.question papers and evaluation of P.U.answers scripts.

(A)- SETTING OF QUESTION PAPERS

(i) Setting of objective types- Rs.120/= per set.

(ii) Setting of descriptive question papers-100/= per set.

(B)-EVALUATION OF ANSWERS SCRIPES

(i) Objective types at the rate of Rs.2.50/1 per scripts to minimum of Rs.75/=

(ii) Descriptive types Rs.1.50/= per scripts to a minimum of Rs.75/=

The Report of the Committee and the suggestion for revision of Rates of remuneration are placed before the Council for consideration

ANNEXURE -A

Minutes of the Committee constituted vide this University Notification No.AC:44:4/CONF/92-1462 dt. 29th September '92 held at 11 A.M. on 13th November, 1992.

The meeting was attended by all the members of the Committee and the Officers of the Department of Examinations.

1. Evaluation:

The Examination Branch explained the various steps involved in the process of the evaluation of the answer scripts and also the time schedule maintained by the department. The scripts are sent for decoding the next day of the examination of the concerned paper and within 10 days the scripts are made ready for despatch to the examiners. It is a fact that because of various reasons a few packets cannot be despatched in time. However, generally the scripts are all despatched within 15-20 days from the date of examination. The major problems faced by the department are as under:-

i) The teachers in general do not intimate their acceptance to the examinership. As a result it has to be presumed that the assignment is acceptable to them. But at the time of distribution of the scripts it appears that 50-60% teachers refused to accept the assignment and hence the scripts need to be re-allotted. One of the main reasons of such refusal is the income-tax payers become heavily burderned, while remuneration for such work is taken as an income for the purpose of the income-tax.

Secondly, the teachers do not feel that the remuneration paid by the University is commensurate to the ordous tasks involved in it.

The number of examiners, if all of the teachers of affiliated colleges accept the assignment, is not at all sufficient particularly for the subjects like English, Political Science, Education, Economics and History. As a result they are to be engaged both for the Degree and PU scripts. Situation in English is worse as the subject is common to all the three streams namely, Science, Arts and Commerce.

....2/-

Accordingly the teachers are asked to evaluate the scripts on the priority basis. So, while the evaluation of the scripts of a particular course is in progress, the scripts for other streams have to wait for its turn. The delay in publication of result is mainly because of the position stated above.

The department also expressed the problems faced with respect to the infrastructural facilities, but hoped that it could be minimised to a certain extent in consultation with the Administration etc. But the facilities for the purpose of the Central evaluation have to be improved to attract the teachers to the scheme.

After detailed deliberations and keeping in view the experiences of the examination department, the Committee unanimously made the following recommendations:

i) The University may find out ways and means to get the remuneration paid to the teachers exempted from income-tax. The Committee also suggests that the matter may be taken up with the Association of Indian Universities for further examination and pursuance with the Government of India.

ii) The Committee also suggests that the term for the apprisal of the teachers performance should have a column under the heading "Performance as Examiners". The matter may, therefore, be taken up with the DPI's of the three states by the examination department.

iii) The Committed recommends that the University should provide sufficient space, quality furniture and other amenities to facilitate the Central evaluation.

iv) The Principals of the affiliated colleges may be requested to take necessary steps with a view to motivate the teachers for the evaluation works.

v) The Committee feels that the present rate of remuneration particularly for the PU stream, where 50% question, are of objective, needs to be revised with immediate effect.

vi) The Committee also suggests that the dates of return of the scripts by the examiners should be monitored more

.....3/-

effectively and the unexamined scripts should be retrieved after the lapse of a reasonable period.

vii) The Committee also suggest that Principals of the affiliated colleges should first be requested to furnish a list of the teachers willing to participate in the affiliation work and appointment letters to the teachers be issued accordingly.

viii) The Committee is convinced that the number of available Commerce teachers for the evaluation work is not at all sufficient to cope up with the work load. The Committee, therefore, suggests that teachers for the purpose may also be drawn from outside the University.

II. Re-Evaluation:

After a thread bore discussion on the existing rules of the re-evaluation, the Committee is of the opinion that the rules already in existence are quite reasonable and the Committee does not feel it necessary to affect any major change. However, to make the rules more clear the following clauses may be incorporated :-

1) The Candidate need not forfiet the marks already obtained and he should be awarded the average of the two highest marks obtained after re-evaluation.

III. Improvement of Honours Results:

The Honours Course is devised as a spring board for higher studies and excellence in academic pursuits. Admission to the Honours Course requires a candidate to secure a minimum of 40% marks in the elective subject. Hence the Committee does not recommend a second chance to the Honours candidates to improve their performance. The fact that such a facility will also put undue pressure on the Colleges has been taken into consideration.

"Sd/= A.Patton,
Controller of Examinations
Chairman of the Committee.

5:6 - Establishment of new Departments/Centres/ Courses.

(i) Establishment of the Department of Hindi and introduction of Post-Graduate Courses in Journalism and Translation together with B.A (Honours) Functional Hindi- Report of the Committee.

It may kindly be recalled that in the 43th meeting of the Academic Council an Agenda item has been placed regarding introduction of Post-Graduate Courses in Journalism(in Hindi) and Post-Graduate Courses in Translation together with B.A(Honours) Functional Hindi in view of the fact that the University Grants Commission has agreed to provide grants for running these courses. The Council observed that a Department of Hindi has already been sanctioned earlier but the same has not yet been established. Since the said Courses can be introduced only with the establishment of the Department of Hindi the Council decided that a Committee may be constituted to look into the possibility of starting the Department of Hindi.

The Committee met on the 11.8.92 and its report is placed at Annexure-'A' for perusal and consideration of the Council.

ANNEXURE-'A'

Report of the Committee Constituted by the Vice-Chancellor in pursuance of Academic Council Resolution No.AC.43-4/Conf/92-1175 dated 23rd April,1992.

The Committee met on Tuesday, the 11th of August,1992 in the Office Chamber of the Dean, School of Languages, at 1.30 P.m The following members were present :-

1. Prof. Noorul Hasan (Chairman)
2. Prof R.S,Tripathi (Member)
3. Prof. J.B.Bhattarcharjee (Member)
4. Mr.S.C.Chakrabarti (Convener).

The following observations were made :

1. Hindi, being the national language needs to be promoted and, therefore, a Post-Graduate Department of Hindi in the North-Eastern Hill University is justifiable not only on academic but also on cultural and national grounds.
2. The Committee noted that sanction for a department of Hindi has already been accorded by the U.G.C. with specific faculty positions (vide U.G.C. letter No.F1-1/77 (D.5a, dated 16.5.78) It further observed that these faculty positions are being utilised by the University elsewhere. The Committee considers it anamalous and a deterrent to the establishment of the department of Hindi.
3. The Committee also felt that the teaching of Hindi should be encouraged at the undergraduate level in the colleges affiliated to NEHU, so as to have a regular influx of students in the P.G. Department.
4. The Committee further observed that some State Universities in the region have full-fledged departments of Hindi. It, therefore, becomes all the more inperative for the only Central University in the North-East- which NEHU is - to establish a department of Hindi, under the School of Languages, without any further delay.

Sd/
(N.Hasan)

Sd/-
(Prof. J.B.Bhattarcharjee)

Sd/-
(Prof R.S.Tripathi)

Sd/-
(Mr. S.C.Cakrabarti).

5:7: Affiliation etc.

(i) Introduction of P.U.(Commerce) and B.Sc Honours in Zoology & Maths in Tura Government College.

Tura Government College has applied for permission to start Commerce upto P.U. level and also to start Honours in Maths and Zoology.

The Inspection team visited the College on 1.9.92 for the purpose and the report of the Inspection Team is placed at Annexure-A for perusal and consideration of the Council.

5:7:1:(2)

NORTH EASTERN HILL UNIVERSITY
SHILLONG

ANNEXURE-A

FOR NEW COURSE/UPGRADATION

INSPECTION REPORT

1. Name of the College : Tura Govt. College, Tura

2. (a) Year of affiliation and corresponding University Notification No._____

(b) Level to which affiliation : Commerce at P.U. level
Science; Hons. level

3. Affiliation sought to upgrade to or B.A/B.Sc Pass Course in ____

Introduce (a new subject) _____

B.Sc. Hons. in Zoology
Mathematics

B.Com. in _____

_____

4. Admission (for the last three years)

Year	P.U.	Degree level	B.Com.I	B.A.II	B.Sc.III	B.Com.III
1989-90	951	207				
1990-91	1105	219				
1991-92	1060	384				

5. Result of University examination during the last three years.

List supplied by the college attached Annexure-II

Examination	Year	Percentage of Pass
B.Sc.(Pass)	1989	55.56
	1990	35.71
	1991	56.67

Contd/.../-

6. In case the college is seeking Honours in a subject(a) for which it has already a Pass Course please give below the No. of students admitted in the last three years and their results for these years in the SUBJECT in which College has applied for Honours.

YEAR	NO. OF STUDENTS APPEARS	NOT AVAILABLE % Success

7. FUNDS

(a) Whether the College is having a Reserve Fund in long term Fixed Deposit:

If yes, the details thereof:
(Bank No. of Term Deposit Receipt,
etc.

(b) Present working fund: Annexure supplied by the College attached

8. Qualification/Specialization of the Teaching Staff(of the relevant subjects only)

P.T. see the Annexure supplied by the College

	Name and Designation	Qualification(with grade and subject in P.G.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

Contd/.../-

NOTE: THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT

	Level/Class	Minimum No. of Teaching in each subject
(a)	P.U. Non-Laboratory	One
(b)	P.U. Laboratory	Two
(c)	Degree Non-Laboratory(Pass)	Two in all subjects and 3 in English.
(d)	Degree Laboratory(Pass)	Six of where four should be Lecturers
(e)	Degree-Non-Laboratory(Pass)-	Four in all subjects other than English & other Elective Languages in which there should be at least five .
(f)	Degree Laboratory(Pass) - + Hons. + P.U.Laboratory.	Seven of which six shall be Lects.

9. LAND AND SITE

(a) Whether the college is having permanent building on its own land.

(b) Area of the College Campus.

(c) Accommodation(give size):-

1. One room for the Principal
2. One room for the Vice-Principal
3. One room for the college office
4. For staff common room_____ adequate/Inadequate.
5. Common room for Boys and Girls Non adequate
6. Library with reading room Not at all adequate
7. Class room 12(8 small medium & 4 halls) Adequate/Inadequate

10. Workload of Teachers : Not available

11. Library books :

Total Volums pl. see the annexure supplied by the College

Subjectwise break up (of relevant subjects only):

Contd/.../-

Whether the College has a trained Librarian ;

12. Laboratory facilities No

(a) Whether accommodation is adequate or not :

(b) No. of shifts the students do their practicals.

13. When was the <u>last</u> Governing Body meeting : 1989

14. Any other relevant information(s)/points(s)

Most of the information given above are as per the information supplied to CDC office by the College

RECOMMENDATIONS

Please make your recommendation without any ambibuity. In case your suggest provisional affiliation for a particular period please mehtion the academic year specifically. Please also mention the conditions, if any, to fulfilled if extension of affiliation is to be considered.

Signature of the members of the Inspection Team.

The detailed report of the inspection team is attached.

Sd/-S.Bhat.
9.9.92
Convener, Inspection team.

The Inspection team consisting of Dr.B.B.Gupta, Dr.R.K. Srivastava, Dr.G.D.Sharma and Prof.S.N.Bhat(Convener) visited Tura Govt. College, Tura on September 4,1992(afternoon). College had asked permission to start B.Sc.(Hons.)in Zoology & Mathematics in addition to start P.U. commerce. Due to some dislocation of working of the college, the team could meet only two teachers of Zoology and one teacher of Mathematics department. The team visited the Zoology laboratory as well as the Library.

The committee observes that:

The present laboratory space for Zoology is adequate for starting Hons.programme with 10 students. The principal told the team that a lecture room will be made available for Hons.programme in Mathematics. The Zoology department is not equipped for starting Hons.programme. It has not got the required equipments such as microscopes,colorimeter,balance etc. and some of the instruments which are outdated & nonfunctional have to be replaced.There are only four teachers in Zoology and there are none who are qualified to teach cytogenetics,Biochemistry,Physiology,endocrinology etc.. Library room is not big enough to keep the existing books properly. The books are thrown over the ground due to lack of book racks/ shelves.

In Mathematics there are only two teachers and with two teachers it is impossible to start Hons.Programme;

The Committee could not meet any teachers of Commerce.

Inspite of all the above mentioned limitations,Tura Govt. College has already started P.U. Commerce & Hons.in Zoology.However, it appears that due to some problems,Hons.programme in Mathematics could not be started.

The Inspection team,keeping in mind the above points(and the necessity of having Commerce at P.U. level and Hons.in Zoology & Mathematics at B.Sc.level in Tura Govt.College,Tura) and as the college has already started P.U. Commerce & Hons. programme in Zoology, recommends that,subject to the fulfilment of the following conditions, the University grant permission affiliation to Tura Govt. College,

Contd/.../-

Tura for one year(as 3 year B.Sc. programme is expected to start from 1992) for B.Sc.(Hons). in Zoology and 2 years for P.U. commerce commencing from 1992. The conditions which are to be fulfilled by the college are:

(i) The College should take necessary steps to appoint teachers with specialization in cytogenetics,Biochemistry/Animal physiology.

(2) The college should procure therequired equipments/chemicals (as per the syllabus) and while procurring the equipments the college would like to keep in mind the syllabus for the 3 years degree programme which is likely to be introduced from 1993.

(3) The college should provide more space to library and enough book racks should be provided so that the books could be arranged/kept properly. In addition, enough No. of copies of text books for Zoology,Mathematics and P.U. Commerce Should be procurred.

At the end of the present academic year, an inspection team (consisting of a Zoologist, Mathematician and Commerce faculty member)should visit the Tura Govt. College, Tura and satisfy itself that the above cnditions are fulfilled and if the team is satisfied, then the University,on the recommendation of that inspection team, may extend the permission for Hons. programme in Zoology and Mathematics and P.U.Commerce.

Sd/-Dr.B.B.Gupta,- Sd/-Dr.S.K.Srivastava, Sd/- Dr.G.D.Sharma ,Sd/-Dr.S.N.Bhat
Convener.

ANNEXURE-II

Details of the Results of P.U(Sc)P.U(A)/P.A(Hons)/B.Sc Final Examination Results for the years, 1989,1990 and 1991.

Exam	Regular and Non-Collegiate			Private		
	Appealed	Passed	P.C of passed	Appeared	Passed	P.C of passed
B.Sc(Pass) 1989	27	15	55.56%	-	-	-
B.Sc(Pass) 1990	28	10	35.71%	1	-	-
B.Sc(Pass) 1991	30	17	56.67%	-	-	-
B.A(Pass) 1989	238	25	10.5%	81	0	0%
B.A(Pass) 1990	259	20	7.72%	73	3	4.11%
B.A(Pass) 1991	302	46	15.23%	85	7	8.24%
B.A(Hons) 1989						
Philosophy	2	2	100%	-	-	-
Pol.Science	4	2	50%	-	-	-
English	1	0	0%	-	-	-
Economics	3	1	33.33%	-	-	-
Education	2	0	0%	-	-	-
B.A(Hons) 1990						
Philosophy	6	5	83.33%	-	-	-
Economics	3	1	33.33%	-	-	-
Pol.Science	1	0	0%	-	-	-
English	3	0	0%	-	-	-
Education	5	3	60%	-	-	-
B.Hons 1991						
Philosophy	5	5	100%	-	-	-
History	2	1	50%	-	-	-
Education	4	2	50%	-	-	-
Pol.Science	6	1	16.67%	-	-	-
Economics	3	0	0%	-	-	-
English	2	1	50%	-	-	-

Contd/.../-

P.U.Sc.1989	119	36	30.25%	-	-	-
P.U.Sc.1990	133	31	23.31%	-	-	-
P.U.Sc.1991	143	45	31.47%	-	-	-
P.U(A)1989						
Old Course	120	7	5.83%	40	4	10%
New Course	488	52	10.66%	91	2	2.2%
P.U(A)1990						
Old Course	71	7	9.86%	45	3	6.67%
New Course	653	52	7.96%	41	0	0%
P.U.(A)1991	709	111	15.66%	90	10	11.11%

1. Shri Ramanda Bhattacharjee,M.A.II Class I.G.T.,Principal

Deptt. of English

2. Shri Golak Sen,Lect. in English,M.A.II Class
3. Dr. Caroline R.Marak,Lect.in English,M.A.II Class ,Ph.D
4. Smt.Viola Sonachi,B.Sangma,Lect.in English,M.A.II Class.
5. Smt. Biana W.Momin,Lecturer in English,M.A.II Class.
6. Shri Anirudda Burmon,Lect.in English,M.A.II Class,B.Ed II Class.

Department of Economics

7. Dr. Jagadish Chandra Singha,Lect. in Eco.M.A.II Class,Ph.D
8. Smt.Indira A.Sangma,Lect.in Eco.M.A.II Class.
9. Smt(Dr)Sumita Bhattacharjee,M.A.II Class,Ph.D
10. Smti.Prenalish M.Marak,Lect.in Eco.,M.A.II Class.
11. Shri Lovestar Marbaniang,Lect.in Eco,M.A.II Class.

Department of Philosophy

12. T.K.Das,Lect.in Philosophy,M.A.II Class.
13. Shri Kanu Prasan,Lect. in Philosophy,M.A.II Class.
14. Dr.Dipty Moyee Das,Lect. in Philosophy,M.A.II Class,Ph.D
15. Shri Ashes Daring,Lecturer in Philosophy,M.A.II Class

Department of Chemistry

16. Shri Debasish Roy, Lecturer in Chemistry,M.Sc.II Class
17. Shri Utpal Dutta,Lecturer in Chemistry,M.Sc. II Class
18. Smt.Vivian Ch.Momin,Lecturer in Chemistry,M.Sc. I Class
19. Dr.Kausik Kumar Bhattacharjee,Lect.in Chemistry,M.Sc.II Class Ph.D
20. Shri Samir Bhowmick Lect. in Chemistry,M.Sc.II Class

Department of Physics

21. Shri Sukumar Dey,M.Sc.I Class,Lect.in Physics.
22. Shri Manab Jyoti Deb, Lect.in Physics,M.Sc . II Class.
23. Shri Foster M.Momin,Lecturer in Physics,M.Sc II Class.
24. Smti.Silmeritha P.Marak,Lect.in Physics,M.Sc.II Class.

Department of Zoology

25. Dr. P.K.Das, Lecturer in Zoology,M.Sc. I Class.,Ph. D.
26. Smt.Pultibon Tiewsoh,Lecturer in Zoology,M.Sc. I Class.
27. Smt.Chire Nora K.Sangma,Lecturer in Zoology,M.Sc. I Class.
28. Smt.Bellibone K.Momin,Lecturer in Zoology,M.Sc.II Class.

Department of Maths.

29. Shri S.B.Das,Lecturer in Maths,M.Sc.II Class.
30. Smt.Santa Dutta Choudhury,Lect.in Maths,M.Sc.II Class.

Department of Botany

31. Shri G.D.Sangma,Lecturer in Botany,M.Sc.II Class.
32. Shri Godwin K.Marak,M.Sc.II Class,B.T.
33. Smt. Devita M.Momin,M.Sc.II Class.

Department of History

34. Shri Amitava Purkayastha,M.A.II Class,Lect.in History.
35. Smti. Elna G.Momin,Lecturer in History,M.A.II Class.
36. Smti.Armila Rosita Momin,Lect.in History,M.A.II Class.

Department of Geography

37. Shri Nirendra Sangma,Lecturer in Geography,M.A.II Class.
38. Shri Mausan Singh Kharkukhi,Lecturer in Geography,M.A.II Class.
39. Smt.Suerity A.Rema,Lect.in Geography,M.A.II Class.

Department of Pol.Sc.

40. Shri Moynul Haque,Lect.in Pol.Sc.M.A II Class.
41. Shri Rupaia Lamarr,Lect.in Pol.Sc.M.A. II Class.
42. Shri Terence D.Marak,Lect.in Pol.Sc.M.A.II Class.
43. Shri Richard Khonglah,Lect.in Pol.Sc.M.A.II Class.
44. Smt.Delienda Mowthoh,Lect.in Pol.Sc.M.A.II Class.

Department of Education.

45. Dr.Josephine Jalla,Lect.in Edn.M.A.II Class,Ph.D
46. Shri Politesone R.Marak,Lect.in Edn.M.A.I Class,M.Ed.
47. Smt.Viola Katline G.Momin,Lect.in Edn.M.A II Class.

Department of Commerce

48. Shri T.K.Basu,Lect.in Commerce,M.Com.
49. Shri Sengrak R.Marak,Lect.in Commerce,M.Com.,II Class.

Contd/.../-

Department of Garo

50. Shri L.D.Shira,Lecturer in Garo,M.A.II Class.
51. Smt.Filimina B.Sangma,Lect.in Garo,M.A.II Class.
52. Smt.Venibabc N.Sangma,Lect.in Garo,M.A.II Class.

Department of Bengali.

53. Shri Ranjit Kumar Goswami,Lect.in Bengalee M.A.II Class.
54. Smt.Ramala Kar,Lect.in Bengali,B.A.II Class.

Department of Assamese

55. Shri Paritosh Chakraborty,Lect.in Assamese,M.A.II Class.

Sd/-Principal
Tura Govt. College,Tura.

TURA GOVT. COLLEGE:: TURA

ANNEXURE-

Statement of Income & Expenditure for the last 3(three) years

I 1988-89 Session

Sl.No.	PARTICULARS	INCOME	EXPENDITURE
1.	Salaries, Wages Travelling allowances, office expenses & Honorarium.	= Rs.27,28,300/-	Rs.27,28,300/-
2.	Purchase of Utensils & Furnitures.	= Rs. 32,345/-	Rs.32,345/-
3.	Games & Sports Commdn Room Facilities including extra Curricular activities	= Rs. 9,969/-	Rs.9,969/-
4.	Excursion of the students	= Rs. 25,000/-	Rs.25,000/-
5.	Purchase of Science Instruments & Chemicals.	= Rs.1,02,817.50	Rs.1,02,812.50
6.	Maintenance of Departmental Build.	= Rs.14,812/-	Rs. 14,812/-
7.	Book & Journals.	= Rs. 1,00,000/-	Rs. 1,00,000/-
8.	Research & Innovation Programme.	= Rs. 4,000/-	Rs. 4,000/-
9.	Fees & Fines	= Rs.3,48,314/-	Rs. Nil.

II 1989-90 Session

1.	Salaries, Wages Travelling allowances office expenses & other Honorarium.	= Rs.25,16,739/-	Rs.25,16,739/-
2.	Purchase of Furnitures & Utensils etc.	= Rs.1,34,872.50	Rs.1,34,872.50
3.	Games & Common Room facilities including extra curricular acitvities.	= Rs. 67,000/-	67,000/-
4.	Excursion of the students	= Rs. 52,080/-	Rs.52,080/-
5.	Purchase of Books to the Library including subscription of journals.	= Rs. 95,000/-	Rs.95,000/-
6.	Purchase of Science Instruments, Chemicals etc.	= Rs. 1,19,330/-	Rs.1,19,330/-
7.	Maintenances of Deptts. Buildings.	= Rs. 15,000/-	Rs. 15,000/-
8.	Fees & Fines.	= Rs. 4,59,949	Nil

Contd/.../-

III 1990-91 Session

1.	Salaries, Wages travelling allowance, office expenses, & Honorarium.	= Rs. 41,25,530	Rs.41,25000/-
2.	Purchase of Furnitures & Utensils etc.	Rs.Rs.1,00,906	Rs.1,00,906/-
3.	Games & Sports, Common Room facilites including extra curricular acitivites	= Rs. 95,543/-	Rs. 95,543/-
4.	Excursion of the students	= Rs. 40,000/-	Rs. 40.000/-
5.	Purchase of Science Instruments Chemicals etc.	= Rs.1,40,000/-	Rs.1,40,000/-
6.	Purchase of Books & Journals etc.to Library.	= Rs.1,10,000/-	Rs.1,10,000/-
7.	Maintanance of Deptt. Buildings.	= Rs. 45,000/-	Rs. 45,000/-
8.	Loan & Advance.	= Rs. 1,70,000/-	Rs. 1,70,000/-
9.	Fees & Fines.	= Rs.3,21,193/-	Rs. Nil.

Total Nos. of Books available in the Library :::: Subject wise:-

1.	General English	= 6545
2.	MIL	= 3478
3.	Economics	= 6429
4.	Pol.Science	= 3900
5.	History	= 2596
6.	Philosophy	= 4950
7.	Education	= 7940
8.	Book Keeping Commerce	= 1537
9.	Statistics	= 1249
10.	Physics	= 3238
11.	Chemistry	= 2457
12.	Botany	= 2500
13.	Zoology	= 2575
14.	Geography	= 1947

Sd/- Principal,
Tura Govt. College Tura.
****

Review of grant of permanent affiliation to Sohra College.

Sohra College was granted Provisional Affiliation for a period of 3 years with effect from 1986 Academic Session at P.U level under this office letter No.CDC/A.20/87/1006-63 dt.1.12.87 which may be seen at Annexure-'A'. On expiry of Provisional Affiliation the College has applied for extension of Provisional Affiliation for P.U.C. vide their letter No.SCC.7/82-92/1 dt.9.4.92. In this connection, the Vice-Chancellor has nominated (i) Dr.David Syiemlieh,History Department(as the Convener) and (2) Dr.T.Lawma Department of Economics as member of an Inspection Team. A letter in this regard has been issued to the convener and member of an Inspection Team for extension of Provisional Affiliation of Sohra College at P.U. level vide this office letter No.CDC/A.20/88-1448-51 dt.13.5.92 which may be seen at Annexure'B' for carrying out an Inspection of Sohra College. An Inspection report was received in this office from the Inspection Committee with the recommendation for grant of Permanent Affiliation to Sohra College at P.U. level. It may be pointed out here that no College which has not completed 10 years or more at Degree level has been granted Permanent Affiliation by this University.

The Colleges which have enjoyed privilege under NEHU for ten years or more can be granted Permanent Affiliation vide AC;Resolution AC:23:85: 5(viii) which may be seen at Annexure-'C'.

The case of the College was placed in the last Academic Council meeting held on 7th & 8th August,1992. The Council vide its regolution No.AC:44:92:5:07(iii) considered the recommendation of the Inspection Committee for grant of Permanent Affiliation to Sohra College.

In view of above, the case of the College is referred back to the Academic Council and Executive Council for re-consideration.

ANNEXURE-'A'

No.CDC/A.[illegible]/87/10[illegible]-[illegible] ated Shillong, th. 1st December, 1987

To

The Principal,
Sohra College,
Cherrapunjee,
(Meghalaya)

Sub: PROVISIONAL AFFILIATION.

Ref: This University letter No.CDC/A/85-86/1179 dated.2.12.1986

Sir,

Your College was granted provisional affiliation for 3 years with effect from 1986 with the following conditions.

"The College will have to

(i) strengthen its Library by procuring more books and

(ii) make efforts to move to its permanent campus site"

You are, therefore, requested to inform the University immediately whether your college have fulfilled the above mentioned requirements or not, a detailed report on the above may be urgently sent explaining the reason of non-fulfilment.

This may kindly be treated as most urgent.

Yours faithfully,

Sd/-S. N. Guhathakurta
Director
College Development Council

Copy to:

1. Chairman, Governing Body, Sohra College, Cherrapunjee, Meghalaya.
2. Director of Public Instruction, Govt. of Meghalaya, Shillong.

5:7:2(3) ANNEXURE 'B'

NO:CDC/A.20/88-1448-51 Dated.13th May,1992.

To

Dr.David Syiemlieh,
History Department,
NEHU,Shillong.

Subject; Extension of Affiliation for P.U.C.

Sir,

I am directed to inform you that the Vice-Chancellor, NEHU Shillong has been Placed to constitute an Inspection Committee with you as the convener and the following members for carrying out an Inspection or Sohra College to study the feasibility for extension of Affiliation at P.U.Level.

1. Director of Public Instruction,Govt. of Meghalaya or his nominee.
2. Dr.T.Lauma,Deptt. of Economics,NEHU,Shillong.

The Inspection may be inspected on the 23.5.92.

One copy of Proforma for Inspection Report and Proforma received from the College Principal for extension of Provisional Affiliation are sent herewith.

You are requested to see whether the College have move to its permanent site. You may also like to check the list of Library books subject wise from the Librarian of the College for our information.

The report of the Inspection Team and its recommendation should be signed by all the members of the Inspection team.

Yours faithfully,

Enclo:a.a

Sd/-B.Dykes
Section Officer,
College Development Council

5:7:2(4)

Copy to:-

1. The Director of Public Instruction,
   Govt. of Meghalaya,Shillong.
2. Dr.T.Lawma,Deptt. of Economics,NEHU,Shillong.
3. Principal/Secretary,Sohra College,
   Sherrapunjee(Meghalaya).

Sd/-Section Officer,
College Development Council

ANNEXURE-'C'

PERMANENT AFFILIATION

AC:23:85:5(viii):- The Chairman invited the attention of the Council to the fact that according to the provisional of the University Ordinances, Colleges which have enjoyed privileges under NEHU for ten years or more can be granted permanent affiliation. Unfortunately, this question has govt. mixed up and a clear policy had not be followed. It is also to be noted that permanent affiliation of a college is absolute and is not related to any scale or a set of courses for which the concerned colleges has seek permission of the University. It was,therefore, suggested that all those colleges which have been affiliated for ten years or more may be granted permanent affiliation automatically, unless there is something against them. The Council Resolved that all colleges which have been affiliated to the University for ten years or more and whose performance has been satisfactory may be granted affiliation forthwith. The Council authorised the Vice-Chancellor to take an action in this regard for the existing colleges.

EC:45:85:02(iv):- The Executive Council resolved that the Affiliation Committee which has been constituted to look into such matters may examine and recommend for all colleges which have been in existence for ten years or more on 1st Jan '85. The Executive Council will considered formally according permanent affiliation on the bases of their recommendation.

.....

(iii) Affiliation of B.A. Honours in English, History and Political Science in Sao Chang College.

The Inspection Team visited the Sao Chang College in connection the College request for permission to start B.A. Honours in English, History and Political Science.

The Inspection Report is placed at Annexure A for perusal and consideration of the Council.

5:7:3(2)

NORTH EASTERN HILL UNIVERSITY
SHILLONG

ANNEXURE-'A'

FOR NEW COURSE/UPGRADATION

Annexure - 'A'

INSPECTION REPORT

1. Name of the College : Sao Chang College, Tuensang

2.(a) Year of affiliation and corresponding University Notification No. 1974

(b) Level to which affiliation : P.U.(A) B.A. Degree B.A. Hons. in English & Pol.Science.

3. Affiliation/Permanent sought to upgrade to or B.A/Bsc. pass Course in _____ Existing subject (a new subject) English, Pol.Sc. Hist. Eco. Edn. Socio.

B.A. Hons. in English, Pol.Sc. History

4. Admission (for the last three years)

Year	P.U(A) 1st yr.	P.U(A) 2nd yr.	B.A.	B.A.II	B.A.Hons.
1990-91	223	138	52	53	Nil
1991-92	327	141	25	25	6
1992-93	279	155	10 admission going on	24	8

5. Result of University examination during the last three years.

Examination	Year	Percentage of pass
P.U.(A)	1990	88%
P.U.(A)	1991	24%
P.U.(A)	1992	31%
B.A. (TDC)	1990	88%
B.A. (TDC)	1991	10%
B.A. (TDC)	1992	31%

6. Incase the College is seeking Honours in a subject Honours in a subject(a) for which it has already a pass Course Please Give below the No. of Students admitted in the last three Years and their results for these years in the SUBJECT in which College has applied for honours.

Year	No. of students appears	% Success
1991-92	English - 2	2 100%
	Pol.Sc. - 4	Nil 0%

Contd/-2-

7. FUNDS

(a) Whether the College is having a Reserve Fund in long term Fixed Deposit — Sao Chang College is fu fledged Govt. College.

If yes, the details thereof: (Bank No. of Term Deposit Receipt, etc.

(b) Present working fund : — As mentioned above

B. Qualification/Specialization of the Teaching Staff(of the relevant subjects only)

Name and Designation	Qualification(with grade and subject in P.G.
1.	
2.	
3.	
4.	
5.	
6.	LIST ATTACHED
7.	
8.	
9.	
10.	
11.	
12.	
13.	

Contd.3/-

NOTE : THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT

Level/Class	Minimum No. of Teaching in Each subject
(a) P.U. Non-Laboratory	One
(b) P.U.Laboratory	Two
(c) Degree Non-Laboratory	(Pass) Two in all subjects and 3 in English
(d) Degree Laboratory(Pass) -	Six of whom four should be Lecturers
(e) Degree-Non-Laboratory(Pass)-	Four in all subjects other than English & other Elective Languages in which there should be at least five five.
(f) Degree Laboratory(Pass)- + Hons. + P.U.Laboratory.	Seven of which six shall be lects.

9. LAND AND SITE

(a) Whether the college is having permanent building on its own land; The college is having its permanent site on which buildings are under rapid contriction.

(b) Area of the College Campus:- 50 acres.

(c) Accommodation (give size):-

1. One room for the Principal :- 15' x 12'
2. One room for the Vice Principal:- 15' x 10'
3. One room for the college office:- 30' x 20'
4. For staff common room one Adequate/Inadequate.
5. Common room for Boys and Girls :-Nil
6. Library with reading room.Library 20' x 15' No. reading Room
7. Class room 5+2 Hons Room. Adequate/Inadequate.

10. Workload of Teachers:- 12 to 18 periods per teacher per weeks

11. Library Books: As list attached

Total Volums

Subjectwise break-up(of relevant subjcts only):

Contd/.../-4

Whether the College has a trained Librarian: No

12. Laboratory facilities . Nil.

(a) Whether accommodation is adequate or not: does not arise

(b) No. of shifts the students do their practicals.

13. When was the last Governing Body meeting: 13th July '92.

14. Any other relevant information(s)/point(s)

RECOMMENDATIONS

Please make your recommendation, without any ambibuity. In case your suggest provisional affiliation for a particular period please mention the academic year specifically. Please also mention the conditions, if any, to go fulfilled if extension of affiliation is to be considered.

The Inspection Committee visited Govt. sao Chang College on 25th August 1992 for giving affiliation to B.A. Honours Course in English, Political Science & History.

While going through the staff position, library and other physical infrastructure, the Inspection Committee recommends as:

(i) Affiliation for English and Political Science may be given for three years i.e. 1992-93 to 1994-95. After this period case may be reviewed.

(ii) Provisional Affiliation for History may be given subject to filling up the required number of posts in History.

Signature of the members of the Inspection team.

1. Sd/-Prof. K.K.Sharma, Convener, Inspection Committee & Acting Pro-Vice-Chancellor, NEHU, Kohima.
2. Sd/-Prof. A. G. George, Member Head, Department of English, NEHU, Kohima.
3. Sd/-Prof. [illegible] Acharrya, Member Head, Dept. of Hist. & Arahaeology, NEHU, Kohima.
4. Sd/-Dr. R.K. Tiwari, Member, Nominee of the Director, Higher & Technical Education, Kohima, Nagaland.

TEACHING STAFF OF SAO CHANG COLLEGE DEPT WISE

ENGLISH DEPARTMENT

1. Sri.I.Elem Chang -- Head of Deptt.
2. Dr.S. Singh
3. Miss Amenla
4. Mrs.Evy Darling
5. (Creation No.EDS(c) 14/88 dt.18.11.92) 1 (one) post vacant.

SOCIOLOGY DEPARTMENT

1. Mrs. Arenla - Head of Deptt.
2. Sri S.N.Lotha

POL.SCIENCE DEPARTMENT

1. Dr.C.Singh - Head of Deptt.
2. Sri Amos Ovung
3. Miss M.Khrieno
4. (Creation No.EDS(c) 14/88 dt.18.11.91) 1 (one) post vacant.

HISTORY DEPARTMENT

1. Sri Purtongzuk - Head of Deptt.
2. Mrs.Nokyanla
3. Miss Iris

ECONOMICS DEPARTMENT

1. Sri Watimungsang - Head of Deptt.
2. Smt. Chubala Chang
3. Sri Kamsaraj

EDUCATION DEPARTMENT

1. Sri Temjenkaba - Head of Deptt.
2. Miss Bendanglila
3. (Creation NO.EDS(C) 14/88 dt.18.11.91) 1 (one) post vacant.

SAO CHANG COLLEGE, TUENSANG
LIBRARY STOCK POSITION

1	2	3	4	5	6	7
English Deptt. including (Hons)	Pol.Sc. including (Hons)	Hist.Dept. including (Hons)	Socio Deptt.	Econ. Deptt.	Edn. Deptt.	General
1037 No.Books	927	670	564	645	525	281

Total No. of Books - 4719

ANNEXURE-'A'

Particulars Relating to the members of Teaning Staff:-

Sl.No.	Name	Designation	Qualification	Percentage	Teaching Experience	Sub-Taught
1	2	3	4	5	6	7
1	Dr.R.S.Limboo	Principal	M.Sc,Ph.D	54%	28 Yrs	Physics
2.	Dr.S.N.[illegible]	Vice-Principal	M.A(Eng)2nd Class 5% Ph.D Magadh [illegible]ver.		19 Yrs completed 20 Yrs running	English P.U & Elec.English B.A.(Hons) [illegible]
3.	Furtongzuk	Lecturer & Head Deptt.(His)	History B + M.A. B.ed.	55%	17 Yrs in school and 7 Yrs in College	History P.U & B.A
4.	Dr.Chandrika Singh	Lecturer Head Deptt. (Pol.Sc.)	MA(Pol.Sc.)2nd class Ph.D.M.U. (Gaya)	50.5%	19 Yrs in college	Pol.Sc. PU & B.A.
5.	T.Watimungsang	Lecturer Head Deptt(Eco)	M.A(Pol.Sc.) 2nd Class	50%	11 Yrs in college	Econonomic PU & BA
6.	S.Chubasangla	Lecturer	M.A(Eco)2nd class Gauhati Univer.	49%	11 Yrs in college	Economic PU & BA
7.	I Elemmongko	Lecturer Head Deptt(Eng)	M.A(Eng)end class Gauhati Univer.	50%	13 Yrs teaching in college	English PU & BA
8.	L.Temjenkaba	Lecturers Head Deptt(Edn)	MA(Edn) Ist class B.Ed Ist class NEHU	62.45%	8½ Yrs in School 7 Yrs in College	Education PU & BA
9.	Arenla Aier	Lecturer	M.A(Socio) 2nd class.NEHU	55%	5 Yrs in college	Sociology B.A.
10.	S.N.Lotha	Lecturer	B.Sc.(Hons)M.A	59.8%	1 Yr 4 months	Sociology B.A.
11.	Amos Ovung	Lecturer	M.A	58%	2 Yrs in college	Pol.Sc.PU & B.A
12.	Nokyanla	Lecturer	M.A.	55%	3 Yrs in college	History

13.	M.Amenla	Lecturer	M.A	55%.35%	3 months in a primary school Mokokchung 10 months in college	English
14.	Bendangli[illegible]	Lecturer	M.A	64.6%	5 months	Educati[illegible]
15.	Kanagaraj[illegible]	Lecturer	M.A B.ed.	65%	2 Yrs in school,7 months in college	Economics
16.	A.Evy.Darling	Lecturer	M.A B.ed.		4 Yrs in school & 9 months in college	English
17.	M.Khrieno Angami	Lecturer	M.A. M.Phil	57%	1 Yr & .4 month	Pol.Science
18.	Iris Odyuo	Lecturer	M.A	55.63%	9 months in mount view Christian College.	History

666

5:7:3(9)

Grant of provisional affiliation upto P.U.(Arts) level in English, History, Economics, Education & Political Science to Mountain View Christian College.

Mountain View Christian College has applied for permission to start P.U(Arts) level in English, History, Economics, Education & Political Science and the Inspection team was constituted to inspect the college for the purpose.

The report of the Inspection team is placed at Annexure A for perusal and consideration of the Council.

Annexure-'A'

Inspection Committee Report (to be submitted to the University in duplicate)

1. Name of the College : Mountain View Christian College.
2. Its sponsoring authority : Mountain View Christian College Educational Society.
3. The legal status of the college (Whether college is a registered body under Societies Registration Act)

   Yes Registered Society vide No.RS.1592 dated 29.7.91
4. Whether the college is having a Governing Body duly constituted for the purpose:

   Yes, It has a Board of Directors.
5. Any special features of the Governing Body Constitution which deserve special attention for the grant of affiliation :

   The guidelines to constitute the Board of Directors (equivalent to Governing Body) has been given (see letter enclosed).

Physical and Financial Resources.

6. Whether the college is already located at its own site :

   Yes : 3 hectors of its own land

   (a) If not, whether the college has already acquired land

   Not applicable.

   (b) Give below a brief report on the suitability of the site and plan after inspection:

   The location of the college is good and suitable for a college of Arts faculty.
7. The college is seeking affiliation for offering the following courses in :-

   P.U.level (Arts)

   English

   History

   Economics

   Education

   Political Science
8. Students seeking Admission :

   P.U. Arts 1st Year : 94 (admitted)

contd/...../..../

9. Whether the college has adequate number of titles of books and journals for the courses of study mentioned at para 7 above:

1. Books	: English literature	- 50
	Grammer & Composition	- 15
	Education	- 140
	Economics	- 115
	Pol.Science	- 50
	History	- 120
	Encyclopedia American	- 40
	Religious books	- 70
	General Studies	- 20
	General Science	- 40
	Law and accounting	- 15
	Dictionary chambers	- 5
	Total	- 680
2. Magazine		- 2
3. Newspapers		- 6

(a) If no, do you recommend that the college should be affiliated pending acquisition of books/journals:

Provisional affiliation is recommended

10. (a) Reading room facilities

size 50'x20' - Adequate

(b) Class rooms

size 50'x20' -Adequate

(c) Students' Common Room

size 13'x13' - Adequate

(d) Teachers' Common Room

size 13'x13' - Adequate

(e) Library 20'x15' - Adequate

11. Whether the college has adequate equipment/laboratory facilities for practical classes :

Not applicable

12. Name of the teachers with Post-Graduate Degree/Specialization:

Sl. No.	Name	Lecturer in	P.G.Degree with grade or specialization.
1.	Dr. Tsibu Rutsa	Principal	M.Th, D.Ed
2.	Pranati Nayak	Pol.Science	M.A,M.Phil 62% Ph.D candidate (D.U)
3.	Sarita Jaswal	Education	M.A 64% (NEHU)
4.	Iris Odyo	History	M.A. 55% (NEHU)
5.	K.J.Joy	English	M.A. 55.7% (Ghandiji University Kerala)
6.	Sivichan J.Joseph	Economics	M.A 60%(University of Kerala).

condt/...../.

13. Whether the college has adequate No. of qualified teachers in the subjects for which affiliation is sought:

Yes

14. Whether the college is maintaining a fixed term deposit of Rs.1,00,000/- in any bank:

Yes

If yes, the fixed deposit certificate -

No.178589 (6/15) dated 23.4.1991 for Rs. One Lakh only in the Central Bank of India, Kohima.

15. Any other observation (s):

The college management stated that the college would get financial assistance from the Asian Cross Mission (Japan), Cambridge University, U.K. and Laotian Baptist Church USA.

16. Recommendations :

a) The college has admitted students both into Ist and IInd year classes of P.U (arts) level. This should not have been done. The issue of the 7 (seven) students to appear P.U (Arts) examination this year is taken up separately.

b) The committee recommends for provisional affiliation of the college at P.U (Arts) level for three years on the following conditions :-

i) The constitution of the college has be.. to amended to provide constitution of the Board of Direct... as per statute of the university.

ii) The books and journals in the library should be procured as per prescription made by the regulations of the University.

Both the cases have been pointed out to the Principal through a separate letter.

(Sd/ Kiremwati)
Pro-Vice-Chancellor &
Chairman, Inspection Committee

(Sd/ V.K.Jakhalu)
Deputy Director,HTE Nagaland
and Member Inspection Committee
(Nominee of Director)

(Sd/ S.K.Gupta)
Reader, Department of Education &
Member Inspection Committee.

6:6:1(1)

6:6-Administrative Matters-service conditions etc:

Clarification on the minimum qualifications prescribed for appointment of Lecturers, Readers and Professors.

The Academic Council by its Resolution No.AC:43:92:6:01(i) adopted in its meeting held on 3rd and 4th March, 1992 adopted the Revised Qualifications notified by the University Grants Commission by their letter No.F.1-11/87(CPP) dated 28.10.91. The Executive Council also in its 74th meeting resolved to adopt the Revised Qualifications by its Resolution No.EC:74:92:06:6(xi). The Revised Qualifications came into force w.e.f. 19.9.91.

With the implementation of the Recommendations of the 4th Pay Commission, Lecturers are to be recruited through National Eligibility Test and the minimum qualification required for the test is 55% marks in a relevant subject. However, the following categories of Candidates are exempted from appearing in the National Eligibility Test for recruitment of Lecturers in Universities and Colleges.

1. All Candidates who have passed UGC/CSIR JRF Examination.
2. All Candidates who have already been awarded Ph.D/ M.Phil Degree.
3. All Candidates who were awarded M.Phil Degree upto 31.3.91 and those who would be awarded Ph.D. Degree upto December, 1992.

The University Grants Commission has sent further clarifications on July 13, 1992 and September 24, 1992 to the effect that those Candidates who were exempted from appearing in the National Eligibility Test are also required to obtain a minimum of 55% marks at the Master's Degree level. The clarification issued by the University Grants Commission may be seen at Annexure 'A' & 'B'. The letter of the UGC dated 30.1.90 exempting three categories of Candidates from appearing in the Eligibility Test may be seen at Annexure 'C'.

The matter is placed before the Council for information and adoption.

6.6.1(2)

COPY

ANNEXURE 'A'

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI

No.F.1-11/87(CPP) 13 July 1992.

The

North Eastern Hill
University,
Shillong 793 001.

Sub: Minimum qualifications prescribed for appointment of Lecturers, Readers and Professors in subjects other than Fine Arts, Management, Engineering and Technology in Universities and Colleges - Regarding clarification in respect of the

Sir/Madam,

The Commission in its letter of even number dated 28.10.1991 sent a copy of the notification on the revision of minimum qualification required for recruitment of teachers in Universities and Colleges. The Commision has been receiving representations from individuals as well as from various institutions seeking clarification in respect of exemption from UGC/CSIR-JRF NET eligibility test in respect of candidates who have M.Phil/Ph.D. degree as conveyed in this letters No.F.4-12/86(NET) dated 30.1.1990, 14.6.1990 dnd 25.1.1991.

The Commission has examined the matter carefully and decided that there is no relaxation from the requirements of having 55% marks at the Master's Degree Level. Exemption from passing the Lecturers Eligibility Test is only applicable to those candidates who would done Ph.D. upto December 1992 or M.Phil upto March, 1991, provided such candidates have secured 55% marks at the Master's level.

The Commission also decided that all Universities/ Deemed Universities and Colleges be impressed upon to follow the UGC Regulations as notified vide this office letter No.F. 1-11/87 (CPP) dated 28th October, 1991 for the purposes of appointment of Professors, Readers and Lecturers, failing which serious legal complications may arise.

The contents of the letter may be brought to the notice of the affiliated/recognised Colleges/institutions of your University for implementation .

Receipt of this letter may please be acknowledged.

Yours faithfully

Sd/-
(V.K. Sharma)
Under Secretary.

6:6:1(3)

COPY

ANNEXURE 'B'

UNIVERSITY GRANTS COMMISSION

Bahadurshah Zafar Marg

No.F.1-1/87(CPP) New Delhi-2 dated 24 Sep 1992.

The Registrar,
North Eastern Hill Univ.,
Shillong 793 001.

Sub: Minimum Qualfications prescribed for appointment of Lecturers in subjects other than fine Arts, Management, Engg. & Technology in the Universities and Colleges.

Sir/Madam,

In partial modification of this office letter of even number dated 13.7.92 on the above subject, I am directed to say that in terms of the UGC's notification of even number dated 19.9.91 published in the Gazette of India on 5.10.91 prescribing minimum qualffications for appointment of Lecturers, Readers and Professors in subjects other than Fine Arts, Management, Engg. & Technology, a candidate is eligible for appointment to the post of a Lecturer in a University or a College only if : (a) He possesses a good academic record with at least 55% marks or an equivalent grade at Master's degree level in the relevant subject : and (b) He has cleared the Eligibility Test for Lecturership conducted by the UGC/CSIR or a similar test accredited by the UGC.

2. It may be noted that relaxation from requirement (a) i.e. a minimum of 55% marks at Master Degree level is not permissible in any case. However, the candidates belonging to the following categories are exempted from the requirement (b) i.e. clearing the Lectureship Eligibility Test provided they possess a minimum of 55% marks at Master's Degree level:

(1) Those who have passed the NET Examination conducted jointly by the CSIR-UGC for Junior Research Fellowship Award;

(2) Those who have been awarded M.Phil Degree upto the 31.3.91;&

(3) Those who have already been awarded Ph.D. Degrees or would be awarded the Ph.D. degree by the 31.12.92.

3. It may be added that the regulations prescribed under the above notification dated 19.9.91(forwarded to your university vide this office letter of even number dated 28.10.91) should be followed strictly for the purpose of appointment of Professors, Readers and Lecturers in all Universities, Deemed Universities and Colleges.

This contents of this letter may be brought to the notice of all the affiliated/recognised Colleges/Institutions of your University for compliance.

The receipt of this letter may please be acknowledged.

Yours faithfully,
Sd/-
(I.J. GUPTA)
Joint Secretary.

6:6:1(4)

COPY

ANNEXURE 'C'

UNIVERSITY GRANTS COMMISSION
NATIONAL EDUCATION TESTING
F-48,N.D.S.E., Part-I
NEW DELHI-110 049.

30th January, 1990

No.F.4-12/86(NET)

CIRCULAR

The University Grants Commission has decided that all those candidates who have secured 55% marks at Master's Degree level may be exempted from appearing in 'eligibility test' for Recruitment of Lecturers in Universities and Colleges as under :-

1. All Candidates who have passed UGC/CSIR JRF Examination.

2. All candidates who have already been awarded Ph.D./M. Phil degree.

3. All Candidates who will be awarded M.Phil upto December '90 and Ph.D. upto December 1992.

Sd/-N.K. Jain,
Deputy Secretary.

Copy to:-

1. All officers/Section.

2. All Universities in India with a request that this may be circulated to all colleges/Institutions which are affiliated or constituent colleges/Institutions.

Sd/-
M.S.THAKUR
SECTION OFFICER.

PART(II) AGENDA PAPERS FOR THE FORTYFIFTH MEETING OF THE ACADEMIC COUNIL

Contents — Page No.

Item No. 1 CONFIRMATION OF THE MINUTES :

(i) Confirmation of the Minutes of the 44th meeting of the Academic Council held on 7/8.8.92 — 1:(1)

Item No. 2 REPORTING ITEM :

(ii) Equivalent requirement in lieu of Participation in the Refresher Courses for consideration under the Career Advancement Scheme. — 2:2:(1-3)

Item No. 5 ACADEMIC MATTERS :

5:1- Statutes, Ordinances, Regulations & Rules.

(ii) Amendment to the Ordinance OC-8 in respect of Structure of the Bachelor of Arts, Science, Home Science and Commerce Courses. — 5:1:2(1-11)

5:2- Syllabus etc.

(i) Syllabi for the Integrated Three Year Degree Course. (Continued) — 5:2:1

(ii) Propose revised syllabus for M.A(Economics) — 5:2:2(2-40)

(iii) Syllabus for Three year Integrated Degree Course in History and Geography — 5:2:3(1-48)

(iv) Revised Syllabus for M.A in Anthropology — 5:2:4(1-36)

(v) Syllabi for the Courses in Computer Science at Degree level — 5:2:5(1-31)

5:5 - Examination Matters -

(ii) Proposal to abolish the existing Principle of giving 25% weightage for sessional work in the P.G.Programme. — 5:5:2(1)

5:6 - Establishment of new Departments/Centres/Courses

(ii) Structure for the Three Year Integrated Degree Course-distribution of Marks for different sets of questions. — 5:6:2(1)

(iii) Introduction of correspondence Course leading to B.A Degree -Report of the Committee — 5:6:3:(1-4)

Contd/.../-

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(v)	Permission to start B.Sc Honours in Pisciculture in St. Anthony's College w.e.f.1992 session and approval of the proposed Syllabus.	5:7:5
(vi)	Affiliation cases - upgradation to Degree level/ Introduction of new Courses/Permanent affiliation	5:7:6(1-28)
(vii)	Provisional affiliation of Jaintia Easter College, Khliehriat upto PU.(Arts)level w.e.f. 1992 and upto Degree Level w.e.f. 1993	5:7:7(1-5)
5:8 -	Others -	
(i)	Cancellation of nomination of NEHU Representatives in the Governing Body of Upper Shillong College	5:8:1:(1)
(ii)	Scaling of marks between Major/Non-Major for the purpose of admission to the P.G.Programme.	5:8:2:(1-3)

1:1:(1)

Confirmation of the minutes of the 44th meeting of the Academic Council.

The minutes of the 44th meeting of the Academic Council was circulated to all members. The following comment received from Dr. N.Malla, is placed before the Council for consideration of confirmation of the minutes:

Comment of Dr.N.Malla on resolution No. AC:44:92:5:08(1) regarding Closure of the Institute of Self-Organising Systems and Bio-Physics.

"Kindly refer to the item No.5:8(i)in the Minute. As far as I remember, it was resolved to close down the Institute in its present form; however, it was decided to retain the Centre for Bio-physics(as was originally envisaged) with a change in the nomenclature to Centre for Fundamental Research".

As per the recording in the minutes,the Institute may not be closed down. The Institute may instead be re-named as Centre for Fundamental Research and the University Grants Commission may be requested for this with provision for seperate funding.

2:2:(1)

Equivalent requirement in lieu of participation in the RefresherCourses for consideration under the Career Advancement Scheme.

The Academic Council in its 43rd meeting resolved to constitute a Committee to examine the possibility of adopting an equivalent requirements in lieu of participation in the Refresher Courses and the suggestion of the Committee may be taken up with the U.G.C. for approval. The Council also resolved that the University may request the U.G.C to consider the extension of time limit for undergoing Refresher Courses to those Lecturers who were appointed after 1.1.86 and are now due for consideration under the Career Advancement Scheme.

In pursuance of the above resolution, a Committee was constituted to suggest an equivalent requirement in lieu of participation in the Refresher Courses for consideration under C.A.S. The minutes of the Committee may be seen at Annexure - A.

The University wrote to the U.G.C on 29.7.92 to consider the equivalent requirements as suggested by the Committee, in lieu of participation on the Refresher Courses. The U.G.C has also been requested to give the benefit of the relaxation of time limit for undergoing Refresher Courses upto December 1993 to those lecturers who were appointed after 1.1.86 and who have become due for consideration for placement under C.A.S. The matter has been followed up by a reminder but nothing has been heard from U.G.C.

The matter is placed before the Council for information.

.....

2:2:(2)

NORTH EASTERN HILL UNIVERSITY
LOWER LACHAUMIERE
SHILLONG- 793 001. ANNEXURE - A.

....

MINUTES OF THE COMMITTEE ON 15TH JUNE, 1992.

The Committee, constituted in pursuance of A.C resolution No. AC:43:92:6:6(i), noted in its meeting held on 15.6.92 that Refresher Courses may not be available to a large number of Lecturers in various Departments of the University as well as the affiliated Colleges, Refresher Courses have been sanctioned by UGC to this University for the benefit of the teachers of the following subjects only:-

1. Chemistry.
2. Botany.
3. Zoology.
4. Pol.Science.
5. Khasi.
6. Garo.
7. Mizo.

Consequently, Lecturers of other Departments as well as the Colleges will be deprived of opportunities of participating in the Refresher Courses.

The Committee, therefore, resolved that UGC may be moved to recognise the following as equivalent to Refresher Courses for consideration of the cases of Lecturers under the Career Advancement Scheme.

(i) Workshops and other programmes conducted by reputed bodies like DST/CSIR/UGC/CIEFL etc. the duration of which is not less than 3 (three) weeks.

(ii) Collaborative research work with other recognised Institutions, the duration of which is not less than 3 (three) weeks.

(iii) Guiding Research- If a Lecturer has successfully guided research of at least two Scholars for M.Phil or one Scholar for Ph.D.

(iv) Short-term Courses - If a Lecturer has successfully participated in Short-Term Courses the total duration of which is not less than 3 (three) weeks.

The list of members , who attended the meeting , is appended as Annexure 'A'.

Sd/-
(B. Pakem)
Chairman.

Sd/-
(O.D. Shira)
Convener.

2.2(3)

ANNEXURE 'A'.

Members Present .

1. Prof. D. Pakem Vice-Chancellor.	....	Chairman.
2. Prof. M.S. Padma.	....	Member.
3. Prof. N. Hassan.	....	Member.
4. Prof.C.S. Shastri.	....	Member.
5. Prof. K. Chatterjee.	....	Member.
6. Prof. R. Gopalkrishnan	....	Member.

.....

5:1:2(1)

Amendment to the Ordinance OC.8 in respect of structure of the Bachelor of Arts, Science, Home Science and Commerce courses.

The last meeting of the Academic Council has decided to introduce Three Years Integrated Degree Course with effect from the session beginning from 1993. This has necessiated to bring amendments to the Ordinance OC. 8. Accordingly the existing Ordinance (OC.8) and draft proposal to replace the Ordinance is submitted for the consideration and approval of the Academic Council.

The Draft revised Ordinance is placed at Annexure-'A' and existing Ordinance at Annexure-'B' for consideration of the Council.

5'1:2(2) Annexure-A.

DRAFT ORDINANCE IN REPLACEMENT OF ORDINANCE OC.8

Ordinance on the structure of Bachelor of Arts, Science, Home Science and Commerce courses.

Course of Study

1. There shall be courses of study leading to the Degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Home Science and Bachelor of Commerce.

Eligibility

2. Students who have passed the two years PU examination of NEHU or any other equivalent examination from any recognized University/Board shall be eligible to seek admission to the first year of the Degree course.

Duration and Structure

3. The duration of the Degree courses with major or without major shall be of three years. There shall be three examinations, the first being at the end of first year, the second being at the end of second year, and the third being at the end of third year.

Division and Classes

4. In order to pass the Degree examination, a candidate shall obtain the following minimum marks:-

A) Candidates without major:-

(a) 30% marks in each theory paper

(b) 40% marks in each practical paper

(c) A candidate securing 33% marks or more but less than 45% marks in aggregate shall be declared to have qualified for the degree as Simple Pass; a candidate securing 45% marks or more but less than 60% in aggregate shall be placed in the Second Division and candidates securing 60% marks or more shall be placed in the First Division.

B) Candidates with major:-

(a) 30% marks in each theory paper

(b) 40% marks in each practical paper

(c) A candidate securing 33% marks or more but less than 45% marks in aggregate in the major subjects shall be declared to have qualified for the degree as Simple Pass; a candidate securing 45% marks or more but less than 60% marks in aggregate in the major subjects shall be placed in the Second Class and the candidates securing 60% marks or more in the major subjects in aggregate shall be placed in the First Class.

C) Distinctions:

A candidate obtaining 75% marks or more in a particular subject shall be awarded Distinction in that particular subject but a candidate shall be required to secure a minimum of 85% marks to obtain Distinction in G.F.C.

Award of Degrees 5. (a) The candidates shall be eligible to get the Degree for the respective stream taking into account their performances in the three examinations namely, the examination at the end of the first year, the examination at the end of the second year and the examination at the end of the third year. For the purpose of classification of Divisions/Classes, the aggregate of the marks obtained in all the three examinations shall be taken into account.

(b) Regardless of whether the candidates pass or fail in one or all subjects of the first and second year examination(s) shall be eligible to proceed to the next year's course without having to wait for the declaration of the concerned result. However, a candidate failing in one or more subjects shall be required to appear and pass the subjects failed earlier availing subsequent two chances. A student shall have to clear the degree within 5 years from the date of admission to the Degree course, beyond which a candidate shall be required to seek readmission into the first year as a fresh candidate.

Course Structure 6. (a) Bachelor of Arts without major:

The course structure and the distribution of marks for B.A. without major shall be as under:-

Subject	1st year	2nd year	3rd year
English	100	100	-
G.F.C.	-	-	100
M.I.L.	-	100	100
Elective I	100	100	100
Elective II	100	100	100
Elective III	100	100	100
Total:	400	500	500

Grand total:1400 marks.

(b) Bachelor of Science and Bachelor of Home Science without major:

The course structure and distribution of marks for B.Sc and Home Science Courses without major shall be as under:-

Subject	1st year	2nd year	3rd year
English	100	-	-
G.F.C.	-	-	100
Elective I	100	200	100
Elective II	100	200	100
Elective III	100	200	100
Total:	400	600	400

Grand total: 1400 marks

(c) Bachelor of Commerce without major:

The course structure and the distribution of marks for B.Com course without major shall be as under:-

Subject	1st year	2nd year	3rd year
English	100	100	-
G.F.C.	-	-	100
M.I.L	-	100	100
Elective I	100	100	100
Elective II	100	100	100
Elective III	100	100	100
Total:	400	500	500

Grand total: 1400 marks

(d) Bachelor of Arts with major:

The course structure and the distribution of marks for the B.A. course with major shall be as under:-

Subject	1st year	2nd year	3rd year
English	100	100	-
G.F.C.	-	-	100
M.I.L.	-	100	-
Elective I	100	100	100
Elective II	100	100	100
Major(Elective)	200	300	300
Total:	500	700	600

Grand total: 1800 marks

(e) Bachelor of Science and Bachelor of Home Science with major:

The course structure and distribution of marks for the B.Sc with major and B.Sc(Home Science) with major shall be as under:-

Subject	1st year	2nd year	3rd year
English	100	-	-
G.F.C.	-	-	100
M.I.L.	-	-	-
Elective I	100	200	100
Elective II	100	200	100
Major(Elective)	200	300	300
Total:	500	700	600
Grand total: 1800 marks			

(f) Bachelor of Commerce with major:

The course structure and the distribution of marks for the B.Com course with major shall be as under:-

Subject	1st year	2nd year	3rd year
English	100	100	-
G.F.C.	-	-	100
M.I.L.	-	100	-
Elective I	100	100	100
Elective II	100	100	100
Major(Elective)	200	300	300
Total:	500	700	600
Grand total: 1800 marks.			

Common Courses: 7. Three papers of each elective subject, General Foundation Course and MIL shall be common to both categories of candidates, with or without major. The three common papers of the elective subject shall be spread over the three years, i.e. one paper in each year.

Miscellaneous: 8. (i) This Ordinance shall be effective from the academic session beginning from 1993.

(ii) The organization of the programmes leading to the Degrees in this Ordinance, framing of the course and conduct of examinations and other related matters shall be laid down in the regulations framed for this purpose from time to time.

(iii) The students who have been studying for the two years Degree Pass Course on three years Degree Honours Course immediately before the commencement of this Ordinance shall be governed by the provision of the Ordinances in force at the time of their enrolement.

(iv) Notwithstanding anything contained in this Ordinance, the Academic Council shall take any such decisions as may be deemed necessary for overcoming any difficulties that may arose during the transitional period.

(v) A student from the Arts group may be permitted to opt for only one elective having 400 marks and such candidates shall have only one MIL paper of 100 marks.

(vi) The MIL paper in the third year shall be common to both the categories of candidates with or without major. This paper may comprise of prose, poetry, drama, etc.

(vii) A student from Science stream opting Economics as one of the electives shall have 4 papers in Economics, the 4th paper being from the major group which is not common paper.

(viii) A student choosing English as major elective shall be required to opt for one elective in lieu of general English of 200 marks and one MIL of 100 marks.

(ix) A student going for major may opt to switch over to a Course without major but not vice-versa.

5:1:2(8) Annexure-B

EXISTING ORDINANCE No. OC. 8

On the structure of Bachelor of Arts, Science, Home Science and Commerce Courses.

Course of Study

1. There shall be courses of study leading to the Degress of Bachelor of Arts, Bachelor of Science, Bachelor of Home Science and Bachelor of Commerce. Each Course shall comprise two phases, viz., the first two years and the third year which will correspond to a pass and a honours degree in the respective branches.

Eligibility

2. Students who have passed the two year Pre-University examination of NEHU or any other equivalent examination from any recognised University/Board will be eligible to seek admission to the first year of the Degree course.

Duration and Structure

3. (i) The duration of the degree course will be three years. There shall be two University examinations, the first at the end of the second year and the second at the end of the third year.

(ii) Students who do not wish to continue in the third year will be awarded a pass course Bachelor's degree. The candidate who qualify in the examination at the end of the second year and secure atleast 45% marks in one of the elective subjects shall be eligible for admission in that subject in the third year honours course.

Provided that if a student has discontinued his studies at end of the second year and has been awarded a pass course Bachelor's degree may also be allowed to seek admission to the third year honours course even after a lapse of time provided he satisfied the minimum entry qualifications.

(iii) Students who are not eligible for admission to the third year honours course in a subject may be allowed to re-appear in that subject or in all the subjects to improve his score in one subject or to improve his general division in the pass course, as the case may be in accordance with the regulations which may be made in this regard by the University. However, not more than two chances shall be allowed for this purpose to any student.

Divisions and Classes

4. (i) In order to pass the Degree examination, a candidate must obtain the following minimum marks:

Pass course (in each subject)

(a)	Where no practicals are involved ..	33%
(b)	Where practicals are involved ..	30%
	Theory	30%
	Practicals	40%

Honours course (in each paper)

(a)	Where no practicals are involved ..	33%
(b)	Where practicals are involved ..	
	Theory ..	30%
	Practicals	40%

(ii) Student will be awarded Divisions in the pass course Bachelor's degree on the basis of their aggregate marks in all the subjects taken together. Students securing 35% marks or more but less than 45% marks will be declared to have simply passed. Those securing 45% marks or more but less than 60% will be placed in the Second Division and those securing 60% marks or more in the First Division. Those students who obtain 75% marks or more in any subject will be awarded distinction in that subject.

Provided that in the foundation course those who secure 65% or more only shall be awarded a distinction.

(iii) The student in the honours examination will be awarded Classes on the basis of the aggregate of marks of all the papers in that subject including the three papers taken in the first two years. The minimum percentage qualifying for honours shall be 45%. Those securing 45% and above but less than 60% will be placed in the second class, those securing 60% and above will be be placed in the first class.

Award of Degree

5. (i) The two elective subjects studied by a honours student in the first two years will be mentioned in honours degree as subsidiary subjects. In the mark-sheet of the honours

course the full particulars of the performance of the candidate in the compulsory and elective subjects will be shown.

(ii) Pass Degrees will be awarded at the end of the second year only on the receipt of specific request from a candidate.

Course Structure 6. (a) Bachelor of Arts.

(i) The candidate shall study three elective subjects of equal weightage in the first two years in addition to English MIL/ Foundation Course. In the third year he shall offer one of the three elective subjects for his honours unless otherwise specifically provided for in the Regulations.

(ii) The distribution of courses and marks shall be as follows:

Sl. No.	Subjects	No. of papers	Marks alloted	No. of years
1.	English	2	200	First two years
2.	MIL/Foundation Course	1	100	
3.	Three Elective Subjects	3x3	900	Third year
4.	One of the three electives	5	500	

(b) Bachelor of Science

(i) The candidate shall study three elective subjects of equal weightage in the first two years in addition to English and Foundation Course. In the third year, he shall opt for one of the three subjects unless otherwise specifically provided for in the Regulations.

(ii) The distribution of courses and marks shall be as follows:

Sl.No.	Subjects	No. of papers	Marks alloted	No. of years
1.	English	1	100	First two years
2.	Foundation Course	1	100	
3.	Three Elective Subjects	3x3	900	Third year
4.	One of the electives	5/6	500	

5.1.2(10)

(c) Bachelor of Home Science

(i) The candidate shall study three groups of subjects of equal weightage in the first two years in addition to English and Foundation Course. In the third year she shall offer for her honours one of the three elective groups unless otherwise specifically provided for in the Regulations.

(ii) The distribution of courses and marks are as follows:

Sl. No.	Subjects	No. of papers	marks alloted	No. of years
1.	English	1	100	Frist two years
2.	Foundation course	1	100	
3.	3(three) groups	9	900	
4.	One of the three subjects	5	500	Third year

(d) Bachelor of Commerce.

(i) The candidate shall study three groups of subjects of equal weightage in the first two years in addition to English, Foundation Course and MIL/Alternative English. In the third year he shall offer for his honours one of the three elective groups unless otherwise specifically provided for in the Regulations.

(ii) The distribution of courses and marks are as follows:

Sl. No.	Subjects	No. of papers	Marks alloted	No. of years
1.	English	1	100	First two years
2.	Foundation Course	1	100	
3.	MIL/Alternative English	1	100	
4.	Three elective groups	3x3	900	
5.	One of the elective groups.	5	500	Third year

Miscellaneous

7. (i) The organisation of the programmes leading to the degrees in this ordiance, framing of the courses and conduct of examinations and other related matters will be laid down in the Regulations framed for this purpose from time to time.

(ii) (a) The students who have been studying for two years degree course immediately before the commencement of this Ordinance shall be permitted to complete their examinations as per the Ordinance in force at the time of their enrolment.

(b) If a student has completed his two year or pass course wishes to pursue the new honours course, he may be permitted to join the third year.

Provided that a pass course candidate must have obtained qualifying marks in the concerned subject.

(c) An old pass course candidate may be allowed to improve his grade in any subject to enable him to obtain qualifying marks to pursue honours studies in the new stream.

Provided that he will have to appear in the relevant papers of the concerned subjects of the new course if he takes the examination in 1985 or thereafter.

(iii) Notwithstanding anything contained in this Ordinance, the Academic Council may take such action as may be deemed necessary in respect of old stream candidates for smooth transition from the old system to the new.

5:2:2 (1)

Proposed revised Syllabus in M.A. Economics.

As desired by the Academic Council in its 44th meeting, theproposed revised syllabus for M.A. in Economics was placed before the full Board meeting of the School Board of Social Sciences which was held on 17th and 18th September 1992. The syllabus as approved by the School Board is placed at Annexure- A for consideration of the Council.

Meanwhile, Dr K.K. Upadhya has submitted his views on the revision of the syllabus for discussion in the Academic Council. The views of Dr. K.K. Upadhyay, which were also discussed in the School Board meeting, are placed at Annexure- B. The matter is placed before the Council for consideration.

5:2 2(3)
2

The following is the proposed structure :

Code	Name of the Course
First Semester	
ECO 101	Political Economy
ECO 102	Macro-Economic Analysis -I
ECO 103	Mathematics for Economists
ECO 104	Statistical Analysis
Second Semester	
ECO 202	Macro-Economic Analysis-II
ECO 205	Micro-Economic Analysis-I
ECO 206	Public Economics
ECO 207	Economics of Development & Planning
Third Semester	
ECO 305	Micro-Economic Analysis-II
ECO 308	International Trade
Optional 1	
Optional 2	
Fourth Semester	
ECO 409	Indian Economy
ECO 410	Economics of North-Eastern Region
Optional 3	
Optional 4	

Optional Courses are to be offered from the following list :

One Semester Courses	
ECO 3001	Theories of Industrial Economics
ECO 3002	International Trade & Monetary Policy
ECO 3003	Computer Programming for Social Scientists
ECO 3004	Static Optimization Techniques
ECO 4001	Industrial Organization in India
ECO 4002	Environmental Economics
ECO 4003	Modern Growth Economics
ECO 4004	Dynamic Optimization Techniques
ECO 4005	International Economics

PROPOSAL TO REVISE M.A.(ECONOMICS)SYLLABUS

The Department of Economics, NEHU proposes to introduce a few changes in the syllabus of M.A. (Economics), in order to revise and up-date the structure and contents of the courses. The following issues are worth mentioning in this connection. Firstly, these courses were revised last time in 1986. Therefore, it is necessary to revise the content of some of of the courses in order to include the latest developments in the field. Secondly, there have been some major changes noticed in the academic circle by the introduction of National Eligibility Test (NET) by UGC for awarding fellowships and lectureships and introduction of new curriculum by UGC for Undergraduate (Honours) and Post-Graduate courses. Finally, there have been so many changes in the world economy in general and Indian economy in particular which call for reorientation of the curricula.

Keeping these issues in mind, it has been felt that restructuring of the M.A.(Economics) courses is over-due. Accordingly, the exercise to revising the structure and the course contents was undertaken. For this purpose, we consulted the latest syllabi of many Indian Universities and also the new curriculum prepared by the UGC for the post-graduate level which takes into account the NET syllabus also.

In order to incorporate the recent development on the horizon of international and Indian economies, like new international economic order, globalization of Indian economy, environmental issues in economic development and so on we propose to introduce some new courses for the first time in post graduate syllabus. For example, courses on Indian Economy, Environmental Economics, Dynamic Optimization, Macroeconometric Modeling etc. at both compulsory and optional levels. The compoete structure along with the list of courses to be offered is given below. To make the nomenclature of courses more systematic, the courses have been assigned codes; the three digit code indicates a compulsory course, whereas the four digit courses are optional.

Two Semester Optional Courses

ECO 3106 Economics of Agriculture-I
ECO 4206 Economics of Agriculture-II
ECO 3107 Econometrics-I
ECO 4207 Econometrics-II
ECO 4307 Econometrics-III
ECO 3108 Economics of Human Resources-I
ECO 4208 Economics of Human Resources-II
ECO 3109 Mathematical Economics-I
ECO 4209 Mathematical Economics-II
ECO 3110 Economics of Third World-I
ECO 4210 Economics of Third World-II
ECO 3111 History of Economic Thought-I
ECO 4211 History of Economic Thought-II
ECO 3112 Urban and Regional Economics-I
ECO 4212 Urban and Regional Economics-II
ECO 3113 Transport Economics-I
ECO 4213 Transport Economics-II
ECO 3114 History of Economic Development-I
ECO 4214 History of Economic Development-II
ECO 3115 Monetary Economic-I
ECO 4215 Monetary Economic-II

NOTES :

(i) Out of total 42 courses listed above, 7 are new and 16 have been modified. Course Nos. ECO 207, ECO 308 and ECO 409 are new proposed compulsory courses and course Nos. ECO 4002, ECO 4004, ECO 4307 and ECO 4215 are new optional courses.

(ii) The compulsory courses ECO 101 through ECO 104, ECO 202, ECO 205 and ECO 206, have been revised and updated. The optional courses ECO 3111, ECO 3004, ECO 4001, ECO 4003, ECO 4004, ECO 4005, ECO 3106, ECO 4206, ECO 3107, ECO 4207, ECO 4307 and ECO 3115 have been revised and updated.

(iii) Course ECO 207 Economic Development and Planning is being introduced in place of two existing compulsory courses, viz. Economics of Development and Techniques and Models of Planning which were offered in second and third semesters respectively.

5.2.2(5)

Further, it is proposed to stop serving the compulsory course Economic Statistics which has been offered in Second semester.

(iv) Compulsory course ECO 206 Public Economics has been offered in fourth semester earlier. Now it is proposed to be offered in second semester.

(v) Courses ECO 308 International Trade and ECO 409 Indian Economy are the new courses to be offered in third and fourth semesters respectively.

All the revised and new courses have been approved by the Board of Post Graduate Studies in Economics and the School Board of the School of Social Sciences in their meeting held on September 8, 1992, and September 17-18, 1992, respectively. These revised and new courses may be placed at the next meeting of the Academic Council.

ECO 101 POLITICAL ECONOMY

Unit-I Emergence of Political Economy (11)

1.1 Political economy-it emergence;historical and institutional background

1.2 Political economy before Smith -Mercantilism and Physiocracy-Factors leading to the emergence and decay; basic doctrines.

1.3 Contributions of Cantillon,David Hume,Quesnay and Turgot.

Unit-II The Major Questions in Classical Political Economy,(11)

2.1 The classical theories of value including labour Theory of Vlaue :Smith and Ricardo

2.2 Classical theories of distribution-Smith,Ricardo,Malthus and Mill

2.3 Classical theories of development-Smith and Mill

2.4 Say's Law of Market and Says's Identity.

Unit-III Classical School and Its Relevance to Modern Economic Problem (11)

3.1 Methodological Issues relating to Development Theory from Classicists onwards

3.2 Marx-Surplus Vlaue,Crises,Sraffa's contribution

3.3 Classical Theory and Its relevance to Modern Economic Problems

Unit-IV Modern Approach to Political Economy (12)

4.1 Modern Political Thoughts :Neo-mercantilism,G.Myrdal

4.2 Changing Nature of Social Relation of Production

4.3 Indian Political Economy-Class Politics;Policies and Politics of the Backward Classes.

4.4 Types of Politics and Economic Performances-Demand Polity and Command Polity-Indian democracy with respect to Demand and Command Polity.

Recommended Readings:

Blaug,M.,Economic Theory in Retrospect,Vikas Publishing House,New Delhi,1982.

Dobb,M.,Theories of Value and Distribution since Adam Smith-Ideology and Economic Theory,Cambridge University Press, 1973.

Bharadwaj,Krishna,Classical Political Economy and Rise to Dominance of Supply and Demand Theories,Orient Longman,1973.

Bharadwaj,Krishna,On Some Issues of Methods in the Analysis of Social Change;Prasanga University of Mysore,1980.

Bharadwah,Krishna,"Value Through Exogenous Distribution" in Harcourt and Laing(Eds.),Capital &Growth,Penguin Publication.

Dobb,M.,Political Economy and Capitalism - Some Essays in Economic Tradition;Routledge and Kegan Paul Publishers,1983.

Guide and Rist,A History of Economic Doctrine,Oxford U.P.,Calcutta,1973.

Gudolph,Lloyd,I.and Rudolph,S.H.,In pursuit of Lakshmi-The Political Economy of Indian State,Orient Longman,1987.

Shynes,David,What is Political Economy?,Basil Blackwell Publishers Ltd., U.K.,1984.

Mitra, Ashok,Terms of Trade and Class Relations, Rupa Publications,Calcutta, 1977.

Kregel,J.A.,Rate of Profit, Distribution and Growth,Two Views,Macmillan1971.

5.2.2(7)

Morishima, M., Equilibrium Stability and Growth of Multisectoral Analysis, Oxford Clarendon Press, 1964
Keunno, R.E., The Theory of General Equilibrium
Frankell, F., India's Political Economy, Oxford University Press, Delhi, 1978.

In addition to the above mentioned references, for Unit-IV, the students may be advised to consult relevant issue of Political Economy Supplement in relevant journals.

ECO-102 MACROECONOMICS ANALYSIS-I (Revision not required)

ECO-103 MATHEMATICS FOR ECONOMISTS

Unit-I (11)

1.1 Number system - Real and Imaginary
1.2 Vector and Vector Spaces, Vector and Points
1.3 Set Theory : Bounded and Unbounded Sets, linear and metric spaces
1.4 Functions : Linear and non-linear, convex and concave.

Unit-II Matrix Operations (12)

2.1 Elementary Mathematical Operation with Matrices
2.2 Solution of simultaneous equations : Rank of the matrix, matrix inversion
2.3 Linear and orthogonal transformation, Eigen Value Problems of Matrices
2.4 Linear Programming Problems : Feasible and Optimal solution. Duality Theorem. Optimal solution (Graphical Method).

Unit-III Calculus (11)

3.1 Principles of Differentiation. Partial and total differentiation
3.2 Maxima and Minima - unconstrained and constrained
3.3 Differentiation of implicit functions
3.4 Principles of integration

Recommended Readings

Allen, R.G.D., Mathematical Analysis for Economists, Macmillan, 1976.
Chiang, A.C., Fundamental Methods of Mathematical Economics, McGraw Hill and Kogakusha, New Delhi, 1974.
Yamane, T., Mathematics of Economists, Prentice Hall, New Delhi, 1973
Lewis, J.P., Introduction to Maths for students of Economics, Macmillan, London, 1978.
Baumol, W.J., Economic Theory and Operational Analysis, Prentice Hall, 1977.
Baumol, W.J., Economic Dynamics, Macmillan, London, 1970.
Samuelson, P.A., Foundations of Economic Analysis, McGraw Hill, Tokyo, 1967.
Hadley, G., Linear Algebra, Addison-Wesley Pub. Co., Tokyo, 1973.

Note: In this course the emphasis will be on illustrations of applications to economic theory rather than mathematical derivation of proofs, as far as possible.

5.2.2(8)
7

ECO-104 STATISTICAL ANALYSIS

Unit-I Theory of Statistics (12)

1.1 Statistics - nature and scope. Types of Statistics descriptions and inferential

1.2 Probability theory - different concepts and approaches

1.3 Laws and Axioms of Probability

1.4 Probability Distributions Binomial, Poisson, Normal, Beta and Gamma functions and their important characteristics

1.5 Mathematical expectation-expectation of sum and product of variables, concept of co-variance

Unit-II Correlation and Regression (11)

2.1 Concept of correlation, correlation coefficient, partial correlation coefficients

2.2 Two variable linear regression extended to multivariate case. Method of estimating the parameters of regression equation and regression model, estimating the variance of the regressor estimates

2.3 Non-linear regression models and logistic curve

Unit-III Theory of Estimation

3.1 Variables and parameters. Stochastic and non-stochastic variables

3.2 Estimators - Properties of good estimator, BLUE - of the estimators consistency, sufficiency and minimum variance properties

3.3 Method of Estimation; Method of OLS estimation, Maximum likelihood estimations. Point estimation and interval estimation

Unit-IV Hypothesis Testing

4.1 Some specific sampling distributions - t-dist., F-dist. and X 2 - dist. Hypothesis - meaning and types. Test of hypothesis in relation to theory of (a) small sampling (b) sampling of variables.

4.2 Errors of I and II types

4.3 Tests of significance - t, F, 2 and X 2 tests with application

Recommended Readings

Bez, K., Quantitative Techniques in Economics, Kalyani Publishers, New Delhi, 1990

Chakravarty, I.M., Handbook of Applied Statistics, Wiley & Sons, 1967

Freund, J., Modern Business Statistics, Pitman, London, 1959.

Hogg, R., Introduction to Mathematical Statistics, Mcmillan, London, 1959

Kapoor and Saxena, Mathematical Statistics

Goon, Gupta and Dasgupta, Fundamentals of Statistics, World Press, Calcutta, 1970.

Hoel, P.G., Introduction to Mathematical Statistics, Wiley and Sons, 1954.

Lehman, E.L., Testing Statistical Hypothesis, Wiley and Sons, 1956.

Rao, C.R., Linear Statistical Inference and Applications, Wiley and Sons, 1965.

Wallis, W.A., Statistics - A New Approach, the Free Press, Illinois, 1956.

Standard Reference Book

A Stuart & M. Kendall, Advance Theory of Statistics, Vol. 3.

5.8.2.2(9)

ECO-202 MACROECONOMIC ANALYSIS-II

Unit-I Money and Inflation (10)

1.1 Quantity Theory of Money : Friedman's Restatement, Pigou Effect and Real Balance Effect.
1.2 Inflation : Nature, Theories and Types
1.3 Philips Curve Analysis

Unit-II Macro-Economics of an Open Economy (10)

2.1 Extension of Basic Keynesian Model : The Dynamic Case
2.2 IS-LM Analysis for an open Economy : Stability Conditions, Correspondence Principle, Model by Neo-Classical School
2.3 Foreign Trade Multiplier : Fixed and Flexible Cases

Unit-III Fluctuations in the Economic Activity (11)

3.1 Causes and Origins of Business Cycle
3.2 The Accelerator and Multiplier Principles and their Interactions
3.3 Consumption Expenditure and Business Cycle : Keynesian and Hicksian Approaches
3.4 Business Cycle Models : Samuelson-Hicks, Goodwin, Kalecki and Philips Models, Schumpeter Clock.

Unit-IV Macroeconomic Models of Economic Growth (12)

4.1 Growth Theory - Nature, Problems of Aggregation
4.2 One sector Models of Growth : Harrod and Domar, Instability of Equilibrium Path
4.3 Neo-Classical Models : Solow, Swan and Phelps
4.4 Criticisms of Neo-Classical Models: Modern Cambridge School

Recommended Readings

1. Friedman, M. (Ed.): Studies in Quantity Theory of Money, University of Chicago Press (1956).
2. Makinon, G.E.: Money, the Price Level and Interest Rates, Prentice Hall, New Delhi (1980).
3. Patinkin, D.: Money, Interest and Prices, Harper and Row, New York, 1965.
4. Mueller, M.G. (ed.): Readings in Macroeconomics, Wiley and Sons, N.Y. (1977).
5. Ackley, G.: Macroeconomics: Theory and Policy, Macmillan, N.Y. (1978).
6. Levacic, R. and Rebman, A.: Macroeconomics, Macmillan, London (1982).
7. Kenkel, J.L.: Dynamic Linear Economic Models, Gordon and Breach, N.Y. (1974).
8. Branson, W.H.: Macroeconomic Theory and Policy, Universal Book Stall, N. Delhi, (1988).
9. Bobber, S.: Economics of Cycles and Growth, Wiley Eastern, N. Delhi, (1971).
10. Baumol, W.J.: Economic Dynamics, Macmillan, N.Y. (1970).
11. Ott, D., Ott, P. and Yoo, S.: Macroeconomic Theory, McGraw Hill, N.Y. (1975).
12. Sen, A.(ed.): Growth Economics, Penguin Books, Harmondsworth (1970).
13. Jones, H.G: An Introduction to Modern Theories of Economic Growth, MaGraw Hill, Tokyo (1976).
14. Allen, R.G.D.: Macroeconomic Theory: A Mathematical Approach, Macmillan, London (1968).

ECO-5 MICROECONOMIC ANALYSIS-I

Unit-I Consumer Behaviour (12)

1.1 Preference Ordering: Violation of the premises of the indifference curves analysis: Axioms and Utility.
1.2 Reveal Preference Theory
1.3 Recent Developments in the Theory of Market Demand : Constant Elasticity Type Demand Models, Distributed Lag Models of Demand, Linear Expenditure Systems, Lancaster's Model of Consumer Technology.
1.4 Decision under Uncertainty

Unit-2 Production and Costs (12)

2.1 Production Function: Concepts of Elasticity of Production, Elasticity of Substitution, Isoquant, Isocline, Ridge Line
2.2 Homogeneity and Homotheticity
2.3 Functional forms (Linear, Cobb-Douglas, CES and Translog)
2.4 Theory of Costs: Short and Long Run, Derivation of Cost Functions from Production Functions

Unit-3 Theory of Firm (11)

3.1 Non-Collusive Oligopolistic Models of Cournot, Bertrand, Stackelberg, Chamberlin and Sweezy (Kinked Demand Curve)
3.2 Collusive Models of Oligopoly
3.3 Theory of Pricing: Hall and Hitch Full Cost Pricing Principle, Limit Pricing Principle: Contributions of Bain, Sylos-Labini, Modigliani; Flexible Pricing Models

Unit-4 Input Markets (11)

4.1 Demand and Supply of Inputs; Firm's and Industry's Input Demand Curves
4.2 Monopsony and Discriminating Monopsony in Input Markets
4.3 Monopoly in Input Markets: Unions as Monopolists
4.4 Choice of Optimal Combination of Units

Recommended Readings:

1. H.A.J. Green, Consumer Theory, Macmillan, London, 1976
2. G. Debreu, Theory of Value, John Wiley, New York, 1959, Ch.4
3. C.E. Ferguson, The Neo-Classical Theory of Production and Distribution, Cambridge University Press, 1969, Chs.1-6.
4. L. Johansen, Production Functions, North Holland, London, 1972.
5. R.W. Shepherd. Theory of Cost and Production Functions, Princeton University Press, N.J., 1970.
6. K. Lancaster. Consumer Demand: A New Approach, Columbia University Press, New York, 1972.
7. W.J. Baumol, Economic Theory and Operations Analysis, Prentice Hall, 1985.
8. A. Deaton and J. Muellbauer. Economics and Consumer Behaviour, Cambridge University Press, 1980.
9. P.R.G. Layard, and A.A. Walters. Microeconomic Theory, McGraw Hill, New York, 1978.
10. H. Gravelle and R. Rees. Microeconomics, Longman, Lodon, 1981.
11. Koutsoyiannis, Microeconomic Theory, MacMillan, 1980.
12. R.M. Gyert and R. March, A Behaviourhal Theory of Firm, Prentice Hall, Englewood Cliffs, N.J., 1963.
13. Henderson, J. and Quandtt, R.A. Microeconomic Theory, McGrawhill, Tokyo, 1984.

5-2-2(11)

ECO 206 PUBLIC ECONOMICS

Unit -I Public Goods and Public Sector (12)

1.1 Public Economic Policy - Allocation, Distribution and Stabilization - Positive and Normative Approach

1.2 The theory of public goods - Demand and Production of public goods, partial and general equilibrium analysis, problem of social choice

1.3 Market failure, externalities and public policy - Externalities and efficiency, Government intervention and externalities, Balancing Distortion - A pragmatic approach towards policy

1.4 A model for public sector analysis - General Equilibrium model, Pareto optimality and perfect competition

Unit-II Public Expenditure and Taxation (11)

2.1 Public Expenditures - Pure theories of public expenditures - Tiebaut, Samuelson and Buchanan's contributions.

2.2 Theories of taxation - Tax neutrality, Direct vs. indirect taxes and equity, Buoyancy and Elasticity, Tax Efforts.

2.3 India's Tax Structure : Taxation and Economic inequalities, Major Heads of Taxes in India, Direct and Indirect Taxes on income and commodities. Taxes on property and Wealth.

Unit-III Budgeting and Fiscal Policies (11)

3.1 Program Budgeting : Its application, zero-based budgeting; Budgeting policies

3.2 Theory of Fiscal Policy : Fiscal Policy with special reference to under developed countries. Fiscal policy models, Indian Fiscal Policy. Federal-Fiscal Relation in India.

3.3 International Aspects of Public Economics, Taxation, Tariffs, Taxation of foreign income, Expenditures, Border Tax adjustments - Rationale and Practice, Policy Prescriptions.

Unit-IV Evaluation of Public Expenditure (11)

4.1 Project Evaluation - Cost-Benefit Analysis, Measuring Benefits, Market Prices, Shadow Prices, Measuring Costs and the Analysis

4.2 Compensatory finance

5.2.21(2)

Recommended Readings :

Bowers, P.F., Private Choice and Public Welfare, The Dryden Press, New York, 1974.

Buiter, W.H. Principles of Budget and Fiscal Policy, MIT Press, 1990

Hyman, David, N., Public Finance - A Contemporary Application of Theory to Policy, The Dryden Press, New Youk, 1983.

David, N. and Nicholas, S. (Eds), The Throry of Taxation for Developing Countries, O.U.P. 1987.

Davie, B.F. and Duncombe, B.F., Public Finance, Holt, Rinehn and Winstreet, New York, 1970.

Jha, Raghbendra, Modern Theory of Public Finance, Wiley Eastern Limited, Delhi, 1987.

Musgrave, Richard A. The Theory of Public Finance, Tata McGraw Hill, N.Y., 1959

Hughton, R.C. (ed), Public Finance, Penguin Publication.

Prest, A.R. Public Finance in Theory and Practice, Weidenfeld and Nicholson, London, 1975

Maxdowell, A. and Anderson, J. Richard, Financing State and Local Governments.

Ursula, Hicks, Public Finance, James Nisbet and Co., London, 1968

Tresch, R., Public Sector Economics.

F. Flatters, V. Henderson and P. Mieszkowski, Public Goods Efficiency and Fiscal Equalisation, Journal of Public Economics, Vo. 3, 1974, pp. 99-112.

5.2.2(13)

ECO 207 ECONOMICS OF DEVELOPMENT AND PLANNING

Unit - I

1.1 Concept of Development Ends versus Means in the Development Process. Ideology, Politics and Change

1.2 Dualism - Social, Technical and Economic Dualism - The Implications of the Lewis Model, Ranis and Fei Model, Criticism

1.3 Balanced and Unbalanced Growth, Linkage Effect (Hirsch, Nurkse) Big-push Theory (Rosentein-Roden), Spread and Backward Effects Theory (Myrdal)

Unit - II

2.1 Stage Theories of Development : Neuman Historical School, Marx, Rostow

2.2 Theories of underdevelopment.

2.3 Colin Clark Dependency Theory : Frank, Cundell

Unit - III

3.1 Role of Markets in Socialist and Mixed Economies

3.2 Planning Strategy - Foundations of India's Development Strategy

3.3 Indian Plan Models

3.4 Plan performances and problems related to plan implementation

Unit - IV

4.1 Financing Plan; Resource allocation and resource mobilisation

4.2 Micro-Level Planning. Decentralized Planning

4.3 Role of Development programs, IRDP NREP and JRY, etc., Critical Evaluation

Recommended Readings :

1. Sen, A.K.(ed.), 1971. Growth Economics, Penguin Books, Harmondsworth
2. Higgins, B., 1959. Economic Development, North New York
3. Myrdal, G., 1957. Economic Theory and Underdeveloped Regions, Duckworth, London.
4. Meir, G.M.(ed.), 1984. Leading Issues in Economic Development, Macmillan, London.
5. Thirlwall, A.P.(1975). Growth and Development, Macmillan, London.
6. Kindleberger, G.P., 1977. Economic Development, McGraw Hill. New York.
7. Sen, A.K., 1975. Employment, Technology and Development. Oxford University Press, New Delhi
8. Charkravarty, S., 1987. Development Planning: The Indian Experience, Clarendon Press, Oxfor.
9. Todoro, M.P., 1971. Development Planning : Models and Methods, Oxford University Press, Oxford.
10. Bhagawti, J. and P. Besai, 1970. India : Planning for Industrialisation, Oxford University Press, London.

5.2.2 (14)

ECO 308 INTERNATIONAL TRADE

Unit-I Pure Theory of International Trade (11)

1.1 Classical Theory : International Economics; Comparative Advantage and theory; Reciprocal Demand; Assumptions.

1.2 Supply and Demand in International Trade : Gains from trade under constant and increasing opportunity costs; Individual and community indifference curves, equilibrium demand and supply; Marshall's Theory of Offer Curves.

1.3 Neo-Classical Model of International Trade : a) Heckscher - Ohlin Theorem; Heckscher - Ohlin Theorem and Theory of Comparative Advantage.

Unit - II (11)

2.1 Trade and factor prices; Factor-price equalization; Factor price and complete specialisation.

2.2 Trade and Income Distribution : Gains from trade and the income distribution.

2.3 Trade and factor Reversals - Leontief Paradox : Factor - intensity reversals; The Leontief Paradox

2.4 Trade and National Income : The import function; elasticity of imprts; equilibrium level of national income, trade multiplier, dim-means method of achieving equilibrium.

Unit-III Balance of Payments and Foreign Exchange Markets (11)

3.1 The Foreign Exchange Market : Demand for, and Supply of, Foreign exchange; Foreign Exchange Markets - spot and forward markets, premiums and discounts, hedging, interest arbitrage, speculation.

3.2 The Balance of Payment Account : Balance of Payment Equilibrium and disequilibrium in the Balance of payments; Surplus and deficit in the Balance of Payments.

3.3 Adjustment Mechanism : Indirect mechanism and Direct mechanism.

Unit - IV The Exchange Rate (12)

4.1 The gold Standard - definition, mechanism, advantages and disadvantages, operation and collapse; Pegged Exchange rates.

4.2 Fixed Versus Flexible Exchange Rates: Flexible Exchange Rates, case for and against; Fixed Exchange Rates, case and against; other effects.

4.3 The Exchange Rate and the Balance of Payments : The Exchange Rate and the Current Account - Marshall - Lerner - model; flexible exchange rate - its behabiour; the Capital Account and Expectations - Expectations and Rates of Returns; Determinants of the forward rate.

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Recommended Readings:

1.	Bo Sodersten	: International Economics
2.	Miltiades Chacholiades	: The Pure Theory of International Trade (H.G. Johnson)
3.	R.N. Bhatia	: Studies in the Pure Theory of International Trade .
4.	American Economic Association	: Readings in International Economics.
5.	J. Bhagwati (Ed.)	: International Trade
6.	H.G. Johnson	: International Trade and Economic Growth.
7.	M.C. Kemp	: The Pure Theory of International Trade
8.	C.P. Kindleberger	: International Economics.
9.	P.T. Ellsworth	: International Economics
10.	G. Haberler	: The Theory of International Trade
11.	Peter B. Kenen	: The International Economy
12.	H. Robert Heller	: International Trade - Theory and Empirical Evidence.
13.	P.N. Roy	: International Trade - Theory and Practice

ECO 409 INDIAN ECONOMY 15 5 2 2(16)

Unit-I (11)

1.1 Indian Economy : Features at Independence, Main Obstacles to Development, Planned Development and Role of State.
1.2 Determination of National Income in India : Flow of Fund Analysis and Problem of Measurements.
1.3 Structural Changes in Indian Economy - Sectoral Analysis

Unit-II

2.1 Analysis of Human Resources in India : Population Structure, Resettlement Patterns, Problems of Population Control.
2.2 Agrarian Structure of Different Regions; Effects of Commercialization and Demographic Change on the Structure of Land Holding, Tenancy and Agricultural Labour.
2.3 Growth of Labour Markets; Trends in the Growth of Wage Labour in Agriculture and Industrial Labour Force.

Unit - III (11)

3.1 Long Term Changes in the Structure, Direction and Composition of Foreign Trade in India
3.2 Balance of Payments Problem, Recent Policy Changes and its Impact on BOP
3.3 Foreign Aid and External Debt

Unit-IV

4.1 Poverty Incidence and Measurement, Eradication Programme
4.2 Structure of Employment, Nature of Unemployment Nature of Unemployment
4.3 Recent Changes in Industrial Licensing and Trade Policies

Recommended Readings:

Bhagwati, J.N. and Desai. Indian Planning for Industrialisation
Pranit Chaudhary, Indian Economy
Pranit Chaudhary (ed.) Aspects of Indian Economic Development
C.D. Wadhwa (ed.) Some Problems of India's Economic Policy
R.H. Cassen. India, Population, Economy and Society
J.C. Sandesara (ed), Indian Economy - Performance and Prospects
GOI. Economic Surveys (various issues)
GOI. Draft Eighth Five Year Plan
V.R. Panchmukhi. Trade Policies of India
M.L. Dantwala. Understanding Poverty and Unemployment; Indian Merchants Chamber Brochure
Hobsbawn (ed). Peasants in History. Chapter by V.S. Vyas
Dandekar and Rath. Poverty in India. Indian School of Political Economy (1971)
Deepak Nayyar. Indian Export Policies in the 1970s. Cambridge University Press (1976)
S.B. Gupta. Monetary Planning in India
P.K. Basu and A. Nove (ed). Public Enterprise Policy on Investment, Pricing and Returns. (1980)
C.T. Kurian, Small Sector in New Industrial Policy. EPW. March 4, 1978.
Raj Krishna. Inter-State Disparities in Economic Development, GL Mehta Memorial Lecture, IIT, Bombay, 1980

5.2.2 (17)

ECO-3001 THEORIES OF INDUSTRIAL ECONOMICS

1.1 Introduction and scope of Industrial Economics (11)
1.2 Industrial Efficiency: Concept, determinants, measurement and decision-making process
1.3 Market Structure and Innovations
1.4 Market Concentration and Conduct.

Unit-II

2.1 Types and choice of Organisational firm (11)
2.2 The Firm and its objectives - Non profit maximising models
2.3 Cost Theory and Optimum size of a firm
2.4 Diversification, Vertical integration and Merger

Unit-III

3.1 Nature and Types of Investment Decisions: Time Profile, Project Evaluation
3.2 Social Cost Benefit Analysis
3.3 Industrial Financing and accounting
3.4 Analysis of Financial Ratios

Unit-IV

4.1 Industrial Location Analysis: The Determinants of Industrial Location
4.2 Social Costs of Industrial Concentration in metropolis in terms of emergence of slums, pollution and transport Bottlenecks
4.3 Social benefits and Industrial dispersion
4.4 Rural industrialization: Major issues and problems

Recommended Readings:

1. Koutsoyiannis, A. (1979): Modern Microeconomics 2e, Macmillan New York
2. Clarkson, K.W. and R. Miller (1985). Industrial Organisation: Theory Evidence and Public Policy, Mcgraw-Hill, Kogakusha, Tokyo
3. Hennah, L. and J. Kay (1977). Concentration of Modern Industry, Macmillan, London.
4. Israd, W. (1956). Location and Space Economy, Johnwiley, New York.
5. Smith D.M. (1971). Industrial Location : An Economic and Geographic Analysis, Johnwiley, New York.
6. Ghosh, P.K. (1977). Government and Industry, Oxford University Press, Delhi.

S.2.2(18)

ECO-3004 STATIC OPTIMIZATION TECHNIQUES

Unit-I Classicial Optimization Techniques (8)
(Unconstrained and Constrained)

1.1 Optimization : Nature and Importance in Economic Analysis
1.2 Unconstrained Optimization: Search Methods
1.3 Constrained Optimization : Legrangian Technique
1.4 Applications: Consumer Theory and the Theory of Firms

Unit-II Constrained Optimization : Extensions (15)

2.1 Global and Local Optima: Weirstrass Theorem
2.2 Extension of Lagrangian Technique: Kuhn-Tucker Theorem, Duality in Kuhn-Tucker Theorem
2.3 Non-Linear Programming: Search Methods
2.4 Quadratic and Geometric Programming and their Applications.

Unit-III Linear Programming and Its Extension (12)

3.1 Linear Programming: Solution of LP with Simplex Method; Duality
3.2 Parametric Programming and Sensitivity Analysis
3.3 Integer programming: Branch and Bound and Cutting Plane Methods
3.4 Applications: Activity analysis, Theory of Games and Input-Output Analysis

Unit-IV Stochastic Programming

4.1 Stochastic Linear Programming: Chance Constraints
4.2 Stochastic Non-Linear Programming: Chance Constraints.
4.3 Applications to Inventory Models

Recommended Readings

1. Panik, M.J., Classical Optimization: Foundations and Extensions, North Holland Pub. Inc., Amsterdam, (1982).
2. Baumol, W.J., Economic Theory and Operations Analysis, Prentice Hall, N. Delhi, (1977).
3. Rao, S.S.: Optimization: Theory and Applications, Wiley Eastern, New Delhi, 1984.
4. Koopman, T.: Activity Analysis in Production and Allocation, Wiley, N.Y. 1951.
5. Dorfman, R. et al.: Linear Programming and Economic Analysis, McGraw Hill, Tokyo, (1958).
6. Hadley, G.: Linear Programming, Addison Weseley, N.Y. (1962).
7. Hadley, G.: Non-Linear Programming, Addison Weseley, N.Y.(1962).
8. Wagner, H.M.: Principles of Operations Research, Prentice Hall, New Delhi (969.
9. Intriligator, M.D. Mathematical Optimization and Economic Theory, McGraw Hill, N.Y. (1977).
10. Gass, S.I.: Linear Programming, McGraw Hill, Tokyo (1975).
11. Balakrishnan, A.V. and Thoma, M. (ed.); Optimization Techniques Part I and II, Springer Verlag, Berlin, (1978).

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ECO-4001 INDUSTRIAL ORGANIZATION IN INDIA

Unit-I (11)

1.1 Industrialisation: Rationale, Objectives, Strategies and Policies
1.2 Industrialization in India and State Promotion of Industries
1.3 Evaluation of industrial process during five year plans
1.4 Large and small scale industries. Importance of small scale industries in the Indian economy.

Unit-II (11)

2.1 Concept and choice of technology. Appropriate technology
2.2 The theory of technological innovation and diffusion of new technology
2.3 Labour productivity and wage determination.
2.4 Empirical analysis of labour productivity.

Unit-III (11)

3.1 Industrial Licensing Policy of early 1970's
3.2 Indian Industrial Policy : Issues and evaluation
3.3 Monopolistic and Restrictive Trade Practices Commission
3.4 Recent trends of liberalising Indian economy.

Unit-IV (12)

4.1 Public sectors: Role and performance
4.2 Growth of Public sectors in Indian economy
4.3 Pricing in public sectors
4.4 Importance and challenges for public sectors in changing scene of Indian economy.

Recommended Readings

Ahluwalia, I.J. (1985). Industrial Growth in India, Oxford University Press, Delhi.
Dhar, P.N. and H.F. Lydall (1961). The role of small enterprises in Indian economic development, Asia Publishing House, Bombay.
Sandesra, J.C. (1980). Small Industry in India : Evidence and Interpretation, Lal Lajpat Rai College, Bombay.
Gupta, L.C. (1969). The Changing Structure of Industrial Finance in India, Oxford University Press.
Khan, M.Y. (1981). Indian Financial System, Allied Publishers, New Delhi.
Godbole, M.D. (1978). Industrial Dispersal Policies, Allied Publishers, Bombay.

ECO-4002 ENVIRONMENTAL ECONOMICS

Unit-I Theory and Concepts (12)

1.1 Scope and components of Environmental Economics
1.2 Environment and Economic Process
1.3 Environmental Quality as public good
1.4 Environment and Development

Unit-II Environmental Problems (11)

2.1 Environmental trends in developed and developing countries
2.2 Environmental pollution: Air and Water Pollution
2.3 Land use, Deforestation, Urbanisation and Its Impact on Environment
2.4 Environmental costs of economic growth. Limits to growth.

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Unit-III Issues on Environmental Protection (11)

3.1 Man and Eco-system
3.2 Planning: Eco-Development Approach, Eco-Strategies and Eco-Techniques
3.3 Modelling Eco-Development
3.4 Conservation of Natural Resources

Unit-IV Policy and Administration : Implementing Eco-Development (11)

4.1 Regulation and affluent fees
4.2 International Enviromental policy
4.3 Laws and Environmental Protection in India
4.4 Administration of Eco-Development

Recommended Readings

Arvill, Robert (1983). Man and Environment, Penguin Books.
Bohm, Peter and Allen V. Kneese (1971). Economics of Environment, Macmillan.
Chand, Attar (1985). Environmental Challenges, UDH Publishers, Delhi.
Dasgupta, Partha (1982). The Control of Resources, Oxford University Press, Delhi.
Dorfman, Robert and Nancy Robert (1977). Economics of Environment: Selected Reading, W.W. Nortan and Company.
Fisher, Antony C. (1981). Resource and environmental Economics, Cambridge University Press.
Hillary, E. (1984). Ecology-2000: The changing face of earth (ed.), Michael Joseph, London.
Mahbud ul Haq (1983). Poverty Curtain, Oxford University Press, Delhi.
Meadows, D.W. (1973). Limits to Growth, Universe Books, New York.
Mills, E.S. Economic Analysis of Environmental Problems.
Pearce, D.W. (1972). Environmental Economics, Longman, London.
--------- and Kerry R. Turner (1989). Economics of Natural Resources and Environment, Havester Wheatsheaf, New York.
Singh and Shekar (1984). Environmental Policy in India (ed.), IIPA, Delhi.
Tewari, D.N. (1987). Victims of environmental crisis, EBD Educational Pvt. Ltd.
Vakil, Arun C. (1984). Economic Aspects of Environmental Pollution in India.

Articles

Baumol, W.J. (1972). On Taxation and Control of Externalities, American Economic Review, 62, June.
Coase, Ronald (1960). The Problems of Social Cost, Journal of Law and Economics, Oct.
Ehrlich, P.R. and A.N. Ehrlich (1988). Population, Plenty and Poverty, National Geographic, Dec.
Hadder, G.S. (1987). Statutes and standards for Pollution Control in India, Economic and Political Weekly, Vol.XXII, No.16, April.
Tisdell, C. Sustainable Development : Differing Perspective on Ecologists and Economists and relevance to LDCs, World Development, Vol.16, No.3.

ECO 4003 MODERN GROWTH ECONOMICS

Unit I Elements of Growth Theory (8)

1.1 Growth Theory : Nature, Scope; Dynamic Analysis of Economic Models
1.2 Time Path Solution: Properties, Existence and Stability.
1.3 Problem of Aggregation and Growth Theory.
1.4 Production Function in Growth Theory: Dynamic Production Relation and their Properties.

Unit II One Sector Growth Models (10)

2.1 Review of Basic Growth Models: Harrod-Domar and Neo-Classical Growth Models
2.2 Balanced Growth Path : Existence, Uniqueness and Stability
2.3 Extensions of the Basic Models: Models of Sato, Samuelson and Eisner.
2.4 Vintage Capital Goods Models
2.5 Savings Behavior and Growth Models: Savings by Age Group and Social Classess, Capital Gains and Models based on them.

Unit III Technical Progress and One Sector Models (12)

3.1 Role of Technical Progress in Growth Models: Single Tech. Change
3.2 Neutral Technical Progress: Harrod, Solow and Hicks.
3.3 Effects of Technical Progress: Shifts in Production Function, The Problem of Measurement.
3.4 Technological progress and Growth: Inducement and Experience.

Unit IV Extension of Growth Models and Optimal Growth (12)

4.1 Money in the growth Models: Johnson and Tobin Models
4.2 Disaggregated Growth Models: Meade and Uzawa
4.3 Optimal Growth Models: Ramsey and von Neumann
4.4 Optimal Growth: Trunpike Theorems and Relative Stability

Recommended Readings:

1. Sen, A,K. (Ed): Growth Economics, Penguin Books, Harmondsworth, (1970)
2. Wan, H.Y. : Growth Economics, HBJ Publishers, Amsterdam,(1976)
3. Nener, P.A. : Economic Growth and Development, John Wiley and Sons, New York, (1971)
4. Harrod, R.F.: Towards Dynamic Economics, Macmillan, N.Y.(1956)
5. Johnson, H.G. : Essays in Monetary Economics, Allen and Unwin New Delhi, (1967)
6. Baumol, W.J.: Economic Dynamics, Macmillan, N.Y., (1970)
7. Takayama, A. : Mathematical Economics, Dryden Press,(1974)
8. Tobin, J. : Money and Economic Growth, Econometrica, Vol.33 (1965)
9. Jones, H.G. : An Introduction to Modern Theories of Economic Growth, McGraw Hill, Tokyo, (1976).
10. Allen, R.G.D.: Macroeconomic Theory: A Mathematical Approach, Macmillan, London, (1968)

5.2.2 (22)

ECO 4004 DYNAMIC OPTIMIZATION TECHNIQUES

Unit-I Dynamic Programming (8)

1.1 Analysis of Dynamic Phenomenon : Nature and Scope
1.2 Bellman's Principle of Optimality: Numerical Solutions
1.3 Application

Unit-II Calculus of Variation (15)

2.1 Functionals and their Variations
2.2 Optimization with Functionals: Necessary Condition - The Euler's Equation and its Generalization
2.3 Boundary Conditions in Variational Problems.
2.4 Second Variation and Sufficient Conditions: The Legandre and Jacobi Conditions, Weirstrass Condition for Strong extrema, Lengandre-Clebsch Conditions.

Unit-III Application of Calculus of Variation in Economic Problems (8)

3.1 Dynamic Utility, Dynamic Pure Competition and Monopoly
3.2 Dynamic Capital Accumulation
3.3 Dynamic Capital Theory, Capital Theory with Exhustible Resources
3.4 Optimal Economic Growth: Ramsey's Theory of Savings and von Neumann Model.

Unit-IV Optimal Control

4.1 Calculus of Variation and Optimal Control: Pontryagin's Maximum Principle.
4.2 Transversality Conditions, Second variation and sufficient conditions.
4.3 Constrained Optimal Control Problem: Equality and Inequality Constraints
4.4 Applications to Problems in Economics: Optimal Growth Ramsey's principle of Allocation, Optimal Non-Renewable Resources, Optimal population

Recommended Readings:

1. Bellman, R.E.: Dynamic Programming, Princeton U.P.,(1957)
2. Bellman, R.E. and Dreyfus, S.E. : Applied Dynamic programming, princeton U.P.,(1962)
3. Wagner, H.M.: Principles of Operational Research, Prentice Hall, Englewood Cliffs, N.J. (1969)
4. Optimer, S.L.(Ed). : Systems Analysis, Penguin Books, Harmonds Worst, (1973)
5. Hadley, G. and Kemp, M.C.: Variational Methods in Economics, North Holland, Amsterdam, (1971)
6. Elsgolts, L. : Differential Equations and Calculus of Variation, Mir Pub., Moscow, (1980)
7. Smith, D.R.: Variational Methods in Optimization, Prentice Hall, Englewood Cliffs, (1974)
8. Tu, P.N.V.: Introductory Optimization Dynamics, Springer Verlag, Berlin, 1984)
9. Chow, G.C. : Analysis and Control of Dynamic Economic Systems, John Wiley, N.Y., (1975)
10. Takayama, A. : Mathematical Economics, Dryden Press, N.Y. (1974)

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ECO-4005 INTERNATIONAL ECONOMICS

Unit-I Trade, Growth and Imperfect Competition (11)

1.1 Trade and Increase in Factor Endowments - The Rybzynski Theorem.
1.2 Trade and Technical Progress : Neutral, Capital-saving, and Labour-saving Technical Progress.
1.3 Trade and Imperfect Competition : Monopolised National Markets and Trade; Trade and Monopolistic Competition equilibrium; Empirical works.

Unit-II Trade and Policy Prescriptions (11)

2.1 Theory of Tariffs : Stolper-Samuelson Theorem; Tariffs, terms of trade, domestic prices; The optimum tariff.
2.2 Quotas and Quantitative Restrictions : Effects of Quotas; Direct Controls; State Trading - monopolies.
2.3 State Trading Monopolies : Forms and objectives; Merits and Demerits
2.4 Theory of Customs Unions : Trade creation and diversion; Production of commodities; Production and Consumption effects of Customs Unions; Other dynamic effects of Customs Unions.

Unit-III International Trade: Extended Theory (11)

3.1 Factor Substitution and a modified Ricardian Model : Factor Prices and Factor Substitution, the Ricardian Model modified, the Haberler Theorem; Growth in the Ricardian Model.
3.2 Factor Substitution and a modified Heckscher-Ohlin Model: Factor substitution, capital allocation, equilibrium in factor market; the Heckscher-Ohlin Model modified; (c) Heckscher-Ohlin model and growth - the Rybzynski and Stolper-Samuelson theorem applied, economic efficiency.
3.3 Modern Theories of International Trade : Vent-for-Surplus Approach; Availability Approach - I.B. Kravis; Monopolistic Competition and Trade; Increasing Returns to Scale and Trade; Other technological explanations.

Unit-IV. International Monetary and Trade Organisations (12)

4.1 International Monetary Fund (IMF) : Background, Objective of IMF, Operation of IMF, the IMF and the future of the international monetary system, Special Drawing Rights (SDR)-international liquidity.
4.2 World Bank and its affiliates : International Bank for Reconstruction and Development (IBRD), International Finance Corporation (IFC), International Development Association.
4.3 Political Economy of International Trade : History of tariffs in USA and Europe, the decline and collapse of free-trade Trade Liberalization - universal approach and General Agreement on Trade and Tariffs (GATT), regional approach and European Economic Community (EEC), the Kennedy Round, Tokyo Round, Retreat from Liberalization - protectionism and import competition, assistance to trade adjustments, Trade and economic development - United Nations Conference on Trade and Development (UNCTAD) and International Trade Centre (ITC), Other issues - growing use of quotas, subsidies and dumping, trade and agricultural production, trade and services.

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Recommended Readings

Bo, Sodersten, International Economics
Miltiades, Chacholiades, The Pure Theory of International Trade (H.G. Johnson)
R.N. Bhatia, Studies in the Pure Theory of International Trade.
American Economic Association, Readings in International Economics.
J. Bhagwati (Ed.), International Trade.
H.G. Johnson, International Trade and Economic Growth.
M.C. Kemp, The Pure Theory of International Trade.
C.P. Kindleberger, International Economics.
P.T. Ellsworth, International Economics.
G. Haberler, The Theory of International Trade.
Peter B. Kenen, The International Economy.
H. Robert Heller, International Trade - Theory and Empirical Evidence.
P.N. Roy, International Trade - Theory and Practice.
Ranjit Sau (1978), Unequal Exchange, Imperialism and Underdevelopment : An Essay on the Political Economy of World Capitalism (Oxford Univ. Press, Calcutta).

5.2.2(25)

ECO-3106 ECONOMICS OF AGRICULTURE-I

Unit-I Statistical and Physical Resource Base

1.1 Land Use Pattern and Agro-Climatic Zones
Natural Resources (Land, Labour, Forests and Water)
1.2 Data Base; Crop and Livestock Coverage; Statistical Machinery
1.3 Farm Surveys and Census Data : Agricultural and Livestock Census Reports.

Unit-II Institutional Factors

2.1 Tenancy in Agriculture : Types, Incidence and Effects on Crop
2.2 Land Reforms: Scope and Evaluation
2.3 Mode of Production
2.4 State Policy Towards Agriculture (Indian Case)

Unit-III Agriculture Wages and Prices

3.1 Growth in Landless Labour : Causes and Implications
3.2 Growth and Trends in Agricultural Wages.
3.3 Trends in Prices

Unit-IV Micro Theory of Farm-Firm

4.1 Production and Profit Function Approach : Measurement of the Rate and Bias of Technological Change in Agriculture
4.2 Decomposition of Agricultural Growth in India
4.3 The Treatment of Farmer's Behaviour under Risk and Uncertainty
4.4 Benefit Cost Analysis of Agricultural Projects

Recommended Readings

(i) Text Books

1. Rao, C.H. (1975), Data Base of Indian Economy, ISI? New Delhi.
2. Schultz, T.W. (1970), Transforming Traditional Agriculture, Yale University, New Heaven, USA.
3. Sankhayan, P.L. (1988). Introduction to the Economic of Agricultural Production, Prentice Hall of India, New Delhi.
4. Heady, E.O. (1961), Economics of Agricultural Production and Resource Use, Prentice Hall, Englewood Cliff, USA.
5. Heady, E.O. and Dillon, J. (1961). Agricultural Production Functions, Kalyani Publishers, Ludhiana.
6. Ghatak, S. and Ken, I. (1984). Agriculture and Economic Development, Wheatsheef Books Ltd., U.K.

(ii) Other Suggested Readings

1. Government of India, Indian Agricultural Statistics, Vol.I & II, Ministry of Agriculture, New Delhi (From 1948-49 to 1989-90)
2. Bansil, P.C. (1990), Data Base for Indian Economy - Agricultural Statistics, New Delhi.
3. Thorner, A. (1982). Semi-feudalism or capitalism? Contemporary debate on Classes and Modes of Production in India, EPW, December 4.
4. Bhaduri, A. (1973). A study in agricultural backwardness under Semi-feudalism, Economic Journal, March. Also June 1979 issue of the same journal.
5. Bhaduri, A. (1984). The economic structure of backward agriculture, OUP, New Delhi.
6. Basu, K. (1984). Less Developed Economy : A critique of contemporary theory, OUP, New Delhi.
7. Khusro, A. (1965) (ed.), Readings in Agricultural Economics, Allied Publishers, Bombay.
8. Alvi, Hamza (1975). Indian and the Colonial Mode of Production, EPW, Special Number, August.
9. Cleaver, H. (1976). Internationalisation of Capital and Mode of Production in Agriculture, EPW, March.

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10. Bardhan, P.K. (1976). Variations in the Extent and Forms of Agricultural Tenancy, EPW, September 11, 1976.
11. Bardhan, P.K. (1986). Land, Labour and Poverty, Oxford University Press, New Delhi.
12. Kadekodi, Gopal and Murthy, G.V.S.N. (1992). Poverty in India edited Papers in the Seminar organised by the Indian Econometric Society, Vikas Publishers, New Delhi.
13. Sagar, Vidhya (1980). Decomposition of Growth Trends and Certain Issues, Indian Journal of Agricultural Economics, April-June.
14. Minhas, B.S. and Vaidhyanathan, A. (1965). Growth of Crop Output in India, 1951-54 to 1958-61 : An Analysis by Component Elements, Journal of the Indian Society of Agricultural Statistics, December.
15. Lalwani, Mahesh (1989). Decomposition and Distribution of Output Gains in India's Dairy Farm Sector, Indian Journal of Agricultural Economics, Jan.-March, pp.55-66.
16. Lalwani, Mahesh (1990). Employment Gains of Technological Change in India's Dairy Farming Sector : Study of Haryana, Indian Journal of Agricultural Economics, April-June.

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ECO-4206 ECONOMICS OF AGRICULTURE-II

Unit-II Agricultural Output

1.1 Trends in the Growth and Composition of Crop (Regional and Interpersonal Disparities)
1.2 Supply Response Estimates and Marketed Surplus Relationships
1.3 Marketing Structure : Regulations, Margins, Procurement and Public Distribution Policy (Foodgrains)
1.4 Agricultural Price Policy of the GOI and Long-Term Price Movements

Unit-II Agricultural Inputs

2.1 Demand and Supply of Basic Inputs : Land, Water, Fertilizers, HYV seeds, Fodder, Livestock.
2.2 Demand and Supply of Agricultural Credit (Regional and Inter-Personal Dimensions); Structure of Institutional Credit (Role of NABARD as an Apex Bank)
2.3 Allocative Efficiency of Inputs in Indian Agriculture (Farm size and Allocative Efficiency Debate)
2.4 Agricultural Productivity, Farm Size and Returns to Scale in Indian Agriculture.

Unit-III Savings and Investment in Indian Agriculture

3.1 Agricultural Planning and Public Investment in Indian Agriculture (Rates of Return and Regional Disparities).
3.2 Rural Household Savings and Asset Formation
3.3 Intersectoral Capital Flows
3.4 Agricultural Taxation and Subsidies

Unit-IV Trade in Agricultural Commodities (Domestic and World)

4.1 Terms of Trade (Between Indian Agriculture and Rest of the World; Between Indian Agriculture and Indian Manufacturing)
4.2 Place of Indian Agriculture in the World Trade (including Agro-based Industries)
4.3 International Assistance for Agricultural Development
4.4 World Level Commodity Agreements : Their Effects on Indian Agriculture.

Recommended Readings

(i) Text Books

1. C.H.H. Hanumanta Rao (1965). Agricultural Production Functions, Costs and Returns in India, Asia Publishing House, Bombay.
2. C.H.H. Hanumanta Rao (1975). Technological Change and Distribution of Gains in Indian Agriculture, Macmillan, New Delhi.
3. Mitra, A. (1977). Terms of Trade and Class Relations, Frank Crass, London.
4. Bhardwaj, K. (1974). Production Conditions in Indian Agriculture, Cambridge University Press, Cambridge.
5. Ashok Rudra (1982). Indian Agricultural Economics : Myths and Reality, Allied Publishers, New Delhi.

(ii) Other Suggested Readings

1. Saini, G.R. (1978). Farm Size, Resource Use Efficiency and Income Distribution, Allied Publishers, New Delhi.
2. Lalwani, M. (1991). Resource Use Efficiency: Experience of Dairy Farmers, Social Action, April-June, 1991.
3. Chatopadhyaya and Rudra Ashok (1976). Size Productivity Revisited, EPW, September.

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4. Dharam Narain (1961). Distribution of the Marketable Surplus of Agricultural Production by Size Holding in India, 1950-51, Asia Publishing House, Bombay.
5. Raj Krishna (1965), The Marketable Surplus Function for Subsistence Agriculture, Economic Weekly, February.
6. Raj Krishna (1965). Farm Supply Response in India-Pakistan : A Case Study, Economic Journal, September.
7. Gandhi, Ved, P. (1970). Aspects of India's Tax Structure, Vora & Co., Bombay.
8. Subbarao, K. and De Janvry (1986). Agricultural Price Policy and Income Distribution in India, OUP, New Delhi.
9. S. Sawant (1978). Supply Behaviour in Agriculture, An Econometric Analysis, Himalaya Publishing House, Bombay
10. Mishra, S.N. (1984). Rural Development Planning, Stavahan, New Delhi.
11. NABARD (1987). Role of NABARD.
12. Nayyar, D. (1976). India's Exports and Export Policies in the 1960s', Cambridge University Press, Cambridge.
13. Wadhwa, C. (1977). Some problems of India's Economic Policy, Tata McGraw, Delhi.
14. Hayami, Y. and Rutan (1971). Agricultural Development : An International Perspective, Johns Hopkins University Press, USA.
15. Ishikawa, S. (1981). Essays on Technology, Employment, and Institutions in Economic Development : Comparative Asian Experience, Kinokuniya Co., Tokyo.
16. Barbien, P.I. (1984). Inverse Relationships between Farm Size and Land Productivity : A Product of Science or Imagination, EPW, Dec. 22-29.
17. Chadha, G.K. (1976). Tenancy System and Agricultural Productivity - A Case Study of the Punjab (India), Social Science Research Journal, July-December.
18. Chadha, G.K. (1984). Farm size and Productivity Revisited : Some Notes from Recent Experience of Punjab, EPW, September, pp.A87-96.

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ECO 3107 ECONOMETRICS-I - (Theory of Econometrics)

Unit-I (11)

1.1 Theory of Estimation
1.2 Linear Regression Model : Gauss, Markov Theorem (OLS, ML) BLUE Estimator
1.3 MAD & Recursive Estimation
1.4 Non-Linear Regression

Unit-II (11)

2.1 Violation of Gauss Markov Conditions and Problems
2.2 GLS : Solution in Heteroskedastic and Autoregressive Cases
2.3 Distributed Lag Models.
2.4 Multi-Collinearity and its Solution
2.5 Stochastic Regressors and Instrumental Variable Method

Unit-III

3.1 Time Series Analysis : Yule-Slutsky Theorem - Periodogram and Correlogram Analysis
3.2 Regression in Sinusoidal Regressors.
3.3 Principal Components - Derivation and Properties
3.4 Discriminant Analysis and Statistical Classification

Unit-IV (12)

4.1 Qualitative Variables in Regression Analysis
4.2 Stochastic Coefficients in Regression Analysis
4.3 Simulation of Single Equation Model and Monte-Carlo Studies
4.4 Estimation of Regression Coefficients under Constraints

Recommended Readings

1. J. Johnston : Econometric Methods, McGraw Hill, Singapore, (1984).
2. J. Kmenta : Elements of Econometrics, Macmillan, N.Y., (1971).
3. H. Theil, Principles of Econometrics, J. Wiley, N.Y.,(1971).
4. M. Intriligator : Econometric Models, Techniques and Applications, McGraw Hill, N.Y. (1977).
5. M.G. Kendall, Advanced Theory of Statistics, Vol.III, Charles Griffin, London (1968).
6. M.D. Intriligator and Z. Griliches: Handbook of Econometrics, Vol.I & II, North Holland, Amsterdam (1983),
7. S. Goldrield and R. Quandt, Non-linear Methods in Econometrics, North Holland, Amsterdam, (1972).
8. G. Judge et al.: The theory and Practice of Econometrics, Wiley, N.Y. (1980).

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ECO 4207 ECONOMETRICS - II
(Multiequation theory and Applied Econometrics)

Unit -I (11)

1.1 Concept of Multiequation Modeling Diagonal, Recursive and Simultaneous Models, Block Diagonality OLS Bias in Estimation
1.2 Identification - Necessary and Sufficient Conditions, Exactly Identified Equations and Indirect Least Squares, Reduced, Structural and Final Forms of Estimation
1.3 Estimation of Overidentified Equation: Two Stage Least Squares and LIML Estimators, K-class Estimators.
1.4 Monte-Carlo Findings on Single Equation Estimation

Unit-II (11)

2.1 Errors Correlated Across Equations and Motivation to Simultaneous Solution of Multiequation Models
2.2 Three Stage Least Squares: Derivation, Estimation and Properties, Zellner's SURE Method.
2.3 FIML Method - Derivation, Estimation and Properties
2.4 Monte Carlo Experiments on Simultaneous Estimation of Multiequation Models

Unit - III (11)

3.1 Application of Single Equation Techniques in Production and Consumption Function
3.2 Measurement of Inequality
3.3 Estimation and Demand for Supply of Money
3.4 Phillips Curve and Estimation

Unit - IV (12)

4.1 Analysis of Dynamic Econometric Models
4.2 Formation of Different Equations in Econometric Models
4.3 Formation of Differential Equation in Econometric Models
4.4 Dynamic Programming and Control

Recommended Readings:

1. K- Kpjmstpn ' Econometric Methods, McGraw Hill, Sigapore, (1984)
2. J. Kmenta : Elements of Econometrics, Macmillan, N.Y..,(1971)
3. H. Theil : Principles of Econometrics, J. Wiley, N.Y., (1971)
4. M. Intriligator : Econometric Models, Techniques and Applications, McGraw Hill, N.Yl, (1977)
5. M.G. kendall : Advanced Theory of Statistics, Vo.III, Charles Griffin, London, 1968)
6. M.D. Intrilegator and Z. Griliches : Handbook of Econometrics, Vo.. I & II, North Holland, Amsterdam,(1983)
7. M.D. Intrilegator and Z. Griliches: Handbook of Econometrics, Vol. III, North Holland, Amsterdam,(1986)
8. L.R. Klein : Introduction to Econometrics, Prentice Hall N. Delhi, (1973
9. G. Fordon & L.R. Klein : Readings In Business Cycle, Allen and Unwin, N.Y. (1970)
10. D. Laidler : Demand for Money : Theories and Evidence, Harper and Row, N.Y., (1977)

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ECO 4307 ECONOMETRICS - III
(Multi-equation Models and Macroeconometric Modeling)

Unit-I (11)

1.1 Multiequation Models, and Methods of Estimation
1.2 Identification, Reduced form, Structural Form and Final Form
1.3 2SLS and 3SLS Estimation
1.4 Macroeconometric Models: Nature and Scope, Historical Development

Unit-II Forecasting (11)

2.1 Short-term and Long-term
2.2 Impact and Interim Multipliers
2.3 Accuracy : Theil's Coefficient of Inequality
2.4 Other Measures of Accuracy

Unit-III Policy Evaluation (11)

3.1 Target Instrumental Method
3.2 Social Welfare and Preference Function of Theil and Frisch
3.3 Simulation Methods
3.4 Policy Evaluation with Simulation Techniques

Unit - IV Critical Evaluation of Major Econometric Models(11)

4.1 Klein's Model and Klein-Goldberger Model
4.2 Wharton School and DRI Models
4.3 Problems of Econometric Modeling in Developing Countries
4.4 Indian Econometric Models

Recommended Readings:

1. Intriligator, M.D., Frontiers of Quantitative Economics, North Holland Publishing, Amsterdam (1971)
2. Gordon, R. and Klein, L. : Readings in Business Cycle, Allen and Unwin, N.Y., (1970)
3. Theil, H.: Principles of Econometrics, J. Wiley, N.Y.(1971)
4. Fromm, G. and Taubman, P.J.: Policy Simulations with an Econometric Models. North Holland Publishing, Amsterdam, (1968)
5. Klein, L.R. and Goldberger, A.S.: An Econometric Model of United States 1929-52, North Holland, Amsterdam,(1968).
6. Narasimhan, N.V.A.: Short-term Planning Model for India, North Holland, Amsterdam. (1956)
7. Pani, P.K. : A Macroeconometric Model of India, Macmillan, N. Delhi, (1977)
8. Srivastava, D.K.: "Policy Simulation with a Macroeconomic Model of the Indian Economy" Journal of Policy Modeling, Vol. 4, (1981).
9. Indian Economic Review, Vol. 19, No.1, 1984(Various articles).
10. Ahluwalia, I.J.: Behavior of Outputs and Prices in India: A Macroeconomic Approach, Macmillan, N.Delhi, (1979)
11. Griliches, Z. and Intriligator, M.D. : Handbook of Econometric, Vol. III, N.H. Amsterdam, (1986)

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ECO 3115 MONETARY ECONOMICS- I

Unit-I Classical and Keynesian Monetary Theory (11)

1.1 Real and Monetary Sectors; Dichotomy-Neutrality of Money and Real Balance Effect.
1.2 Quantity Theory of Money. Demand for Money - Classical and Keynesian Approach.
1.3 Complete Keynesian Model and Liquidity Preference as a Theory of Interest.

Unit-II Demand for Supply of Money (11)

2.1 Demand for Money - Neo-Keynesian Portfolio Approach - Capital Theory applied to Transaction Demand for Money (Baumol-Tobin Model). Friedman's Demand for Money Function.
2.2 Supply of Money Definitions. Liquidity - Creation of Money by Bank. Endogeneity and Exgeneity of Money supply.
2.3 "High Powered Money" - Central Bank and Controlling Mechanism. Monetary Theory of Price Level.

Unit-III Monetary Institutions and Economic Growth in LDCs (11)

3.1 The cleanging pattern of Monetary Markets in LDCs
3.2 Banking and Non-Banking Financial Intermediaries; Gurley-Shaw Model; Security Differentiation and Diversification
3.3 Money and Economic Growth.

Unit-IV Monetary Planning and Policy with Reference to India(12)

4.1 Objectives of Monetary Planning. Neutral Money. Planned Control of Money Supply
4.2 Proportionality of Money and Prices. Neutrality and Causality of Money
4.3 Monetarists and Structuralists View Points - The Devate.

Recommended Readings:

(i) Text Books

Friendman, M., Quantity Theory of Money - A Restatement, in Walters, A. (ed), Money and Banking, Penguin Modern Economic Readings : Harmondsworth, 1973.
Coats, Warren L. & Khatkhate, Deena, Money and Monetary Policy in Developing Countries .. A Survey of Issues and Evidences, Pergamon Press.
Gupta, Suraj B. Monetary Planning in India, New Delhi, Oxford University Press, 1981
Johnson, Harry, G., Selected Essays in Monetary Economics, London, George Allen and Unwin, 1978.
Laidler, D.E.W., The Demand for Money: Theories and Evidence, Bombay, Allied, 1972.
Clower, R.M. (ed) , Monetary Theory, Penguin Modern Economics Readings, Harmondsworth, 1973
RBI: Report of the Committee to Review the Working of The Monetary System (S. Chakravarty Committee Report) 1986.

(ii) Other Suggested Readings

Arrow, Kenneth, J., Essays in the Theory of Risk Bearing, Amsterdam, North-Holland, 1971
Aschheim, Joseph, Techniques of Monetary Control, Baltimore Johns Hopkins, 1961.
Basu, S.K., A Review of Current Banking Theory and Practice, New Delhi, Macmillan, 1976.
Ganguly, S., A Treatise on Banking and International Monetary Management, Modik Library, 8-D, Ramnath Mazumdar Street, Calcutta.
Gupta, Suraj, B. The Portfolio Balance Theory of the Expected Rate of Change of Prices, Review of Economic Studies, Vol. 37, No.2 1970.
Gurley, J.G. and Shaw, E.S., Money in a Theory of Finance, Washington D.C., The Brooking Institution, 1960
Modigliani, F., Liquidity Preference, and the theory of Interest and Money, in Lutz. F.A. and Minsts, L.W. (eds.), Readings in Monetary Theory, Philadelphia, 1951.
Patinkin, Don, Money, Interests and Prices, New York, Harper and Row, 1965.
Johnson, Harry, G., Essays in Monetary Economics, London, George Allen and Unwin, 1969.
Prasad, K., The role of Money Supply in a Developing Economy, New Delhi, Allied, 1969
Tobin, J., Money and Economic Growth, Econometrica, XXXIII, pp.671-84, October 1965.

EC● 4215 MONETARY ECONOMICS - II

Unit-I Financial System (11)

1.1 Flow of Fund Analysis - Monetarist and Keynesian Approach
1.2 Credit and the Financial System - Financial Markets : Money Markets and Capital Markets; Financial Institutions - Banks and Non-Banks Financial Intermediary (NBFI)
1.3 Structure and Growth of Indian Financial System since 1950s : Sectoral distribution of Savings and Capital Formation.
1.4 Finance and the Real Capital Stock.

Unit-II Financial Development and Economic Growth (11)

2.1 Commercial Banks : Concept of Credit Creation - Changing Theories of Commercial Banking; Bank Nationalization, Rationale and Review. Resource Base and Portfolio Management of Commercial Banks
2.2 Co-operative Banks and their Structure; Development Banks; NBFLs and their types; Mutual Funds - their emergence and importance
2.3 Promotion of Banking Habit and Economic Development - Growth of real and monetary variables.

Unit-III Monetary Regulation Measures (11)

3.1 Goals, Targets and Constraints of Monetary Policy
3.2 Instruments of Monetary Regulation : Quantitative including CRR and SLR etc. and Qualitative; Trade-offs in using different instruments of Monetary Regulation.
3.3 The Approach to Monetary Expansion in India : The 1951-69 experience; Post-1969 Scenario

Unit-IV Issues and Evidence

4.1 Relationship between Money, Output and Prices; RBI credit to Government and Deficit Financing.
4.2 Centralised economic system vs market system - the relative importance and role of financial sector; role of domestic monetary policies in the context of global economic and financial integration.
4.3 Financial Reforms and liberalisation - Review of the Chakravarty and Narasimham Committee Reports.

Recommended Readings:

(i) Text Books

Pai Panandikar, P.H., 1973, Interest Rates and Flow of Funds - A Case Study: India (Macmillan)
Gowland, David, 1985, Money, Inflation and Unemployment - The Role of Money in the Economy, (Wheatsheaf Books, Hanester Press
Clayton, G. Gilbert, J.C. & Sedgwick, R. (eds.), 1971, Monetary Theory and Monetary Policy in the 1970s (Oxford University Press), 1971
R.B.I., 1985, Report of the Committee to Review the Working of the Monetary System (Chakravarty Committee Report), RBI, Bombay, 1985

Sinha, S.L.N. (ed). 1973, Reform of the Indian Banking System, Orient Longman, 1973.
Coats, Warren and Kanthate, Deena, 1991, Money and Monetary Policy in LDCs in the 1990s, (in EPW, June, 22)

(ii) Other Suggested Readings

Goldfield, S.M., 1966, Commercial Bank Behaviour and Economic Activity, North-Holland.
Coats, Warren and Kanthate, Deena, 1980, Money and Monetary Policy in Developing Countries: Survey and Evidence, Pergamon press.
Coats, Warren, 1982, Interest Rates Consequences of Targetting Money, IMF Staff Papers, Vol.29, No.1.
Coats, Warren, 1990, Experiences with Financial Liberalisation: The lessions for India in EPW, May 5-12
Friedman, M., 1968, The Role of Monetary Policy, American Economic Review, Vol. 58, March.
Phelps, E., 1970, Micro-Economic Foundations of Employment and Inflation Theory, Norton.
Haque, Nadeem, U., Capital Mobility in Developing Countries Some Empirical Tests, IMF Working Paper, Washington, December.
Laidler, David, 1990. Taking Money Seriously and Other Essays : Cambridge, Massachusetts, The MIT Press.
Majumdar, N.A., 1990, Financial Scenario in the 1990s : Agenda for Reform (in EPW, Vol. XXV-14, April).
Committee on the Financial System Report, GOI, 1992, (Narasimhan Committee Report)
R.B.I., Bulletin, 1968, Pattern of Ownership of Government Debt.

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Annexure -B

Note on Proposal to Revise MA (Economics) Syllabus, 1992.

The comments on the proposed revision of M.A Eco Syllabus of some courses and introduction of some courses(Indian Economy , environment, growth and optimization) in the note are organized into three sections: Mode of Formulation, Overall Artitecture, and Course Structure.

Mode of Formulation

Syllabus alteration and course development were done beginning it in the second half of 1991 by a committee of faculty comprising Shillong teachers only, not one teacher from Aizawl Campus dept was appointed on it.

Teachers of Aizawl dept were invited to offer suggestions on existing courses, not to restructure them, or formulate new ones. The proposal mentions NET and UGC syllabus, being at the base of the proposed restructuring. These were not mentioned in the communications to the Aizawl dept, nor was copies of these supplied to it., The Proposal mentions that the latest syllabi of many Indian Universities were consulted. These are not named. And no syllabus was forwarded to Aizawl dept.

The Proposal was not sent to the dept of econ at Aizawl which is a statutory creature. It was not approved by it or considered.

The Proposal was not considered/approved by the university econ probided in Statute 17.

The Proposal was not considered by a joint meeting of the depts at Shillong and Aizawl to remove the difficulty arising out of non-formation of the University dept.

The Proposal was presumably not sent to any outside expert or even the members of BPGS and there is no mention of any comment being received from them.

The only external member attending the BPGS meeting of 7 Sept 92 was Dr.R.K.Sen who is a reader in Rabindra Bhaarati(Calcutta) which is not known for its standards of teaching and research in economics. In Calcutta itself there are 2 universities and 2 institutes of distinction from where any of the 10 reputed professors could have been recommended from the dept and put on the BGPS by the Universi whose participation in the proposed major restructuring of the courses might have helped removing the defects in the architecture and structure mentioned below.

contd/..../.

The composition of BGPS was faulty on another ground also. This year's reconstitution of BGPS omits Shri Thangchungnunga of Aizawl Campus, who should have been appointed on it, according to seniority.

Considering the scale of the restructuring, the discussion of under 4 hours in the BPGS was inadequate.

Overall Architecture

There is no mention of this in the Proposal, but the Core Areas of economics are :

1. Socio-political structure, mode of production, growth, development and Welfare (inclusive of (Marxian) Capitalist Development Theory and Institutional Economics)
2. Economic Theory
   i) Micro-economic Theory (inclusive of Public Economics (Finance International Economics Trade, Finance) Welfare Economics
   ii) Macro-economic Theory (inclusive of Public Economics, Monetary Economics (Theory) Growth Economics (Theory)

Wolfare Economics

3. Economic Analysis and Policy - This constitutes efforts to apply Economic Theory to economic situation, (Status of production income distribution and social and cultural data) for dignostic purposes and crafting economic policy stances which might be presentable before 'clubs' of people of a 'conspiracy government' or social organisation for final choice.

Economic Policy may be of Micro nature (resource allocation) income distribution) or macro nature (resource generation, growth and stabilization including price stabilization).

For designing policy the Theory of Economic Policy (Where Tinbergen Lange, Lerner, etc made seminal contribution by 1955) and Planning have a Central place. It has a direct bearing on social choice and Social Welfare.

For these the following capsule is indispensable.

4 Quantitative Techniques (Algorithms)- Maths, Stat, Econometrics, Operations Analysis.

The Non-Core Area in economics is Economic Description were the shape and circumstances of production sectors - agriculture, industry, transport, human resource, etc and households, in aggregated or disaggregated way are narrated at different levels of exactness and jamming in of date and the level of date processing with the aid of quantitative techniques.

contd/...../-

A good architecture of econ syllabus would have about 80 pc of it from Core Area. The choice of courses and topics would depend on the Thrust Area of a dept.

The Thrust Area of the dept at Shillong is : Econ Theory and Quantitative Techniques.

That of Aizawl dept is : Development Economics (with stress on rural devel)

In view of the differential thrusts the architecture of 1986 has two changes in it : reinforcement of high theory and impregnation of quantitative techniques.

The present proposal envisages : in CUMPULSORY PACKET

1. drastic cut in Quant Tech through removing one state course(Stat-1)
2. more than drastic cut in Planning, reducing its 2 Sem status to 1/2 Sem (C:207)
3. Addition of one Eco Th course (C:308)
4- Addition of one Economic Description course (C:409)
5. Increase in the weightage/Credit of existing Econ Descri course (C:410). Its status has been enhanced from 80 marks to 100

Core Area in the Proposel constitutes 75 pc of the optional Packet where the importance of both Planning and Quantitative Techs Stands significantly reduced with distatrous damage to the THRUSTS at both the campuses.

As a remedy , among other things,

1 C: 409 and 410 may be sandwiched to frame a course on Regional Planning
2. C:3115(Money) may be lobbed in as a compulsory.
3. C: 409 may be given Optional status and the spot be filled with one full Development Planning Course.

If remedied on these lines, NEHU syllabus would be retrieved and would again fall into line with that of DSE after which it was patterned. It would appear similar in shape to that of BHU, Calcutta, AMU and Allahabad, all of which have substantial hard economics, monetary, trade and public finance theory along with an institutional crust.

Additionally, the basic design and style of the syllabus can do without the following general deficiencies it shall have acquired if the proposal is approved as it is, as was also pointed out in the AC(last):

1. On the pattern of syllabuses cited above, the students must have capsules on
   - Sraffa Revolution dated 1960
   - New Classical Economics dated 1970
   - Supply-Side Economics dated 1970
   - Capital Theory inclusive of Cambridge-Cambridge Controversy dated 1960.

cont /..../.

(5 x 2/29)

and IN put-Output Analysis
all these without choice.

2 No course should be nebulous, imprecise and unwieldly: Thus C:102 (Math), C:206 (Pub Econ), C:101 (Pol Econ), C:308 and C:4005 (Int Econ), C:3106 and C:4204 (Agri Econ) and C:3115 and C:4215 (Monet ary Econ) would do with substantial pruning.

3. This needs to be done along with careful matching of the topics with references.
Thus C:206 (Pub Econ) gives no references whatever on Project Evaluation (Unit IV 4.1) while it has repetative references on the same thing.
Also, C:3106 (Agri I) has reference no 14 , Kadekod (1992) which deals with poverty and it may not be mapped on to any of the topics in the course. Reference are excessive, 21.

4. There are several incomplete references. One of the examples is C:308. The other is C:4005. Both have same references. Throughapossible misprinting one has 13 the other shows all the 14 references.

5. As a good rule, references in no course should exceed 10. This might be a proof of the matching minted at above. This would also necessitate weeding out of uncited. unrecognized, too new to be handed to PG students references. There are several. Example:C:3106 (Agri I)- Lalwani (1989) and Lalwani(1990).

Course Structure

1 C:103(Math). Even asthe note there says emphasis be on applications to econ theory, in the present shape, not the least change after the volley of protests in the last AC, leaves much to the imagination of he paper-setter, with possible damage to the image of the course-in-charge and the grades of the defenceless student.

2. C:101(Pol Econ). Political economy of development (neo Marxist, neo-imperialist) as developed by Frank Emmanuel Amin etc should occupy one of the units in full. One half a lecture worth brief mention of it in C:207 (Dev and Planning) is inadequate.

contd/...../.

3. C:205 (Micro theory I) It is preposterous that the modern highly regarded, UCLA, Clower - Leizonfuvusky's Disequilibrium Economcis (Unit IV fix price theory in the predecessor course) introduced in 1986 should now be proposed to be taken off for bringing in as Unit IV : Input Market. If the melevence and importance of New Classical stress on labour market studies is to be shown respect, which is not the perception of the course redesighers, that also should not be at the cost of this highly prized line of neo-Keynesian theorization.

4. C:3106 and C:4206 (Agril,II) leave out several usually covered topics in the course and has a great slant on micro approach.

5. C:206 Pun Econ) by passes macrotheoretic approach ofted 1970. (New-lay - Stern Out 1987)

5.2.3(1).

Syllabus of the History and Geography Department for the Integrated Three Year Degree Course.

The BUGS in Geography and History were scheduled to be held on the 30th November, 1992 to finalise the syllabus for the Integrated Three Year Degree Course. The syllabus for the same had already been drafted by a meeting of the BUGS held earlier and has also been refined by Sub-Committees appointed for the purpose and only requires the formal approval of the BUGS in its meetings which were to be held on the 30th November, 1992, but owing to the unpleasant circumstances in the University the same could not be held.

The matter is placed before the Council for approval of the syllabus in principle subject to the approval of the respective Boards which will be convened at a later date.

Annexure - A.

5:2:3(2)

Syllabus for the three year degree course

The Academic Council in keeping with the national pattern has decided to introduce a 3 year integrated B A Course from the academic year 1993. The Syllabus for the B A History has accordingly been revised. The BUGS in History and the Department in anticipation of the decision of the Academic Council had already taken up the question of the revision of the Syllabus. A revised Syllabus was approved by the BUGS in May 1990. This was re-examined again by the Department and the Syllabus with minor modifications is now being placed before the Board.

The Department also took into consideration the fact that the old Syllabus required to be revised. The steadily growing historical literature including the publication of Text Books bearing directly or indirectly on the teaching of Undergraduate Courses, required a periodic review not only of the reading list but the structure of the courses as well. Advantage therefore has been taken to go into the whole question of the areas and periods of study the structre of the courses and the updating of the reading lists. In doing so, the linkage between Undergraduate and Post-Graduate Courses has been kept in view.

The Department has re-examined some of these courses and the whole Syllabus is being placed for your consideration and approval before submitting to the Academic Council for its approval.

The Three Year Degree Course in History Syllabus will consist of 3 papers which will be common for the Pass and Major. These three papers are :

Paper I	:	Europe : Renaissance to Napoleon (1453-1815).
Paper II	:	History of India (upto 1526
Paper III	:	History of India (1526-1948

The Major Courses will include the following additional papecs :

Paper IV	:	Outline of Indian Cultures
Paper V	:	Modern World (1815-1945)
Paper VI	:	North East India (4-13 Centuries,
		Or
		North East India (13-1826 Centuries)
		Or
		North East India (1826-1972)

5:2:3(3)

Paper VII : East Asia : China, Japan and Korea (1840-1949)

Or

: History of USSR (1861-1945)

Or

History of USA (1763-1945)

Or

History of Modern South East Asia (1850-1946)

Paper VIII : Society and Economy in Ancient India (Mairyas to 12 Century AD)

Or

Society and Economy in Medieval India (12-13 Century)

Or

Society and Economy in Modern India (18-20 Century)

The Courses when offered will have the following pattern :

1st Year	2nd Year	3rd year
Paper I & IV	Paper II, V and VI	Paper III, VII and VIII

5:2:3(4)

PAPER - I

EUROPE (1453 - 1815)

Objective : This course intends to introduce to the students the history of the beginning and growth of the new National Monarchical States in Europe and the reaction of the people to them.

A. Fall of Byzantine Empire, Expansion of Ottoman Empire - the city - states - rise of new Monarchies.

Renaissance - Printing Press - Art, Architecture, Sculpture, Painting etc - growth of National Literature - Scientific P Progress - Geographical Discoveries.

B. Dominance of Spain in 16th Century - Era of Charles V and Philip II - The Thirty years' war - The peace of Westphalia Emergence of modern state system.

C. Dominance of France in 17th Century - France under Henry IV - Era of Louis XIV and Louis XV.

D. The German States in 17th and 18th Centuries - Expansion of Brandenburg - Prussia - Expansion of Russia.

E. The French Revolution - Its background - Democratic self-Expansions - End of Monarchy and National War - Jacobinism-Military Dictatorship.

Napoleon - Rise of Napoleon - The Napoleon Empire - Napoleonic militarism and Nationalistic Reaction - Destruction of the Napoleonic Empire.

Text Books

Carlton J H Hayes	:	Contemporary Europe, Macmillan, London, 1970.
Holland Rose,	:	French Revolution and the Era of Napoleon, Bell&Sons, London, 1976.
C D M Ketelly,	:	A History of the Modern Times.
C D Hazen,	:	Modern Europe, The World Press, Calcutta, 1970.

5:2:3(5)

Paper - II

HISTORY OF INDIA (up to 1526)

Objective. The Course is designed to familiarise the student with the social, economic and cultural developments in India from the Chalcolithic period to the end of the Delhi Sultanate. In the process, student will be exposed to the elements of continuity and change in Indian history.

A. Harappan Civilization: Origin Affinities-distribution - chronology-material culture-religion decline: Vedic Civilization-Overview of the Literature- date-settlements-political structure- religion:- Buddhism, Jainism and Lokayata traditions-their background Geography of the new phisolophies basic tenets social basis:

B. Territorial small state to empire C. 6th-3rd century B.C. Mahajana padas: Emergence of Magadha- Haryanka, Sisunaga and Nanda dynasties- Alexander's invasion- Chandragupta Maurya:- Bindusar-Asoka policy of Dhamma-Buddhism-Orvanisation Mauryan Art Decline of Magadhan hegemony.
Kusana, Satavahana and Sangam period-political history-Material culture-Trade and Commerce-Religion Literature & Art.

C. India Between the 4th & 7th century A.D. Guptas: Outline of Political History society & Economy: Religion Art & Literature Fa-Hsien's Account. Harsavardhana: Political History-Religious policy Pallava Chalukya conflicts: Varmanas of Kamarupa: India as known to Hsuan-Tsang.

B. Growth of the regional power: Triprartite struggle economic factors Cholas: Political history Village council temple and state trade and commerce.

E. The Arabs in Sind-Advent of Turko-Afghans New Technology: An outline of Political history of the Delhi Sultanate Economy Religion & culture: The Vijayanagar & the Bahmani Kingdom Political history-Economy. Religion. Art & Architecture.

Text Books

Romila Thapar: A History of India, Vol. 1.
D N Jha : Ancient India: An Introductory Outline
: A History of India Vol. II

Reference

F R & B Allchin: The Rise of Civilization in India and Pakistan.
Irfan Habib Interpreting India History
R C Majumdar (ed) Vedic Age
R C Majumdar (ed) The Age of Imperial Unity
R C Majumdar (ed) The Classical Age
R C Majumdar (ed) The Struggle For Empire
R C Majumdar (ed) The Delhi Sultanate.

5:2:3(6)

Paper - III

HISTORY OF INDIA (1526- 1947)

Objective: This course is intended to provide an overview of the main trends and developments in India in the medieval period and in British period with a special stress on the history of medieval polity and nationalist movement.

A. Foundation and Constitution of Mughal Rule in India :- Babur, Humayun, Jahangir, Shahjahan Akbar: Society and Economy; Mughal Art; Architecture:

Administrative developments- Sher Shah And Akbar: Decline of the moghals- Aurangzeb- formation of the Marhatta and Sikh States:

B. India in the 18th century - Political and social situation: Advent of the Europeans - East India Company- Struggle for supremacy- Exclusion of French and collapse of Marathas- Expansion of British power - Clive to Dal housie.

C. Anti British uprising:- Revolt of 1857 - Social and economic back-ground-Events of 1857 and 1858 - Repurcussion in North East India- Political- Administrative and social policy changes:

D. India under the British crown- Economic impact of British ruler social impact of British rule-rise of new social classes- Foreign policy-constitutional development (1858-1905) internal reforms curzon and partition of Bengal.

E. Indian national movement origin and growth : Swadeshi movements and Rise of extremism-Birth of Muslim League-Lucknow pact: Morley Mint Reforms: Montagu Chelmsford Reforms: Rise of Gandhi-Rowlatt Satygraha and non Cooperation movement-: Social basis of political protest- formation of Swarayya party-Simon commission: World War- Quit India movement - INA: Independence of India: Civil disobedience movement: Gandhi- Irwin pact: Govt of India Act, 1935:

Text.

Percieval spear. History of India (Penguin)
Mazumdar, Ray Choudhury - An Advance History of India Macmillan, India - 1947.
Percieval Spear:- Oxford History of India, Penguin Harmondsworth, 1975
A. C Banerjee: The new History of Modern India. K P Bagchi, and Co. Calcutta 1983.
Bipan Chandra A
Tripathi and Barun De. Freedom Struggle NBT New Delhi 1972

Reference

Sumit Sarkar Modern India macmillan 1985
Bipan Chandra (ed) India's struggle for freedom
Irfan Habib Inter preting Indian History NEHU.
Irfan Habib - Agrarian system of Mughal India Asian publishing house
J Messcles - Nationalism in the Indian sub continent- Thomas Nolson, Malbourne, 1972.

5.2.3(7)

Paper IV

OUTLINE OF THE INDIAN CULTURES

A. Geographical and ethnic background of Indian Culture; The Early Man and his surroundings, Harappan Civlization.

B. Cultural Pattern with special reference to Vedic Literature, Buddhism & Jainism; Continuity and changes in Art & Literature.

C. South Indian Contribution to Indian Culture; North East in Indian Civilization.

D. Impact of Islam: Bhakti Movement: Growth of Regional Literature Kabir Nanak, Chaitanya: Sufism.

E. Western Impact: Renaissance in Modern India; Brahma Samaj, Arya Samaj, Prarthana Samaj; Ramakrishna-Vivekananda Movement; Deoband School and Modernisation.

Text

F.R.F.R. Allchin & B: Allchin — Birth of Indian Civilisation, Penguin, Harmondsworth, 1960.

S.K. Chatterjee : Place of Assam in the History and Civilisation of India, Gauhati University, 1955.

D.P. Singhal : Modern Indian Society and Culture, Meenakshi Meerut, 1981.

B. N. Lunia : Evolution of Indian Culture.

Reference

S.C. Malik : Indian Civilisation, Indian Institute of Advance Studies, Simla, 1971.

B.G.Gokhale : Ancient Indian History and Culture, Asia Publication House, Bombay 4th ed.1970.

K.M. Pannikar : A Survey of Indian History, Bharatiya Vidhya Bhavan, Bombay, 1974.

K. A. Nilakanta Sastri: History of South India, OUP, Delhi, 1966

A.L. Basham : The Wonder that was India, Sidgewick & Jackson, London, 3rd ed. 1960.

Objective

This course is intended to familiarise the students with the cultural evolution of India from the earliest to the modern times, particularly the contribution of the various races and communities, the composite nature of the Indian Culture, reform movements from time to time, and the elements of change and continuity.

5:9:3(8)

PAPER - V

MODERN WORLD (1815 - 1945)

Objective: The objective of this course is to familiarise the graduate students with the more important features of world history from the Congress of Vienna to the end of the Second World War. It seeks to aquaint students with particularly, the economic and political dimensions of the history of the Modern World.

A: Europe 1815-1848 - Fall Napolion & the Congress of Vienna : New Power Structure : Revolution of 1830 & 1848.

B: Impact of industrial Revolution - Growth of Capitalism: Emergence of nation states, Italy Germay and Balkans region: U S A Foundation of tne Republic :

C: Nationalism and imperialistic rivalries Balkan Question 1877-1915=: Imperial expansion in Africa and Asia: alignment system in Europe : The World War I the Peace Settlement. The League of Nations.

D: Revolutions in Asia & Eurppe, China 1911-1949 : Bolshevick Revolution : Japan in the 20th Century : Emergence of Modern Turkey.

E: Prelude & Aftermath of the 2nd World War : Spanish Civil War : Origins of the World War 2nd and its Consequences & The United Nations Origins, aims & objectives & Cold War :

Text Book

D Thompson	Europe Since Nepoleon
C Hayes	Contemporary Europe Vol II
J Joll	Europe Since 1870
Hazen Charles	A Synopsis of American History Vol I (Macmiller : 1990)

Reference

K M Pannikar	Asia & Western Dominance
F U Faulkner	Social History of the U S.

5:2:3(9)

PAPER - VI
NORTH - EAST INDIA (4-13 Centuries)

Objective: The course is intended to familiarise the students with the major historical development in the Brahmaputra Valley between C 400 & 1300.

A. An outline of the dynastic history - from Pusya Varmanas to Vallabhadeva.

B. Polity : King, administrative functionaries and the system of governance.

C. Society : 'Social groups, social differentiation with special reference to the Brahmana Varna.

D. Economy : Land System with reference to texation, trade.

E. Religion : The autochthonous background - major Brahmanical sects.

Text Books

P C Choudhury : A History of Civilization of the People of Assam.

B K Barua : A Cultural History of Assam

S L Barua : A Comprehensive History of Assam.

B N Puri : Studies in the Early History and Administration of Assam.

H K Barpujari : A Comprehensive History of Assam Vol I.

B N Mukherjee : External Trade in North East India.

5:2:3(10)

Paper VI
HISTORY OF NORTH EAST INDIA
(13 to 1826)

Objective: The course is designed to cover a broad period of history of North East India. It will particularly highlight the political history of the region.

A. Political condition in North East India in the beginning of the 13th Century ; Rise of new states Ahom, Koch, Dimasa and Jaintia.

B. Political History of the Ahom States ; Ahom Tribal Relations Ahom Mughal Relations.

C. Formations and Political developments Koch, Kachari (Dimacha). Tripuri Jaintia and Methei Manipur State.

D. Pre-Colonial Political system in the hill area-Khasi-Jaintia, Garo, Naga and Mizo.

E. British relations with North East till 1826.

Text Books

1. E Gait, History of Assam, Calcutta, 1967.
2. H Barpujari, Problem of the Hill Tribes North East India, Vol I, Gauhati, 1970.
3. S C Dutta, North East and the Mughals, D K Publishers, N.Delhi 1984.
4. M S Sangma, History and Culture of the Garo People, Delhi
5. H Bareh, History and Culture of the Khasi People, 2nd Eastern, Spectrum Publications, Gauhati, 1985.
6. J Roy, History of Manipur, Calcutta, 1973
7. N R Roy Choudhury, Tripura Through the Ages, Sterling Publishers, N. Delhi, 1983.
8. A Lemchiba Ao, A Brief Historical Account of Nagaland, Kohima 1970.
9. L B Thanga, The Mizos, United Publishers, Guwahati, 1978.

5:2:3(vi)

PAPER - VI

HISTORY OF NORTH EAST INDIA (1826-1972)

Objective: The object of this course is to provide a political history of the region from the pre-colocial period to the contemporary history of the states reorganization.

A. Early British Policy ; First Anglo Burmese War and the Treaty of Yandaboo; Annexations of Assam, Cachar, Jaintia.

B. Rise and consolidation of British Power in the hills - Khasi Hills, Garo Hills, Naga Hills, Mizo Hills and Arunachal Pradesh.

C. British Relations with Manipur and Tripura

D. North East in Indian Struggle for Freedom.

E. Political Development since Independence.

Text Books

1. S K Bhuyan, Anglo Assamese Relations, Lowyers Book Stall, Guwahati, 1974.

2. H K Barpujari, Problem of the Hill Tribes, 3 Volumes

3. B K Chaube, Hill Polities in North East India, Oriant Longman, Calcutta, 1973.

4. R M Lahiri, Annexation of Assam, Firma KHM Calcutta, 1975.

5. Govt. of Assam, Political History of Assam 3 Volume, 1977; 1978, 1980.

6. B B Hazarika, Political Life in Assam During the 19th Century, Gian Publishing House, N. Delhi, 1987.

7. V Venkata Rao, Govt and Politica in North East India : Assam, Meghalaya, Mizoram and Manipur.

5:2:3(12)

PAPER - VII

HISTORY OF THE UNITED STATES 1763-1945

Objective: The course intends to trace the growth of the U S A as a major power and its role in the international politics till the end of World War II.

A. British Policy in North America & Americal Reaction: The American War of Independence.

B. The Making of the Constitution : Federalists and anti-Federalists - Jefferson and Hamilton. Republican War of 1812 ; The Monroe Dectrine ; Westward Expansion.

C. The Economic Development of the South ; The Industrial Revolution : Industrial Development and Social Change.

D. Jacksonian Democracy : The Civil War, Abraham Lincon and the Reconstruction.

E. U S Imperialism and relations with Japan, China and the Philippines : U S A and the World Wars.

Text Books

Commager & Navins	:	A Short History of the United States
Thomas H Johnson	:	Oxford Companion to American History
H B Parks	:	The United States : A History, Scientific Book Agency, Calcutta, 1970

Reference

Harry Bamford Parkes	:	The United States of America : A History.
Oscar Handlin	:	The Americans : A New History of the American People.
Charles A. & Marry Beard	:	The Beards' New Basic History of the United States.

5:2:3(13)

Paper VII
East Asia (1840-1949)

Objective: The object of studies of this course is to acquaint the students with the beginning and growth of European colonialism in East Asia and the various historical forces and factors that inter-acted to these developments.

A. Traditional China; Japan and Korea; Political, Social Economic Conditions in the Middle of the 19 Century.

B. European expansion : The Openning of China; Opium Wars and Consequences ; China's Response to European Challenge; Taiping Rebellion; Reform Movements; Boxes Rebellion.

C. Birth of the Republic; Carrier of Sun Yat Sen; Revolution of 1911; The Koemintang; Politics of Warlordism; The Origin and Growth of the Chinese Communist Party; Sino-Japanese War; Civil War and the Communist Seizure of Power. Meiji Restoration; Sino-Japanese War and Russo-Japanese War.

D. Japan in the 29th Century : Japan and the First World War; Rise of Militarism; Japan and the Western Powers; Japan and the Second World War.

E. Politics and Institutions of Korea; Sino-Japanese Rivalry over Korea; Japanese Supremacy over Korea; Independence and Partition.

Test Book

Paul Clyde & B.F.Beers	:	The far east Prentice Hall of India New Delhi 1976.
H.M. Vinache	:	History of Far East, F.S. Crofts Reved New York 1963.
C.P. Fitzgorald	:	A Consise History of East Asia, Hoinemann, London 1966, Pelican 1974.
Scott Kenneth Lalouretto	:	The Chinese - Their Culture & History New York, 3rd Edition 1957.
Tanage	:	Japan Since Parry, Mc.Graw Hill, New York 1949.
Malcolm Konnedy	:	History of Japan Weidenfeld & Nicholson, London 1963.
Michael Groonberg	:	British Trade on the Opening of China OUP 1969.
	:	Penguin China Readings, 3 Vols. Penguin Harmondsworth.

$: 2 : 3 (14)

PAPER - VII

HISTORY OF MODERN SOUTH EAST ASIA (1850-1946)

Objective: The object of the study of this course is to acquaint the students with the growth and development of colonial policy in South East Asia and the beginnings of Nationalism in the region.

A. South East Asia and Western Expansion ; The Dutch in the Archipelage; British in Burma and Malaya ; Spanish and American Power in the Phillippines ;
B. The French in Indo-China; Siam and the West.
C. Main Features of Colonial Policy ; Social and Economic Consequences.
D. The South East Asian Response : Beginnings of Nationalism in South East Asia.
E. The Rise and Fall of Japanese Power in South East Asia.

Text Books :

D G E Hall	:	A History of Southeast Asia, Macmillan New York, 1970.
F John Cady	:	Southeast Asia, Its Historical Development, McGraw Hill, New York 1964.
Brian Harrison	:	Southeast Asia, A Short History, London New York, 3rd Edition, 1964.
Nicholas Tarling	:	A History of Modern Southeast Asia, Prentice Hall New Jersey, 1968.

5 : 2 : 3 (15)

PAPER -- VII

History of USSR . (1861-1945)

Objective : The transformation of Russia from a relatively backward state to a modern power is the underlying theme of this paper. While the major emphasise is on the political, social and economic developments, the other issues are trends and problems in Russian history in the second half of the nineteenth century.

A. Emanciaption :- reforms under Alexander II ; Subsequent reaction : Agriculture and Industry : Development of Parties growth of socialist ideas.

Russia and the Balkans - Russo- Turkish War, Congress of Barlin 1877 - 78 : Russia and Europe - French- Rusian Entente, 1891 : Expansion in Central Asia : Russo-Japanese Relations, War of 1905.

B. Revolution of 1905 : Crisis of Tsarist Antocracy : Agrarrian Question : Native Question : Working Class Movement : February Revolution : Revolution of 1917 : The New State - Initial legislation - The Constituent Assembly.

C. Brest - Litovsk : Civil War - Foreign intervention : War Commission : Politics : Economic and Military Policy:

D. New Economic Policy: Struggle for Power :- Stalin - Trostky Conflict - Rise of Stelin : Socialism in one country: Collectivisation and Industrialisation:

E. External relations and Foreign policy 1917-1945: Beginnings of Cold War.

Paper VIII

Society & Economy in Ancient India

The course is intended to provide a general understanding of Society and economy of Ancient India.

A. Society: Historical Development of the Varnas and Asramas in Ancient India.

B. Economy: Mauryan Economy - Srenis Guilds, Land System, Trade.

C. Kushana & Gupta Economy- International trade Land System internal trade and coinage.

D. Post Gupta Economy in North and South India. Land system, trade.

E. North East India- Social organization, Coinage, Economy and trade.

R.S. Sharma: Light on Early Indian Society & Economy, Bombay 1968

~~Romila Thapar : Asoka and the Decline of the Mauryas~~

R.C. Majumdar : Corporate Life in Ancient India (Chap. I, pp. 9-91)

U.N. Ghoshal : Agrarian Systems in Ancient India, Calcutta, 1930.

B.N. Mukherjee : ~~Rise & Fall of the~~ Economic Factors in Kushanas History, Calcutta, 1970

B.N. Puri : History of the Kushanas

Puspa Niyogi : Economic Condition in Northern India

Balarama Srivastava: Trade & Commerce in Anc. India, Varanasi 1968

B.N. Mukherjee : External Trade in North East India, Delhi 1971.

J.P. Singh : Monetary Development in Ancient India, Jorhat, 1989.

S.S. Nigam : Economic Organisation in Anc. India 1975, N.D.

L. Gopal: The Economic Life in Northern India 700-1200 A.D. Varanasi 1955

SK Maity: Economic Life in Northern India in Gupta Period, Calcutta 1957

K.M. Gupta: Land System in South India, Lahore 1933

B. Chattopadhyay: The Age of the Kushanas: A Numismatic Study Calcutta, 1967

P.V. Kane: History of Dharmasastra Vol. II Parts I-II (Chapters on Varna & Asrama)

5:2:3(17)

Paper - VIII

Society and Economy in Modern India (18-20 Century)

Objective: This course is intended to provide a general understanding of social changes and economic developments in Modern India.

A. Survey of Pre-colonial society and economic conditions - Economic impact of British:- Trade, De-industrialisation, Land Tenure reforms- Society in the late 19th century. Beginnings of social change and awakening.

B. Charter Act of 1813 and Five trade, and impact of influx of British capital, British Economic policy towards India till 1875. Land tenure changes and impact on agriculture. Introductions of Modern Education and the Indian response till 1854.

C. India under the crown: Beginnings if Industrialisation Transport: Agriculture:- Finance, Rural- indebtedness. Social Reforms Movements and movements for social change: spread of Modern Education and rise of new social forces: Emancipation of Womens.

D. Impact of World I & II on the Indian Economy:- Industries, Finance capital, Banking. Gandhi:- His economic views. Growth of Nationalist ideas and social awakening Role of women in the National Movement: Gandhi as a social reformer.

E. Drain Theory and the growth of Economic nationalism; Swadeshi Socio-economic impact of the partitions of India.

1. A R Desai — Social Back ground of Indian Nationalism,
2. B Chandra — Rise and Growth of Economic Nationalism in India,
3. P Spear — History of India Vol II
4. S Sarkar — Modern India

5.2.3(18) Annexure-I

PROPOSED SYLLABUS FOR GEOGRAPHY

STRUCTURE

B.A. General	B.Sc. General	B.A/B.Sc. Major
I. Paper I	Paper I	Paper I Paper V
II. Paper II	Paper II Paper IV	Paper II Paper IV Paper VI
III. Paper III	Paper III	Paper III Paper VII (Opt.) Paper VIII
Ist year 100	100	200
II Year 100	200	300
III Year 100	100	300
300	400	800

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Proposed Syllabus for B.A./B.Sc General and Major stream in Geography

Three Years Degree Course

Papers

Paper I — Physical Geography — 100 Marks

a) Geomorphology	28
b) Climatology	28
c) Oceanography	14
Practical	30

Paper II — Economic & Human Geography — 100 Marks

a) Economic Geography	70
b) Human Geography	
Practical	30

Paper III — Regional Geography of India — 100 Marks

a) India	42
b) North East Region of India.	28
Practical	30

Paper IV (Major I) — Physical Basis of Geography — 100 Marks

a) Geomorphology	28
b) Climatology	14
c) Oceanography	14
d) Biogeography	14
Practical	30

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Syllabus for the three years' integrated course for the degree level.- Khasi

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B.A. without Major :(1) M.I.L.

Paper I Drama & Fiction 100 marks

Drama : 50 marks

1. Peace Roy Pariat, Ka Shangkhawieh Ki Rang

Fiction 50 marks

2. S.J.Duncan, "Ki Mad ia ka Shyllong"

3. K.Kharlukhi,"Ka Melody

Paper II

Khasi Poetry & Prose

Poetry 50 marks

1. Amjad Ali, "Leng Riw Khasi", "Synshar Riw Khasi"

2. John Roberts,"Ri Khasi"

3. R.S.Berry, "Ka Jingsta d"

4. Mondon Bareh, "Ka Jingshisha",

all four from Na Ka Thiar Ki Longshuwa

5. Soso Tham,"Ki Symboh Ksiar,"U Lyoh" from Ki Sngi ... Hynniew Trep

6. H.Elias, "Kapongnai Ksiar", and "Lum Lawbah".

7. W.R.Laitflang,"Ka Juban ba la Khlei", "Ban Long Rangbah" from Ki Mylliung Khasi.

Prose 50 marks

A text to be edited by the Khasi Department.

ELECTIVE PAPER

Paper III, Khasi Culture 100

1. Sylvanus Lamare, Ki Tnat ka Kilshor

2. H.Lyngdoh,"Ka Pomblang Nongkrem,Ki Mewbynna,Ki Jait Syiem Jait Lyngdoh.

Contd/.../-

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3. Costa, G. "Ka Riti Ki Laiphew Syiem"
   Ch. XX (excl. Ki Mawbynna) and
   Ch. XXIII (Ka tem ka put ki Khasi)

4. Mawrie, H. W. - Ka Pyrkhat

5. Roy, Sib Charan - Ka 'Tien Ruidphong: Ka Shongburom Sahburom ha Pyrthei (from "Ka Niam Ki Khasi")

6. Laloo, D. T. - Ka Tynrai ka Ksaw ka Kpong (from "Ka Ksaw ka Kpong u Hynniew Trep")

Paper II

History of Khasi Literature : 100 marks
(1842-1960)

1. H. Bareh, A Short History of Khasi Literature
2. R. S. Lyngdoh, Ka Histori Ka Thoh ka Tar

Paper III

The Study of language : 100 marks

1. H. W. Sten, Shaphang ka kitien Khasi (minus pages 55- 58 dealing with bars).
2. M. B. Jyrwa, Ka Jingpule shaphang ka Ktien
3. H. Marwein, Ki Verb Khasi

Major papers

Paper-IV

Khasi Literary Theory & Criticism 100 marks

1. Soso Tham, "Ka Jingpynshai" from Ki Sngi Barim u Hynniew Trep.
2. F. M. Pugh, "Ha Ki Nongpule" from Ka Sawangka ia Ki Saw Ngut Ba Iap Mynsaw
3. H. W. Sten, Shaphang ka Novel
4. J. S. Shangpliang, Ki Snap Ka Novel (excluding chs. 5, 6, 7).

Paper V

Khasi Drama : 100 marks

1. Dino Nath Roy, U Arbnai
2. S. J. Duncan, Ka Tiew Larun
3. H. W. Sten, Ka Mahadei
4. J. S. Shapliang, Ka Ri Umsnam

Contd/.../-

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PAPER VI

Khasi Fiction : 100 marks

1. B.J.Jyrwa, U Kyrdoh Mawlynnai
2. W.Tiewsoh, Ka Jingkwah u Kpa
3. L.H.Pde, U Mooiong
4. H.W.Sten, Kwah Bymjukut
5. Firmly Ster Lyngdoh, Jingieit Ba Nylla

PAPER VII

Essay - 100 marks

The essay should be relevant to the prescribed texts/topics in the course. Students will write for three hours.

PAPER VIII

Khasi Poetry : 100 marks

1. B.Thangkhiew, "Ka Pyrthei u Mendih"
2. KAS , "U Ngap ka Ri War", "U Dkhi Kynthah" from Na Ka Thiang ki Longshuwa
3. V.G.Bareh, "Ka Duitara Jong Nga", "Ka Sohra " from Ki Poetry Khasi
4. O.M. Wahlang, "Ka Sohlyngngem", "Ki Ummat Ksiar" from Ka Jutang Ka Sur Pangmud u Khasi
5. H.W.Sten, Ka Burom Ba La Jah (Kitab II), and "U Premkar".
6. Jerome K.Diengdoh, 2 sonnets*

* to be finalized by the sub-committee of the BUGS.

Sd/- Chairman

Sd/- H.W.Sten,
Chairman,
Board of Under-Graduate Studies Khasi

5.2.1(362) Annexure-4

B.A. (General)
Home Science As an Elective

Total Marks: 300

Ist Year:	100
2nd Year:	100
3rd Year:	100

Note: Each year, Theory will be of 75 marks and Practicals of 25 marks.

SYLLABUS

Ist Year:

Paper I. Nutrition Max. Marks: 75

A. 1. Nutritional requirement and diet in health of different age groups and physiological status.
   a. Infants
   b. Pre-School children
   c. Elementary School children
   d. Adolescents
   e. Adult man and Woman: light, moderate and heavy workers
   f. Pregnant and lactating women
   g. Elderly people
   2. Sources, function, requirements and deficiency diseases of energy, fats, proteins, minerals and vitamins.
   3. Food fads and beliefs in N. E. India.

B. Infant growth and Nutrition:
   1. Monitoring of growth
   2. Nutrient requirements
   3. Breast-feeding and weaning foods
   4. General care of the infant and common ailments; rehydration therapy

C. Loss of Nutrients during processing and cooking of foods e.g. vitamins and minerals.

Paper I. Practical Max. Marks: 25

1. Formulation of weaning foods using locally available foods.
2. Monitoring of child growth.
3. Rehydration formula.

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2nd Year:

Paper II. Diet Therapy AND Food Processing and Fruit Preservation Max. Marks: 75

A. Diet Therapy:
1. Diets in diseases: Diabetes, liver disorders, kidney disorders, fever, cardio-vascular disorders, disorders of the gastrointestinal tract, obesity.
2. Common curative dietary practices in India with particular reference to North East region.

B. Quantity cookery.

C. Food processing and Fruit preservation:
1. Fruits and vegetables - Preparation of pickles, chutneys, jams, fruit juices and squashes, jellies, preserves.
2. Animal foods including sea foods: Drying, smoking.
3. Fermentation of Foods - Animal foods and soyabean.

Paper II. Practical Max. Marks: 25

1. Formation of balanced diet and calculation of nutrients.
2. Planning and Preparation of diets for various diseases.
3. Preparation of jam, squash, pickle etc.

3rd Year:

Paper III. Community Nutrition and Institution Management Max. Marks: 75

A. Community Nutrition:
1. Food intake of the community in urban and rural areas of N. E. India.
2. Food and nutrient requirement of the community.
3. Nutrition programmes and involvement of different agencies (government and voluntary organization) in the programme.

B. Institution Management:
1. Planning dietary departments: hostels, student residence, hospital, industrial canteen.
2. Use of house-hold utensils for baking, cooking etc.
3. Fabrication and use of equipments and facilities.
   a. Non-conventional refrigeration facilities for perishable foods.
   b. Non-conventional equipments: pressure-cooking, oven, ice-cream maker etc.
   c. Storage facilities for non-perishable foods.
4. Sanitation of food service department: environment, food.
5. Purchasing of food: perishable and non-perishable.
6. Account keeping.

Paper III. Practical Max. Marks: 75

1. Dietary Survey.
2. Fabrication of non-conventional equipments.
3. Preparation of balanced diet for a Pregnant and lactating woman.

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B.Sc. Home Science (General)

	I year	II year	III year
Elective 1.	Physiology (100)	Food and Nutrition (200)	Home Management, House hold equip-ments/Appliances and Consumer Economics - Part I (100)
Elective 2.	Extension Education (100)	Chemistry and Biochemistry (200)	- Part II (100)
Elective 3.	Textiles and Clothing (100)	Principles of Child Development (200)	Psychology (100)

Note: In each paper 75% marks are for Theory and 25% marks are for Practicals.

B.Sc. Home Science (Major)

	I year	II year	III year
Elective 1.	SAME AS IN B.Sc. Home Science (General) FORMATTED ABOVE		
Elective 2.	SAME AS IN B.Sc. Home Science (General) FORMATTED ABOVE		
Elective 3.	Child Development		
	Principles of Child Development (150) Practical (50)	Child Psychology (100) Family and Child Welfare (125) Practical (75)	Textiles and Clothing -Theory (75) -Practical (25) Mother and Child - Health & Nutrition -Theory (150) -Practical (50)

Note: In both cases, B.Sc. general & major, there shall be a 100 marks English paper in First year, and a 100 marks General Foundation Course in the 3rd year.

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Paper I. Physiology M. Marks: 75

Brief outline of cell structure. Composition and functions of blood, coagulation of blood, blood transfusion and blood groups.

Circulatory System: Structure of the heart, cardiac cycle, blood pressure, diseases of the heart.

Respiratory System: Anatomy of the respiratory tract, mechanism of respiration, the role of hemoglobin and plasma in O and CO transport.

Digestive system: Anatomy of the gastric intestinal tract, role of saliva, gastric and pancreatic juices and bile in digestion. Absorption of products of digestion.

Excretion: Structure and functions of kidney, formation of urine
Nervous system: Structure of nerve cells, brief outline of transmission of nerve impulse.

Muscle contraction: Structure and physiological properties of muscle. Chemical changes during muscle contraction.

Reproductive system: Male and female reproductive organs. Process of reproduction.

Endocrine system: Endocrine glands and their secretion. General idea about the physiological role of hormones.

Paper I. Practical M. Marks: 25

1. Estimation of hemoglobin.
2. Blood groups typing.
3. Cell counting using a microscope.

Suggested Readings:

1. C.A. Keel & E. Neil :" Samson Wright's Applied Physiology", E.L.B.S.
2. R.M. Dowben :"General Physiology", Harper and Row.

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Paper II. **Extension Education** M. Marks: 75

Principles of extension education:

a. Extension education: Definition and meaning, nature, importance and scope; Qualities of an extension worker; role of extension work in community.

b. Extension techniques: Selection and use; Group methods-mobilization for Home Science Extension.
Extension talk-concept, elements, planning presentation and evaluation, demonstration.
Skill teaching with special stress on kitchen gardening, nutrition and health.

c. Community development: Meaning and definition, Role of extension worker in community development especially in a tribal area.

d. Audio Visual aids: Significance, Types, planning and preparation. Characteristic features and uses of each type.

Rural Sociology:

a. Rural Society in N.E. India, Meaning and characteristics, Structure; tribe, clan, class, caste-occupation etc.

b. Basic institution in rural society and their functions; Headman, Syiem and village council, Religious institution, School, Co-operatives and family.

c. Rural resources.

d. Rural problems.
General: Health, education, communication, nutrition, water supply in N.E. India.
Specific: Landless labor, alcoholism and unemployment.

e. Overcoming these problems: Various Govt. schemes for rural development.

Role of Home Science in rural development:

a. Training of Home Science workers for rural (tribal) development.

b. Role of rural youth programmes and Balwadis.

c. Study of various rural programmes (like nutrition programmes, child welfare programmes, Mahila mandal) carried out by voluntary and Govt. agencies.

Kitchen Gardening:

a. Selection of site, planning and lay out.

b. Selection of vegetable crops for Rabbi and kharif seasons.

c. Selection of garden tools, manures and fertilizer.

d. Kitchen garden in relation to balanced diet for a families.

Paper II. **Practical** M. Marks: 25

1. Planning, preparing and evaluating visual aids: Poster, Flash card, Map, Chart.
2. Conducting of classes for village women relating to home science.
3. Preparations of nursery and raising of seedlings.
4. Preparation of compost.
5. Method of propagation of plants-Budding, grafting and cutting.
6. Proper methods of picking vegetables and flowers.

Suggested Readings:

1. Directorate of Extension, Krishi Bhavan, G.D.I., New Delhi : Extension education in Com. Development
2. A.A. Reddy, : Extension Education, Tri-laxmi Press.

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Paper III. **Textiles and Clothing** M. Marks: 75

A. Textiles and Care

1. Brief historical development of textile fibers.
2. Classification of fibers and their properties:
   a. Cellulose fibers. b. Protein fibers.
   c. Thermoplastic fibers. d. Mineral fibers.
3. Identification of various fibers:
   a. Importance of identification of textile fibers.
   b. Different tests for identification of fibers: Visual, Microscopic, Burning and Solubility test.
4. Type of yarns and fabric constructions. Thread counts and its importance on balanced construction of materials.
5. Finishes:
   a. Introduction to finishes.
   b. Objectives of the application of finishes.
   c. Types of finishes.
6. Laundry Work:
   a. Laundry equipment, their use and care.
   b. Water: Hard and soft water, importance of soft water in laundry work, softening and hard water.
   c. Cleaning materials and other reagents: Rita nuts, shikakai, soap, synthetic detergents, washing soda etc.
   d. Bluing agents.
   e. Bleaching agents: Oxidizing bleaches, Reducing bleaches
   f. Stiffening agents: Starches-Rice, Wheat, Maize, Sago, Commercial starches, gum water.
   g. Mounding.
   h. Stain removal: General rules for stain removal, Classification of stains - animals, vegetable, grease, dye and mineral, stain removing reagents, stain removing processes for different textiles.
   i. Methods of laundering and finishing of different fabrics.
7. Dry Cleaning: Use of absorbents and solvents.
8. Storage of clothes.

B. Dyeing and printing of Textiles

1. Indigenous and chemical dyes.
2. Application of dyes: Raw-stock dyeing, skein-dyeing, piece-dyeing, garment-dyeing, tie and dye.
3. Printing: Block, stencil, screen, batik printing and printing by machine.

C. Clothing construction

1. Fundamentals of Clothing Construction:
   a. Sewing equipment: Measuring tape, ruler tracing wheel, tailor's chalk, needles, thimbles threads of various type for machine and hand swing etc.

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b. Sewing machine and its parts - care of sewing machine, use of sewing machine.
c. Constructive stitches-tacking, running, back stitch, hemming etc.
d. Decorative Stitches.
e. Seam and seam finishes.
f. Fullness-gathers, pleats, tucks etc.
g. Openings- plain plackets, bound plackets etc.
h. Fasteners- Press fasteners, buttons and button holes, hooks and eyes, etc.
i. Preparation of fabric for cutting: grants of the fabric, evening and straightening of the fabric, shrinking the materials.

2. Children's Clothing:
   a. Importance of clothing.
   b. Sociological and psychological aspects of clothing.
   c. Effects of clothes on child's growth and development.
   d. Clothing and family budget - the children's clothing in relation to budget.
   e. Factors to be considered while selecting and making garments for the children of different age groups: infants, creeping age, pre-school age and school going children.
3. General introduction to Costumes used by men and women of different tribal areas in North-Eastern Region.

Paper III. <u>Practical</u> M. Marks: 25

A. Textiles and Care

1. Identification of fibers: Physical, chemical, burning and microscopic tests.
2. Study of weaves.
3. Stain removal: Removal of stains from washable and non-washable fabrics.
4. Mending and renovating of clothes.
5. Laundry work: Study of laundry equipment; washing, finishing and storage of different fabrics.

B. Dyeing and Printing

1. Dyeing of fabrics: tie and dye.
2. Printing: stencil printing.

C. Clothing Construction

1. Acquaint the students with the sewing machine and its parts and learn how to take care of it.
2. Preparation of samples for --
   a. Constructive stitches b. Decorative stitches
   c. Seams d. Fullness
   e. Openings f. Fasteners

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3. Construction of baby garments: Jabla, Vest, matinee coat or matinee jacket, baby dress, bib, diaper.
4. Taking measurements and drafting of child's basic body block.
5. Adaptation of child's basic body block to child's dress rompers or sun-suits, bush-shirt, half-pants and their construction.
6. Drafting of basic body block cutting and stitching of blouse.

D. Knitting

1. Getting acquainted with the knitting machine and its care.
2. Preparation of samples of various designs by hand and machine.
3. Knitting of a baby set of following three pieces.
   a. Cardigan or baby dress (by machine)
   b. Stockings (by hand)
   c. Hat or bonnet (by hand)

Suggested Readings:

1. Duntyagi, Susheela : Fundamentals of textiles and their care, Orient Longmans Ltd., Bombay
2. Hollon, Norma and Saddler, J. : Textiles, MacMillan Publishing Co., New York, 1973.
3. Deulkar, D. : Household Textiles and laundry work, Atma Ram & Sons, Delhi, 1973.
4. House, K.P. : Textiles Fibers and their use, Oxford and IB Publishing Co., New Delhi, 1974.
5. Kale, D.G. : Principles of Cotton Printing, Ahmedabad, 1976.
6. Shenai, V.A. : Chemistry of dyes and principles of dyeing, Textile book Sellers and Publishers, Ahmedabad, 1973.
7. Pandit, Savitri and Saraj Patel : Tie and dye and batik technique for all, Baroda Faculty of Home Science, 1970
8. Doongaji, : Basic process and clothing construction, New Raj Book Dep., New Delhi, 1975.
9. Pandit, Savitri : Manual for children's Clothing, Orient Longmans Ltd., Bombay, 1974.
10. Reference Book on Textile of N.E. Region.

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Paper IV. **Food and Nutrition** M. Marks: 150

A. Foods and Nutrients
1. Definition and functions.
2. Review of essential nutrients, their food sources, requirements, deficiency diseases - carbohydrates, proteins, fats, vitamins, minerals.
3. Electrolyte balance.
4. Classification of foods according to their functions:
   a. Energy yielding b. Body building c. Protective foods
5. Study of basic food groups - basic 10, basic 7, basic 4.
6. Digestion, absorption and metabolism of foods.

B. Balanced Diet
1. Definition
2. Factors to be considered while planning a balanced diet:
   a. Knowledge of nutritional requirements for different physical/physiological conditions.
   b. Planning of meals.
   c. Selection of foods.
   d. Preparing foods.
   e. Serving meals.
3. Calculation of nutritive value by using tables for different meals.
4. Effect of cooking on taste, nutrients and appearance of the food. Definition of terms. Banking, roasting, grilling; frying-deep and shallow; boiling, simmering, steaming, poaching, pressure cooking, broiling; effect of acid, alkali and baking soda during cooking.

C. Meal Planning
1. Food habits of different regions of India.
2. Food fads and fallacies.
3. Planning balanced diets for different income levels.
4. Planning balanced diets for the following, keeping in view the availability and the special needs of the people of the N.E. Region.
   a. Infants
   b. Pre-School children
   c. Elementary school children
   d. Adolescents - boys and girls
   e. Adult man and woman-light, moderate and heavy workers
   f. Pregnant and lactating woman
   g. Elderly people.

D. Malnutrition
1. Definition of Malnutrition and optimum nutrition
2. Protein-calorie Malnutrition (PCM), kwashiorkor, marasmus and obesity
3. Nutritional problems of the N.E. Region

E. Diet Therapy
1. Principles of therapeutic diets.
2. Types of therapeutic diets-Liquid, semi-solid, bland, high and low protein, high and low calorie, high and low fibre, low sodium diets.
3. Diets in diseases - Peptic ulcer, Diabetes mellitus, Hypertension, Anemia, Jaundice, Fever, Diarrhoea, Constipation, kidney diseases.

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F. Food Preservation
1. Importance and principles of food preservation.
2. Household methods of food preservation - drying, smoking, dehydration, refrigeration, pasteurization, canning.
3. Use of salt, sugar, oil and chemical preservations
4. Equipments used in home and commercial Industries.

G. Microbiology
1. Types of micro-organisms in relation to foods.
2. Factors essential for their growth.

Paper IV. **Practical** M. Marks: 50

1. Use and care of the laboratory equipments.
2. Weights and measures.
3. By using locally available food stuffs, various methods of cooking, planning, preparing, serving and calculating the nutritive value and cost of -
   a. Balanced diets for families of different income levels
   b. School and packet lunch
   c. Meals for different occasions
      i) Birthday party ii) Special lunch dinner
      iii) Buffet party iv) Regional festivals
   d. Diets for sick people in different conditions of health and according to their sickness as diabetes, obesity, hypertension, fever, diarrhoea, constipation in general and suitable for the people of N.E. India.
4. Low cost nutritious dishes suitable for the people of North-Eastern Region.
5. Preservation of locally available fruits and vegetables.
6. Preparation of low cost jams, jelly, marmalades, pickles, sauces, squashes and chips.
7. Preparation of different items from soyabean - soyamilk, soyasweets, soyacheese etc.
8. Special cookery - cakes and biscuits, puddings.
9. Table setting- Indian, Traditional tribal and Western style.

Suggested Readings:

1. R.P. Devals : Textbook of Home Science, Ministry of Agriculture and extension, New Delhi.
2. C. Gopalan : Nutritive Value of Indian Food. ICMR, New Delhi.
3. M. Swaminathan : Handbook of Food & Nutrition, Vol. I & II, Ganesh & Co., Madras.
4. Reference Book : Nutritional Problems of the N.E. Region.
5. Anita :
6. Robinson :
7. Davinson & Fasman :

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Paper V. Chemistry and Biochemistry M. Marks: 150

Chemistry (50 marks)

Definitions of atom, molecule, valency, empirical and molecular formulae, molecular and equivalent weights, normality and molarity. Chemical equations. Diffusion, osmosis, osmotic pressure. pH and buffer solutions. Oxidation and reduction, oxidizing and reducing agents. Detection of C,H,N,S and P. General properties of saturated and unsaturated hydrocarbons. Structural formulae, preparation, properties and uses of- methane, ethane, methyl iodide, ethyl iodide, methyl alcohol, ethyl alcohol, glycerol, acetone, formaldehyde, ether, acetic acid, oxalic acid, formic acid, citric acid, tartaric acid, amines, benzene and phenol.

Biochemistry (100 marks)

Historical background and scope of biochemistry.
Carbohydrates - Occurrence, definition, classification and properties - importance in biological systems.
Proteins and amino acids - Definition, classification, structure and properties. Essential and non-essential amino acids. Biological value of proteins. Protein biosynthesis.
Lipids - Definition, classification and properties. Saturated and unsaturated fatty acids. Essential fatty acids. Biological importance of lipids.
Nucleic acids - Structure, properties and synthesis of DNA and RNA. DNA as a genetic material.
Enzymes - Classification, catalytic property, specificity, factors affecting enzyme activity. Vitamins as coenzymes. Brief outline and significance of glycolysis and kreb's cycle. Production and role of ATP.

Paper V. Practical M. Marks: 50

1. Use of chemical balance.
2. Preparation of Standard Solutions.
3. Titration of acids and base.
4. Use of pH meter (demonstration only).
5. Separation of sugars and amino acids by paper chromatography
6. Color reactions of carbohydrates.
7. Color reactions of amino acids and proteins.
8. Qualitative tests for lipids.
9. Enzyme action (demonstration only).

Suggested Readings:

1. E.E. Cohn, & P.K Stumpf : Outlines of Biochemistry, Wiley Eastern Ltd.
2. H.A. Harper, V.W. Rodwell & P.A. Mayes : Harper's Review of Biochemistry, Language Medical Publications.
3. J.C. Fairley & G.L. Kilgaur : Essentials of Biological Chemistry, Affiliated East-West Press, N.Delhi
4. V.S. Bahl & A.S. Dahl : Advanced Organic Chemistry, S. Chand & Co., Delhi.
5. S.R. Palit : Text Book of Physical Chemistry

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Paper VI. Principles of Child development M. Marks: 150

A. Growth and development:
   1. Introduction
   2. Factors affecting growth and development
   3. Types of growth and development
      a. Physical b. Social
      c. Mental d. Emotional
      e. Language

B. Heredity and environment:
   1. Heredity: Genes - Structure and function, Inborn error of metabolism.
   2. Environment:
      a. Prenatal environment: Nutrition and health status of expecting mother.
      b. Post natal environment: Nutrition and hygiene of the nursing mother and the infant.

C. Hormones: Role of hormones in growth and development.

D. Stages of development and characteristics of each stage:
   1. Infancy
   2. Pre-school
   3. Childhood
   4. Adolescence

E. Parameters used for the measurement of growth and development:
   1. Anthropometric measurements
   2. Sociometry
   3. Intelligence tests
   4. Language tests

F. Prenatal care and development:
   1. Diagnosis, signs and symptoms of Pregnancy
   2. Physical and psychological care of the mother
   3. Complications during pregnancy
   4. Stages of prenatal growth and development
   5. Preparation for the delivery - at home and in the hospital
   6. Natural and unnatural child birth
   7. Post natal care of mother
   8. Care of new born baby

Paper VI. Practical M. Marks: 50

1. Microscopic study of chromosomes.
2. Observation of an infant and interview with the nursing mother: report.
3. Case study of a child of any age group.
4. Anthropometric measures.
5. Sociometric measures.
6. Observation of children in a nursery school in relation to their all round development.
7. Preparation of a report on school observations.
8. Preparation of nursery school programmes.

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Suggested Readings:

1.	Kuppuswamy B.D.	:	Text book of child behaviours and development, Vikas Publishing House, New Delhi.
2.	Kher, N., Durrett, M.E., Bhoota, K.	:	An introduction to child development, Asia publishing house, Bombay
3.	Brockenridge, M.E. & Vincent L.	:	Child development, London
4.	Hurlock E.	:	Child development, Mcgraw Hill Book Co., INC., New York.
5.	Todd V. & Hefforrnan H.	:	The years before school, Macmillan Book Co., New York.
6.	Crow & Crow	:	Adolescent Development and adjustment.
7.	Kapandia K.M.	:	Marriage and Family, Calcutta University Press, Delhi.

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Paper VII. Home Management, Household Equipments/Appliances and Consumer Economics - Part I M. Marks: 75

A. Introduction to Home Management
   (a) Meaning of Home Management.
   (b) Importance of Home Management in everyday life.
   (c) Elements involved in Home Management.
      1. Process - Planning, controlling, evaluating.
      2. Decision making.
      3. Goals and Values.
      4. Resources - Classification, factors affecting the use of resources.

B. Management of resources: Human and non-human.
   (a) Time Management
      1. Time as a resource.
      2. Time demanded during different stages of life cycle.
      3. Norms, work units and work loads.
      4. Handling of peak loads.
      5. Steps in making time plans.
   (b) Energy Management
      1. Energy as a resource.
      2. Energy demands in different stages of life cycle.
      3. Energy costs in home making activities.
      4. Fatigue - Physiological and Psychological.
   (c) Money as a resource
      1. Sources of income.
      2. Types of income.
      3. Methods of handling income in families.
      4. Budgeting - Types, planning.
      5. Accounts keeping.
      6. Savings and investments.
   (d) Human Resource Management: Objectives and principles of work simplification.

C. Housing
   (a) Selection-family needs and preferences, site, space.
   (b) Principles underlying the planning of a house.
   (c) Planning major areas of the house- living room, bed room, kitchen, dining room, store room, bath room etc.

D. Home Furnishing and Interior decoration
   (a) Objectives and principles of home furnishing.
   (b) Flower arrangements - Principles, types.
   (c) Accessories (Pictures, wall hanging, decorative objects etc.

Paper VII. Practical M. Marks: 25

1. Planning houses for middle income group (Line drawing).
2. Furnishings for a living room, bedroom and study (Line drawing with special reference to N.E. India).
3. Preparation of any two of the following:
   Flower vases, lamp shade, artificial flowers, wall hanging, magazine rack, mobile, candles, etc. with locally available materials.

5:2.1(376)

Paper VIII. Home Management, Household Equipments/Appliances and Consumer Economics - Part II M. Marks: 75

A. Types of appliances used in the home
   (a) Electrical: Heaters, mixers and grinders, toasters, refrigerator, cooking range, electric oven, dish washer, washing machine, electric iron, immersion heater, electric bell, air-conditioner, fans - ceiling, table, exhaust.
   (b) Non-electrical: Pressure cooker, different types of stoves, can openers, graters, slicers, cutters, peelers.
   (c) Acoustical: Stereo, Hifi.

B. Basic principles involved in the functioning of household appliances.

C. Electrical wiring for house-hold appliances; fuse, meter etc

D. Use, maintenance and care of house hold appliances.

E. Cleaning of the house
   (a) Purpose, types, cleaning reagents.
   (b) Household pests and their control.

F. Consumer Economics
   (a) Meaning and purpose.
   (b) Consumer goods - classification, brands, price, weights and measures, advertisements.
   (c) Markets - wholesale and retail, characteristics and functions, supply and demand.
   (d) Selection of consumer goods
      1. Needs and preferences of the family.
      2. Budget.
      3. Consumption pattern.
      4. Storage facilities.
      5. Market study.
      6. Buying bandits.
   (e) Consumer protection - Quality control and labelling.

Paper VIII. Practical M. Marks: 25

1. Cleaning and polishing of wood, metal, glass, cane, bamboo and plastics.
2. Planning of family budgets for middle and lower middle income groups.
3. Sample account keeping for individual expenses.

5.2.1(377)

Suggested Readings:

1.	P. Nickell & J.M. Dorsey	:	Management in family living, John Wiley & Co., New York.
2.	G. Gross & E. Crandall	:	Management for modern families, Appletion century crafts, New York.
3.	L. Peet & L.S. Thye	:	Household equipments, John Wiley & Co., New York.
4.	Mohinder Mann	:	Management for Indian families, Kalyani Publishers, Delhi, Ludhiana
5.	Ruth A.H.	:	Home Furnishing, Wiley Eastern Pvt. Ltd., New Delhi.
6.	Agan Tessie J.B. Hippincott	:	The House, Its plan and use, Oxford & IBH Publishing Co., New Delhi.
7.	Tara D.B.	:	Interior Decoration in India past and present, D.B. Tarapore-Vala Sons & Co. Pvt. Ltd., Bombay.
8.	Gordon, Leland	:	Economics for consumers, American Book Co., New York.

5'2:1(378)

Paper IX. Psychology M. Marks: 75

A. General psychology
1. An Introduction to Psychology: definition, methods and scope.
2. Principle of Learning: definition, approaches, trial and error, learning by insight and conditioning.
3. Motivation and Behaviour: drives, needs and motives, achievement motivation.
4. Memory and Forgetting: types of memory - STM and LTM, forgetting -causes, inhibition: retroactive, proactive.
5. Cognitive ability: Intelligence-concept and measurement Thinking-concept, formation and development.
6. Personality: concept and types, development and assessment.

B. Social psychology
1. An Introduction to Social Psychology: definition, methods and scope.
2. Individual and Group Behaviour: structure and function of the group, influence of the group, group norms and conformity.
3. Attitude and Public Opinion: Attitude-definition and measurement; Public Opinion-definition and approaches.
4. Group Harmony and Conflict: social prejudices, stereotype, inter group conflict.
5. Leadership: nature and pattern.
6. Personality and Culture.

Paper IX. Practical M. Marks: 25

1. Intelligence test.
2. Aptitude test.
3. Sociometric measures.

Suggested Readings:

1. Hill gard, E.R., Atkinson, R.C. and Atkinson, R.L. : Introduction to Psychology, Oxford & IBH Publishing Co., New Delhi, 1985.
2. Kimbale, G.A., Garmezy, N. and Zigler, E. : Principles of General Psychology, 1986.
3. Lindgren : Introduction to Social Psychology
4. Kuppuswamy : Elements of Social Psychology
5. Sherif and Sherif : Reference Book - Social Psychology

E.2.1(379)

Paper X. Child Psychology M. Marks: 100

A.1. An introduction to the concepts and scope of child psychology.
2. Methods of studying children's behaviour: longitudinal and cross-sectional methods.
3. Theories of child behaviour development: Freud, Piaget, Erickson.
4. Stages of child behaviour development: Prenatal, Infancy, Early childhood, Middle childhood, Late childhood.
5. Psychological dimensions of child behaviour: Sensory motor and perceptual motor.

B.1. Acquisition of emotional behaviours: role of parenting and development of emotional behaviour, e.g. affection, love, anger, hostility, aggresson, etc.
2. Child social behaviour: acquisition and development, elements of social behaviour, e.g. cooperation, competition, peer interaction etc.
3. Cognitive bahaviour among children: intelligence, thinking and language.
4. Child personality and development: concept and measurement of FESPQ/ESPRS, children behaviour ratings.
5. Psychological problems of handicapped children: physically handicapped, mentally handicapped and socially disadvantaged.

Suggested Readings:

1. Schell, R.E. and Hall, E. : Developmental Psychology Today, Randon House, 1983
2. Yussen, S.R. and Santrock, J.W. : Child Development, Wm.C.Brown, 1979
3. Hurlock, E.D. : Developmental Psychology, McGraw Hill, 1964
4. Lerner, R.M. and Hultsen, D.F. : Human Development: A Life Span Perspective, McGraw Hill, New York.
5. Hurlock, E.B. : Developmental Psychology: A Life Span Approach, McGraw Hill
6. McCandless, B.R. : Child Behaviour and Adolescence
7. Baldwin : Theories of Child Development
8. Wolman, B. : Reference Book: Handbook of Developmental Psychology, Prentice Hall, 1982.

5:2:1(380)

Paper XI. Family and Child Welfare M. Marks: 125

A. The concept of family and child welfare:
   1. Meaning of family welfare and child welfare.
   2. Importance of family and child welfare programmes.

B. Family and child welfare services:
   1. Meaning and scope of family and child welfare services.
   2. Family and child welfare services: At local level, state level, national level and international level.
   3. Agencies rendering these services.

C. Types of family and child welfare services:
   1. Integrated child development scheme.
   2. Maternity and child welfare centers.
   3. Nutrition services: Midday meals, school lunch programme.
   4. Creches, daycare centers, Balwadis, Anganwadis.
   5. Services for retarded children.
   6. Guidance and counselling centers.

Paper X & XI. Practical M. Marks: 75

1. Visit to any two family and child welfare centers: report.
2. Planning and preparation of low-cost high protein diets with locally available foods for:
   a. School lunch programme
   b. Pre-school child
   c. Nursing mother
3. Visit to an institution of retarded children: report.
4. I.Q. Test for children.
5. Memory test for children.

5:2.1(381)

Paper XII. Mother and Child - Health and Nutrition M. Marks: 150

A. Importance of Health and Nutrition
   1. Factors affecting health
   2. Relationship between health, physical development and nutrition.

B. Nutrition during pregnancy and lactation
   1. Significance of nutrition
   2. Nutritional requirements during pregnancy and lactation
   3. Meal planning for expecting and nursing mothers
   4. Nutritional problems during pregnancy

C. Infant nutrition
   1. Body composition of a new born baby
   2. Characteristics of an infant
   3. Growth and development
   4. Breast-feeding and formula feeding
   5. Weaning of babies
   6. Supplementary foods

D. Pre-School child
   1. Nutritional requirements
   2. Food habits
   3. Food acceptance
   4. Meal planning

E. Nutritional problems during childhood
   1. Malnutrition: Under and over nutrition, protein-calorie deficiency, Vitamin A deficiency.
   2. Dietary measures for solving nutritional problems.

Paper XII. Practical M. Marks: 50

1. Planning and preparation of adequate meals for:
   a. Expectant and nursing mother
   b. Weaning foods for babies
   c. Pre-school child
   d. Preparation of snacks with locally available food stuff.
2. Survey of dietary patterns of a selected community (local): report.

Annexure-V

NORTH EASTERN HILL UNIVERSITY
SHILLONG

Course structure of Zoology for 3-year B.Sc Integrated course
(effective from July, 1993)

B.Sc(General)

	Paper		
FirstFirst year	I	-	General Zoology
Second year	II	-	Cell Biology and Biochemistry
	III	-	Genetics, Evolution and Environmental Biology
Third year	IV	-	General Physiology and Developmental Biology

B.Sc(with major)

	Paper		
First year	I	-	General Zoology
	II	-	Functional Anatomy of Non-chordates and chordates
Second year	III	-	Cell Biology and Biochemistry
	IV	-	Genetics, Evolution and Environmental Biology
	V	-	Cell and Molecular Biology and Genetics.
Third year	VI	-	General Physiology and Developmental Biology
	VII	-	Physiology and Endocrinology
	VIII	-	Developmental Biology, Ecology and Applied Zoology

Total Number of Papers for :

B.Sc (General) = 4

B.Sc (with major) = 8

Each paper will be examined for 100 marks (Theory 70 marks and practicals 30 marks)

Syllabus of Zoology for B.Sc (General/with major)

Paper - I

General Zoology

Unit 1 Principles and Importance of Classification

Binomial Nomenclature, Taxonomic Heirarchy, Concept of Sp-ecies. Five - Kingdom Classification concept.

Salient features and Classification of Non-Chordates (Sub Kingdom Protozoa - upto Phylum, others major Phyla upto Classes) and Chordates (upto Orders, excepting Pisces and Aves upto Sub Class)

Unit 2 Biology of Non-Chordates

Locomotion, Reproduction, Respiration, Circulation and Excretion

Unit 3 Biology of Chordates

Protochordates - Phylogeny and Affinities. Ascedian Larva and its metamorphosis. Integumentary (Skin, Scales and feathers) and Skeletal system (vertebrae, girdles and limbs in amphibia, reptiles, birds and mammals). Digestive, Circulatory, Respiratory and Urinogenital systems (with special reference to mammals).

Unit 4 Receptors and Sense Organs

Mechanoreceptors, Chemoreceptors, Photoreceptors (mammalian and arthropod eye), Phonoreceptors, Thermoreceptors and Electroreceptors. The Neuron, Nerve Impulse and Synaptic transmission, and Reflex action.

Unit 5 Endocrine Glands and Reproduction

Neuroendocrine system in Invertebrates and Vertebrates. Structure and role of Endocrine glands and hormones in Invertebrates and Vertebrates (with special reference to mammals).

Asexual and Sexual Reproduction.

PRACTICALS

Max.Mark:30

Time: 4 Hours

I. Dissections

1. Cockroach Nervous System
2. Reproductive System of female cockroach
3. Reproductive system of earthworm/Urinogenital system of Leech.
4. Scoliodon: (a) Afferent bronchial
   (b) Efferent bronchial
5. Arterial system of calotes, bird and rat
6. Cranial nerves (5th, 7th, 9th and 10th) of Scoliodon.

II Mounting

1. Temporary mount of Scales of fish
2. Blood film (double staining)
3. Nephridia & Ovary of earthworm
4. Parapodia of Nereis
5. Mouthparts of Mosquito
6. Radula of Pila

III Osteology

Comparative Study of - (Amphibia to Mammals)

1. Atlas, Axis and Sacral vertebrae
2. Limb bones
3. Girdles
4. Ribs of birds & Mammals
5. Skull of Pigeon & Rabbit/ Guinea pig

IV Histology

1. Slides of Protochordates.
2. T.S. of stomach, intestine, Lungs, Kidney & gonads in frog/ mammal

V Museum Specimens

Representatives from Non-chordates & chordates;

Systematic position and its breakup as indicated in theory paper

Distribution of Marks :

1.	Dissecting (Anyone either from chordate or non-chordata)	- 10
2.	Mounting (chordata or Non-chordata; if dissection is in Chordata mounting to be given in Non-chordata & vice versa)	- 5
3.	Spotting	
	Museum Specimen	- 8
	Osteology	- 2
	Histology	- 2
3.	Lab. record	- 3
		Total : 30

Suggested Readings :-

1. Campbell, N.A. "Biology", B.Cummings, USA,1987
2. Raven, P.H. and Johnson,G.B. "Biology". Mosby College Pub., 1986.
3. Starr,C. and Taggait, R. "Biology - Unity and diversity of Life". Wadsworth, 1984.
4. Weisz, P.B. "Science of Biology" McGraw Hill, 1978
5. Wolfe, S.L. "Biology - The Foundations". Wardsworth, 1983
6. Herreid, C.F. "Biology". McMillan, 1977.

Paper II

Cell Biology and Biochemistry

Unit 1 Cell Structure and Cytoplasmic Organelles

Physical properties and Chemical Composition of Prokaryotic and Eukaryotic Cells. Structure, Composition and general function of cell membrane, Mitochondria, Chloroplast, Andoplasmic Reticulum, Ribosomes, Golgi Apparatus, Lysosomes and Centriole.

Unit 2 Nuclear Organization

Nuclear Envelope, Nuclear matrix, Nucleolus. Pro-and Eukaryotic Genome Organization, Chromatin(Euchromatin and Heterochromatin)Chromosome types, structure; Special types of Chromosomes(Polytene, Lampbrush and Supernumerary Chromosomes), Structural Alterations(Deletion, Duplication, Inversion, and Translocation) and their significance, Numerical Changes.

Unit 3 Cell Division

Concept of Cell Cycle, Process and Phases of Mitosis and Meiosis. Synaptonemal complex. Significance of Crossing Over. Introduction to Cancer Cells.

Unit 4 Biochemistry - I

Classification and Biological Significance of Carbohydrates, Glycogenolysis, Glycolysis, TCA Cycle. Classification and Importance of Lipids. B-Oxidation of Fats. Vitamins.

Unit 5 Biochemistry - II

Amino acids. Organization and Classification of Proteins; Hydrolysis of Proteins. Transamination and Deamination. Ornithine Cycle. Uric acid formation. Nature and outline Classification of Enzymes and Mechanism of action and Enzyme inhibitors. Nucleic Acid structure, Genetic code; Transcription and Translation.

PRACTICALS

PAPER II ~~III~~

Cell Biology and Biochemistry

1. Preparation of fixatives, dehydrating agents, stains for nuclear, mitochondria, Golgi bodies.
2. Study of Cytoplasmic organelles and Cell inclusions in Permanent Slides.
3. Squash preparations of any biological material for the study of mitosis.
4. Study of different states of mitosis and meiosis.
5. Biochemical detection of Carbohydrates, proteins and lipids (At least 3 tests) for each.
6. Study of human salivary amylase activity.
7. Lab. Record

Distribution of Marks

Cytogenetical Slide preparation	–	8
Biochemical Detection	–	8
Spotting	–	4
Viva	–	6
Record	–	4
	Total:	30

Suggested Reading:-

1. De Robertis E.D.P. and De Robertis E.M.F. (1981): "Cell and Molecular Biology. Hold-Saimders Int.
2. Price N.E. and Stevens L (1982): "Fundamental of Enzymology, Oxford Univ. Press.
3. Lehninger A.L. (1984) "Principles of Biochemistry". Worth Publishers, N.Y.
4. Powar C.B. (1986) "Cell Biology". Himalaya Publ. Home.
5. Swanson C.P., Merz T. Young W.J. (1988) Cytogenetics, Chromosome in Division, Inheritance and Evolution. Prentice-Hall, India.
6. Rawn J.D. (1983) "Biochemistry", Harper and Ron, NY.

Paper III

Genetics, Evolution and Environmental Biology

Unit 1 Mendelian Genetics and Interaction of Genes

Concepts of Genotype, Phenotype, Recessiveness, Dominance, Mendel's experiments, method and laws. Incomplete dominance, co-dominance, Segregation of genes, chromosomes and traits. The chromosome theory of inheritance. Interaction of genes, complementary, Supplementary, Inhibitory and Duplicate types; Pleiotropism and allelism.

Unit 2 Linkage, crossing over and Sex-determination

Linkage and recombination of Genes; Sex-linked inheritance and Sex-linked traits. DNA as a Genetic material. DNA-structure, DNA-replication. Gene Mutation. Sex-determination - chromosomal, cytoplasmic and environmental basis.

Unit 3 Evolution

Origin of Life, Palaeontology, Geological time scale, Theories of Evolution - Lamarckism, Neo - Lamarckism, Darwinism, Nec-Darwinism. Synthetic concept of Organic Evolution. Variations and Natural Selection. Isolating mechanism and Speciation. Evolution of man.

Unit 4 Environmental Biology - I

Introduction of Ecology anf its subdivisions (Auto - and Synecology), Concept of Ecosystem, Ecological Niche, Biosphere, Energy Flow in ecosystem, Productivity, Food Chains and Food Webs, Ecological Pyramids. Management of Wild life. Pollution.

Unit 5 Environmental Biology - II

Abiotic Environment and Biogeochemical Cycles(Nitrogen, Carbon and Phosphorous & Cycles), Ecological Indicators, Biotic Community concept.

PRACTICALS

PAPER III IV

Genetics, Evolution and Environmental Biology

1. Study of Polytene chromosomes from any suitable material.
2. Genetic studies from sample Materials - Monotybrid, Dihybrid and back Cross.
3. Estimation of pH, Temperature and O_2 in water samples.
4. Study on the texture of Soil from different soil samples.
5. pH and moisture content of soil.
6. Study on aquatic ecosystems - Qualitative study of Phyto and Zooplankton.
7. Study of Fossils.
8. Project Work/Field visit

Distribution of Marks

Genetics Experiment	-	6
Environmental Biol.Expt.	-	6
Spotting	-	4
Viva	-	6
Lab. Record	-	4
Project/Field Report	-	4
	Total	30

Suggested Readings:-

1. Gardner E.J. (1975). Principles of Genetics. John wiley and Sons, Inc. NY.
2. Strick berger, M.W. (1976). Genetics. Macmillan Pub.Co.
3. Bodmer W.F. and Cavalli - Sforza L.L. (1976) Genetics, Evolution and Man. Freemen and Co.
4. Hamilton T.H. (1970) "Process and Patterns in Evolution". Macmillan Co.
5. Stebbins G.L. (1970)"Process of organic Evolution". Prentice-Hall of India, New Delhi.
6. Merrell, D.J. (1972)"Evolution". Macmillan Pub.Co.Inc.NY.
7. Odum, E.P. (1971) "Ecology". Amerind. Publ.Co.
8. Odum, E.P.(1971) "Fundamentals of Ecology", W.B.Saunders.
9. Kormandy E.T.(1971) "Concept of Ecology". Prentice-Hall.
10. Kendeigh, S.C.(1975) "Animal Ecology". Prentice-Hall.

Paper IV

General Physiology and Developmental Biology

Unit 1 Nutrition and Respiration

Types of nutrition, Extra cellular and Intra cellular Digestion, Nutritional Requirements. Types of respiration, Respiratory pigments, Mechanism of Respiration.

Unit 2 Circulation, Excretion and Osmoregulation

Structure of Heart - Open/closed; Myogenic/Neurogenic. Blood - Composition and Function; Blood coagulation; concept of A.B.O. Blood group;

Structure and Function of Kidney and nitrogenous wastes; Osmoregulation in fresh water, marine and terrestrial environment.

Unit 3 Movement, Neural Co-ordination and Adaptation

Types of movement, Physiology of muscle contraction, Resting and action potentials. Nervous coordination, Generation of nerve impulse and [redacted] inter-neuronic transmission

Thermoregulation - Poikilotherms and Homeotherms, Hibernation and Aestivation. Bioluminescene.

Unit 4 Developmental Biology - I

Introduction to Developmental Biology. Gametes, Gametogenesis Fertilization and Parthenogenesis Types of eggs, Pattern of cleavage.

Unit 5 Developmental Biology -II

Blastulation, Gastrulation, (inAmphioxus, amphibia, chick), Fatemaps, Metamorphosis in insects and amphibians, Extraembryonic membranes in chick, Larval Forms in annelids, Crustaceans, molluscs and echinoderms.

PRACTICALS

PAPER IV ~~VI~~

1. A.B.O. blood groups
2. Haemin crystals
3. Oxygen consumption in fished
4. Demonstration of reflex action of muscle
5. Demonstration of circulation in web of frog
6. Study of stages of cleavage, blastula, gastrula of frog and chick
7. Study of chick embryo - 20 hrs(onwards)
8. Study of eggs - fish, frog & chick
9. Study of larval forms of annelids,crustaceans, mollusca & Echinoderms
10. Permanent preparation of Invertebrate larvae(zoea,Mysis,Cylops, Nauplius, Glochidium etc.)
11. Study of metamorphosis in frog and insects.

Distribution of Marks

Physiological Expts	-	8
Dev.Biol.Expts	-	8
Spotting(three)	-	4
Viva	-	6
Lab.Record	-	4
	Total:	30

Suggested Readings:-

1. Prosser, C.L. & Brown,F.A.(1961).Comparative animal Physiology, W.B.Saunders.
2. Hoar,W.S.(1976).General & Comparative Physiology,Prentice-Hall.
3. Prosser,C.L.(1984).Comparative animal Physiology.W.B.Saunders,
4. Wilson,J.A.(1980).Principles of Animal Physiology.Collins-Macmillan Publ.,London.
5. Balinsky,B.I.(1981).As introduction to Embryology,Saunders College Pub
6. Saunders,J.W.(1982).Developmental Biology: Patterns/Principles/ Problems. Macmillan Pub.Co.Inc.NY.

Syllabus of Zoology for B.Sc(General) (with Zoology major)

Paper - I

General Zoology

Unit 1 Principles and Importance of Classification
Binomial Nomenclature, Taxonomic Heirarchy, [illegible] of Species, Five-Kingdom Classification concept.
Salient features and Classification of Non-Chordates (Sub Kingdom Protozoa-upto Phylum, others major Phylum upto Classes) and Chordates(upto Orders, excepting Pisces and Aves upto Sub Class)

Unit 2 Biology of Non-Chordates
Locomotion, Reproduction, Respiration, Circulation and Excretion

Unit 3 Biology of Chordates
Protochordates - Phylogeny and Affinities, Ascidian Larva and its metamorphosis. Integumentary(Skin, Scales and feathers) and Skeletal system(vertebrae, girdles and limbs in amphibia, reptiles, birds and mammals). Digestive, Circulatory, Respiratory and Urinogenital systems (with special reference to mammals).

Unit 4 Receptors and Sense Organs
Mechanoreceptors, Chemoreceptors, Photoreceptors(mammalian and arthropod eye), Phonoreceptors, Thermoreceptors and Electroreceptors. The Neuron, Nerve Impulse and Synaptic transmission, and Reflex action.

Unit 5 Endocrine Glands and Reproduction
Neuroendocrine system in Invertebrates and Vertebrates. Structure and role of Endocrine glands and hormones in Invertebrates and Vertebrates(with special reference to mammals).
Asexual and Sexual Reproduction.

PRACTICALS

Max.Mark:30

Time: 4 Hours

I. Dissections

1. Cockroach Nervous System
2. Reproductive System of female cockroach
3. Reproductive system of earthworm/Urinogenital system of Leech.
4. Scoliodon: (a) Afferent bronchial
   (b) Efferent bronchial
5. Arterial system of calotes, bird and rat
6. Cranial nerves (5th, 7th, 9th and 10th) of Scoliodon.

II Mounting

1. Temporary mount of Scales of fish
2. Blood film (double staining)
3. Nephridia & Ovary of earthworm
4. Parapodia of Nereis
5. Mouthparts of Mosquito
6. Radula of Pila

III Osteology

Comparative Study of - (Amphibia to Mammals)

1. Atlas, Axis and Sacral vertebrae
2. Limb bones
3. Girdles
4. Ribs of birds & Mammals
5. Skull of Pigeon & Rabbit/ Guinea pig

IV Histology

1. Slides of Protochordates.
2. T.S. of stomach, intestine, Lungs, Kidney & gonads in frog/ mammal

V Museum Specimens

Representatives from Non-chordates & chordates;

Systematic position and its breakup as indicated in theory paper

Distribution of Marks :

1.	Dissecting (Anyone either from chordata or non-chordata)	- 10
2.	Mounting (chordata or Non-chordata; if dissection is in Chordata mounting to be given in Non-chordata & vice versa)	- 5
3.	Spotting	
	Museum Specimen	- 4
	Osteology	- 2
	Histology	- 2
3.	Lab. record	- 3
		Total : 30

Suggested Readings :-

1. Campbell, N.A. "Biology", B.Cummings, USA, 1987
2. Raven, P.H. and Johnson, G.B. "Biology". Mosby College Pub., 1986.
3. Starr, C. and Taggait, R. "Biology - Unity and diversity of Life". Wadsworth, 1984.
4. Weisz, P.B. "Science of Biology" McGraw Hill, 1978
5. Wolfe, S.L. "Biology - The Foundations". Wardsworth, 1983
6. Herreid, C.F. "Biology". McMillan, 1977.

Paper II

Functional Anatomy of Non-chordates and Chordates

Unit 1 Forms and Movements

Membranes and organization; Flagella and cilia (structure & function); Types of movements in animals; Muscle filaments Ultra-structure of muscle cell; Flight in insects and bird-

Unit 2 Nutrition, Respiration and Excretion Nutrition: Mechanisms feeding; Digestive system.

Respiration : Comparative structure of respiratory organs; Gases transport.

Excretion : Evolution of excretory organs; Ammonotelic. ureotelic and uricotelic modes of excretion.

Unit 3 Circulation and Nervous system : Evolution of Heart, types of circulatory system; (Aortic cirches(fish to mammals). Types of nervous system - evolution of brain.

Unit 4 Reproductive System

Comparative aspects of reproductive system in invertebrates (annelids, arthropods, molussces) and vertebrates.

PRACTICALS

PAPER II

Functional Anatomy of non-chordates and chordates

Total Marks:30

Time:4 Hours

NON-CHORDATA

I. Dissection

1. External Feature, Mouth Parts & Nervous system of Prawn/squilla.
2. External Feature, Digestive & Nervous system of Pila, unio
3. External Feature & Nervous system of Sepia/Laligo

II. Mounting

1. Rectal Citiates of frog (2) Paramoecium (3) Euglena (4) Spicules or gemmules of sponges (5) Obelia colony/Hydra (6) Scalex of Tapeworm (7) Statocyst of Prawn (8) Ctenedia of Pila (9) Glochidium larva

III. Permanent Slides - Study of representative of different phyla through W/M & sections (Protozoa to Echinodermata)

CHORDATA

I. Dissections

1. Accessory respiratory organs in any teleost.
2. Internal ear of Scoliodon
3. Hyiod apparatus of frog/toad
4. Demonstration of internal anatomy with emphasis on flight muscles and air sacs in pigeon
5. Internal anatomy (digestive, circulatory and reproductive systems of rat/any mammal.

II. Mounting

1. Ampulla of Lorenzini
2. Placoid Scale (3) Feathers of Birds (4) Comparative account of the skull of birds

Distribution of Marks:

Dissection (Either vertebrate or invertebrate)	-	10
Mounting	-	4
Spotting	-	4
Viva voce	-	8
Lab. Record	-	4
	Total:	30

Suggested Readings:-

1. Barnes,R.D.(1981)."Invertebrate Zoology. Halt Saunders International Editions.
2. Barrington,E.W.J.(1969).Invertebrate structure and function. ELBS.
3. Engemann, J.G. and Hegner,R.W.(1981).Invertebrate Zoology, Macmillan Publishing Co.Inc.
4. Meglitisch, P.A.(1972): Invertebrate Zoology(2nd Ed.):Oxford University Press.
5. Kent,G.C.(1965).Comparative Anatomy of Vertebrates.The C.V. Mosby Company.
6. Kingsley,J.S.(1962).Outlines of Comparative Anatomy.Central Book Depot;Allahabad.
7. Malcolm,J.(1968) Chordate Morphology.Reinhold Publ. Corporation.
8. Weichert,C.K.(1967).Anatomy of the Chordates,McGraw Hill and Co.

Paper II

Cell Biology and Biochemistry

Unit 1 Cell Structure and Cytoplasmic Organelles

Physical properties and Chemical Composition of Prokaryotic and Eukaryotic Cells. Structure, Composition and general function of cell membrane, Mitochondria, Chloroplast, Andoplasmic Reticulum, Ribosomes, Golgi Apparatus, Lysosomes and Centriole.

Unit 2 Nuclear Organization

Nuclear Envelope, Nuclear matrix, Nucleolus. Pro-and Eukaryotic Genome Organization, Chromatin(Euchromatin and Heterochromatin)Chromosome types, structure; Special types of Chromosomes(Polytene, Lampbrush and Supernumerary Chromosomes), Structural Alterations(Deletion, Duplication, Inversion, and Translocation) and their significance, Numerical Changes.

Unit 3 Cell Division

Concept of Cell Cycle, Process and Phases of Mitosis and Meiosis. Synaptonemal Complex. Significance of Crossing Over. Introduction to Cancer Cells.

Unit 4 Biochemistry - I

Classification and Biological Significance of Carbohydrates, Glycogenolysis, Glycolysis, TCA Cycle. Classification and Importance of Lipids. B-Oxidation of Fats. Vitamins.

Unit 5 Biochemistry - II

Amino acids. Organization and Classification of Proteins; Hydrolysis of Proteins. Transamination and Deamination. Ornithine Cycle. Uric acid formation. Nature and outline Classification of Enzymes and Mechanism of action and Enzyme inhibitors. Nucleic Acid structure, Genetic code, Transcription and Translation.

PRACTICALS

PAPER ~~II~~ III

Cell Biology and Biochemistry

1. Preparation of fixatives, dehydrating agents, stains for nucleus, mitochondria, Golgi bodies.
2. Study of Cytoplasmic organelles and Cell inclusions in Permanent Slides.
3. Squash preparations of any biological material for the study of mitosis.
4. Study of different states of mitosis and meiosis.
5. Biochemical detection of Carbohydrates, proteins and lipids (At least 3 tests) for each.
6. Study of human salivary amylase activity.
7. Lab. Record

Distribution of Marks

Cytogenetical Slide preparation	–	8
Biochemical Detection	–	8
Spotting	–	4
Viva	–	6
Record	–	4
	Total:	30

Suggested Reading:-

1. De Robertis E.D.P. and De Robertis E.M.F. (1981): "Cell and Molecular Biology. Hold-Saimders Int.
2. Price N.E. and Stevens L (1982): "Fundamental of Enzymology, Oxford Univ. Press.
3. Lehninger A.L. (1984) "Principles of Biochemistry". Worth Publishers N.Y.
4. Powar C.B. (1986) "Cell Biology". Himalaya Publ. Home.
5. Swanson C.P.,Merz T. Young W.J. (1988) Cytogenetics, Chromosome in Division, Inheritance and Evolution. Prentice-Hall, India.
6. Rawn J.D. (1983) "Biochemistry", Harper and Ron,NY.

Paper ~~III~~ IV

Genetics, Evolution and Environmental Biology

Unit 1 Mendelian Genetics and Interaction of Genes

Concepts of Genotype, Phenotype, Recessiveness, Dominance, Mendel's experiments, method and laws. Incomplete dominance, co-dominance, Segregation of genes, chromosomes and traits. The chromosome theory of inheritance. Interaction of genes, complementary, Supplementary, Inhibitory and Duplicate types; Pleiotropism and allelism.

Unit 2 Linkage, crossing over and Sex-determination

Linkage and recombination of Genes; Sex-linked inheritance and Sex-linked traits. DNA as a Genetic material. DNA-structure, DNA-replication. Gene Mutation. Sex-determination - chromosomal, cytoplasmic and environmental basis.

Unit 3 Evolution

Origin of Life, Palaeontology, Geological time scale, Theories of Evolution - Lamarckism, Neo - Lamarckism, Darwinism, Nec-Darwinism. Synthetic concept of Organic Evolution. Variations and Natural Selection. Isolating mechanism and Speciation. Evolution of man.

Unit 4 Environmental Biology - I

Introduction of Ecology anf its subdivisions (Auto - and Synecology), Concept of Ecosystem, Ecological Niche, Biosphere, Energy Flow in ecosystem, Productivity, Food Chains and Food Webs, Ecological Pyramids. Management of Wild life. Pollution.

Unit 5 Environmental Biology - II

Abiotic Environment and Biogeochemical Cycles(Nitrogen, Carbon and Phosphorous Cycles), Ecological Indicators, Biotic Community concept.

PRACTICALS

PAPER ~~III~~ IV

Genetics, Evolution and Environmental Biology

1. Study of Polytene chromosomes from any suitable material.
2. Genetic studies from sample Materials - Monotybrid, Dihybrid and back Cross.
3. Estimation of pH, Temperature and O_2 in water samples.
4. Study on the texture of Soil from different soil samples.
5. pH and moisture content of soil.
6. Study on aquatic ecosystems - Qualitative study of Phyto and Zooplankton.
7. Study of Fossils.
8. Project Work/Field visit

Distribution of Marks

Genetics Experiment	-	6
Environmental Biol.Expt.	-	6
Spotting	-	4
Viva	-	6
Lab. Record	-	4
Project/Field Report	-	4
	Total	30

Suggested Readings:-

1. Gardner E.J. (1975). Principles of Genetics. John wiley and Sons, Inc. NY.
2. Strick berger, M.W. (1976). Genetics. Macmillan Pub.Co.
3. Bodmer W.F. and Cavalli - Sforza L.L. (1976) Genetics, Evolution and Man. Freemen and Co.
4. Hamilton T.H. (1970) "Process and Patterns in Evolution". Macmillan Co.
5. Stebbins G.L. (1970)"Process of organic Evolution". Prentice-Hall of India, New Delhi.
6. Merrell, D.J. (1972)"Evolution". Macmillan Pub.Co.Inc.NY.
7. Odum, E.P. (1970) "Ecology". Amerind.Publ.Co.
8. Odum, E.P.(1971) "Fundamentals of Ecology", W.B.Saunders.
9. Kormandy E.T.(1971) "Concept of Ecology". Prentice-Hall.
10. Kendeigh, S.C.(1975) "Animal Ecology". Prentice-Hall.

Paper V

Cell and Molecular Biology and Genetics

Unit 1 Techniques in Cell and Molecular Biology, Function membranic organelles: Principles of light and electron microscopes; Autoradiography; Centrifugation; Electrophoresis and Chromatography: Structure of plasma membrane and its modifications in various cell types; Cytoskeleton; Detailed functional aspects in Mitochondria. Golgi complex, Lysosomes Ribosomes and Endoplasmic reticulum.

Unit 2 Cell Cycle, Cell Division, Chromosome, Chromosome, and Immunobiology:

Cell cycle; Mitotic apparatus and chromosome movement: Physiology of meiosis; Synaptonemal complex and mechanism of genetic recombination; Biochemistry of chromatin: Nucleosomes and higher order chromosome organization. Basic idea of immunobiology, Types of immunity, antigen and antibody.

Unit 3 Gene mapping, Sex-determination and Linkage:

Cytological demonstration of crossing over; Gene mapping in Drosophila; Sex determination in man; Sex-linkage and non-disjunction of sex chromosomes in Drosophila; Multiple alleles and fine structure of Gene.

Unit 4 Mutation, Cytoplasmic inheritance and Genetic Disorders:

Mutation - Induction, Detection in Drosphila and Neurospora; Mutagenic agents; Meiosis in structural heterozygotes. Cytoplasmic inheritance - Kappa particles, Sigma substance and plasmon concept; General idea of genetic disorders in man - Down syndrome, Kleinfelter syndrome, Turner syndrome, Phenyl ketonuria, Albinism, Haemophilia, Sickle cell anemia.

Unit 5 Concept of Gene and Genetic Engineering :

Gene-protein relationship; Concept of genetic code; Cistron, recon and muton; Concept of Dynamics of genes, split genes, overlapping genes. Elementary idea of genetic engineering - Restriction enzymes and concept of gene cloning.

PRACTICALS

PAPER V

Cell and Molecular, Biology and Genetics

Max.Marks: 30
Time: 4 Hours

1. Separation of aminoacids by paper chromatography.
2. Quantitative estimation(colorometric) of protein/carbohydrate.
3. Estimation of DNA/RNA.
4. Preparation, identification and morphological analysis of a diploid complement of bone marrow of any mammal(using air drying technique).
5. Study of meiosis.
6. Microtomy techniques.

Distribution of Marks:

Molecular Biology Expts	-	8
Microtomy	-	4
Cytology	-	5
Viva voce	-	8
Laboratory records and submission of microtomy slides(Atleast 5 different tissues)	-	5
	Total:	30

Suggested Readings:

1. Burke,J.D.C.(1970) Cell Biology. Williams and Wilkins Co.
2. DeRobertis,E.D.P. and Derobertis,E.M.F.(1981) Cell & Molecular Biology Holt Saunders Int.Edition.
3. Power,C.B.(1986) Cell Biology. Himalayan Publishing House.
4. Bodmer,W.F.and Cavalli-Sforza,L.L.(1976).Genetics,Evolution and Man. Freeman and Co.
5. Gardner,E.J.(1975) Principles of Genetics,John Wiley and Sons,Inc.
6. Swanson,C.P.,Merz,T. and Young,D.W.J.(1988).Cytogenetics:Chromosomes in division, Inheritance and Evolution.Prentice-Hall.

Paper ~~IV~~ VI

General Physiology and Developmental Biology

Unit 1 Nutrition and Respiration

Types of nutrition, Extra cellular and Intra cellular Digestion, Nutritional Requirements. Types of respiration. Respiratory pigments, Mechanism of Respiration.

Unit 2 Circulation, Excretion and Osmoregulation

Structure of Heart - Open/closed; Myogenic/Neurogenic. Blood - Composition and Function; Blood coagulation; concept of A.B.O. Blood group;

Structure and Function of Kidney and nitrogenous wastes; Osmoregulation in fresh water, marine and terrestrial environment.

Unit 3 Movement, Neural Coordination and Adaptation

Types of movement, Physiology of muscle contraction, Resting and action potentials: Nervous coordination, Generation of nerve impulse and its propagation. Inter-neuronic transmission Thermoregulation - Poikilotherms and Homeotherms, Hibernation and Aestivation. Bioluminescene.

Unit 4 Developmental Biology - I

Introduction to Developmental Biology. Gametes, Gametogenesis: Fertilization and Parthenogenesis: Types of eggs, Pattern of cleavage.

Unit 5 Developmental Biology - II

Blastulation, Gastrulation, (in Amphioxus, amphibia, chick), Fatemaps, Metamorphosis in insects and amphibians, Extraembryonic membranes in chick. Larval Forms in annelids, Crustaceans, mollusces and echinoderms.

PRACTICALS

PAPER ~~IV~~ VI

1. A.B.O. blood groups
2. Haemin crystals
3. Oxygen consumption in fished
4. Demonstration of reflex action of muscle
5. Demonstration of circulation in web of frog
6. Study of stages of cleavage, blastula, gastrula of frog and chick
7. Study of chick embryo - 20 hrs(onwards)
8. Study of eggs - fish, frog & chick
9. Study of larval forms of annelids, crustaceans, mollusca & Echinoderms
10. Permanent preparation of Invertebrate larvae(zoea, Mysis, Cylops, Nauplius, Glochidium etc.)
11. Study of metamorphosis in frog and insects.

Distribution of Marks

Physiological Expts	-	8
Dev.Biol.Expts	-	8
Spotting(three)	-	4
Viva	-	6
Lab.Record	-	4
	Total:	30

Suggested Readings:-

1. Prosser, C.L. & Brown, F.A.(1961). Comparative animal Physiology, W.B.Saunders.
2. Hoar, W.S.(1975). General & Comparative Physiology, Prentice-Hall.
3. Prosser, C.L.(1984). Comparative animal Physiology. W.B.Saunders,
4. Wilson, J.A.(1980). Principles of Animal Physiology. Collins-Macmillan Publ., London.
5. Balinsky, B.I.(1981). As introduction to Embryology, Saunders College P...
6. Saunders, J.W.(1982). Developmental Biology: Patterns/Principles/ Problems. Macmillan Pub.Co.Inc.NY.

Paper VII

Physiology and Endocrinology

Unit 1 Nutrition, respiration and Excretion:

Nutrition - Types of food materials and their importance; Mechanism of digestion of carbohydrates, fats and proteins; Mechanisms of absorption; Nutritional importance of vitamins and minerals; Digestive hormones; Regulation of digestive activity; Role of liver and pancreas in digestion.

Respiration - Exchange of gases; Regulation of respiration structure and function of hemoglobin; oxygen transport: Oxygen association and dissociation; Transport and removal of CO_2 Excretion - Mammalian nephron; Urine formation; Hormonal control of renal function.

Unit 2 Body fluids and Heart:

Types and importance of body fluids; Blood composition; Blood cells(RBC,WBC abd platelets); Haemopoiesis; Buffer system in blood; Extrinsic and Intrinsic mechanism of blood clotting; Blood groups(A,B and O; Rh factor); Lymph; Lymph nodes and spleen function; Cardiac cycle; Pace makers; Blood pressur and its regulation.

Unit 3 Muscular movement and nerve physiology :

Types of muscle; Muscle proteins; Chemistry and mechanism of muscle contraction; Muscle fatigue; Isotonic, anisotonic, isometric and tetanic contractions.

Ultra structure of a typical neuron; Types of neurons; Myelinated and non-myelinated nerve fibres; Resting and action (excitatory, inhibitory) potentials; Neurotransmitters; Synaptic transmission, Reflex action.

nit 4 Structure and function of Endocrine glands: Neuro endocrine system: Endocrine glands; Comparative morphology, structure and function of neuroendocrine glands(pineal, hypothalamus, pituitary, thyroid, parathyroid, endocrine pancreas, adrenal testis, ovary, placenta, thymus and gastro-intestinal hormones.

nit 5 Neurosecretary cells; Types of neuro-hormones, local hormones, pheromones, pro-hormones; transport of hormones; Mechanisms of action of hormones and hormone receptors; Hormonal regulation of Ca^{++} - metabolism.

PRACTICALS

PAPER VII

Physiology and Endocrinology

Total Marks:

Time: 4 Hours

1. R.B.C. and W?B.C. total count.
2. Estimation of Hb% using Haemoglobinometer
3. Cardiograph recording(Frog/rat)
4. Effect of Acetylcholine/Norepinephrine, and hot & cold saline on cardiograph.
5. Effect of temperature andpH on human amylase activity.
6. Location and display of endocrine glands in rat/mouse
7. Histology of endocrine glands from permanent slides.
8. Preparation of pituitary extract from fish/frog/rat.
9. Distribution of Marks:-

Physiology Experiments	-	7
Endocrinology	-	7
Spotting	-	4
Viva voce	-	8
Laboratory Record	-	4
	Total:	30

Suggested Readings:-

1. Eckert,R. and Randall,D.(1978) Animal Physiology.W.H.Freeman and Co.
2. Gordon,M.S. et al.(1982).Animal Physiology.McMillan Publishing Co. Inc.
3. Hainsworth,F.R.(1981).Animal Physiology:Adaptations in Functions. Addison-Wesley Publishing Co.
4. All books recommended for Paper-II: Functional Anatomy.
5. Bentley,P.J.(1976). Comparative Vertebrate Endocrinology. Cambridge University Press.
6. Gorbman,A.et al.(1983).Comparative Endocrinology.Wiley International.
7. Highman,K.C. and Hill,L. (1972).The Comparative Endocrinology of the invertebrates. ELBS and Edward Arnold,Ltd.
8. Turner,C.D. and Bagnara,J.T.(1976).General Endocrinology. W.B.Saunders Company.

Paper VIII

Developmental Biology, Ecology, Animal Behaviour and Applied Zoology

Unit 1 Developmental Biology - I

Gametogenesis with special reference to spermiogenesis and phases of oogenesis; Principles of morphogenesis; Morphogenetic fields and gradients; Invagination, ingression, involution and delamination; Concept of organizer and induction.

Unit 2 Developmental - II

Differentiation and organogenesis with special reference to eye; Foetal membranes of mammals; Placentation; Genetic and epigenetic control of development; Gene expression in realization of phenotype; Epigenesis of morphogenetic patterns; Brief idea of developmental defects; General concept of regeneration; Senescence.

Unit 3 Ecology

System analysis in ecology; Basic features of production, consumption and decomposition; Gaseous and mineral cycles; Ecosystem homeostasis and management; Principles of community structure; Species diversity and its measurement; Succession; Factors affecting species diversity; Biotic communities; Forest conservation; Population and its impact on ecodegradation.

Unit 4 Animal Behaviour; Applied Zoology - I

Animal Behaviour : Types; hormonal genetic and social concept.

Applied Zoology - I : Pests and Pest control; Lac-culture, Fisheries.

Unit 5 Applied Zoology - II

Parasitology : Introduction to protozoan and helminth parasites; life cycles and pathogeneeity of Tryranosoma, Eimeria; Fasciola, Taenia and Ancylostoma; Parasitic adaptations. Arthropods as vectors and pathogens.

PRACTICALS

PAPER VIII

Developmental Biology, Ecology, Animal Behaviour and Applied Zoology

Total Marks: 30

Time: 4 Hours

1. Preparation of whole mounts of chick ambryo.
2. Regeneration: Planaria/Hydra or tail of tadpole/lizard.
3. Study of different types of placenta through charts and models.
4. Mammalian foetal develop(charts and models).
5. Physico-chemical parameters(CO_2, alkalinity) of water samples.
6. Physico-chemical parameters(carbonate, Phosphorus) of soil samples with reference to soil fertility.
7. Population study - using quadrate method.
8. Use of diversity indices(Simpson's Shannon-Wiener's) to ascertain the level of water pollution.
9. Study of permanent slides of commonly found parasites.
10. Study of economically important arthropods.

Distribution of Marks:-

Developmental Biology	-	7
Ecology	-	7
Spotting	-	4
Viva voce	-	8
Laboratory Records	-	4
	Total:	30

Suggested Readings:-

1. Balinsky,B.I.(1981). An Introduction to Embryology. Saunders College Publishers.
2. Patton,B.M. and Carlson,B.M.(1977) Foundations of Embryology. T.M.H.Edition.
3. Saunders, J.W. Jr.(1982). Developmental Biology. Collin McMillan Publishers.

4. Kendeigh,S.C. (1975). Animal Ecology. Prentice-Hall.
5. Odum,E.P.(1971).Fundamentals of Ecology.W.B.Saunders.
6. Manning,A.(1969).Introduction to Animal Behaviour.
7. Goldman and Herne(1983).Limnology. McGraw-Hill Int. Book Corp.
8. Singh,V.P.P. and Ramachandran V. (1985).Fresh water fish cultu ICAR.
9. Jhingran,V.G.(1982) Fish and Fisheries of India. Hindustan Pub. Corp.
10. Ben Dawes(1968).The Trematoda. Cambridge University Press.
11. Chong,T.(1964).The Biology of Animal Parasites. Toppan Co.Ltd.

Annexure-I

NORTH-EASTERN HILL UNIVERSITY, SHILLONG

Course Outline for the Three Year Degree Course in Education
(General and Major)

OBJECTIVES :

General Course :

1. To develop an understanding of
   a) Human behaviour and
   b) Education as an Instrument for modification of behaviour.
2. To create familiarity with the basic tools and techniques and procedures for modifying behaviour.
3. To give some knowledge of the development of ideas, practices, institutions and systems in field of Education.

ADDITIONAL OBJECTIVES FOR MAJOR :

1. To develop critical and analytical abilities to study the educational scene.
2. To develop the ability to locate and process information for further studies in the discipline.

COURSE STRUCTURE :

A. Common for General and Major (one each to be examined at the end of each year)

PAPER I. Psychology of Human Development.
PAPER II. Development of Educational Thought.
PAPER III. Educational system in India.

B. Additional for Major :

PAPER IV. Philosophical Foundations of Education (To be examined at the end of First year).
PAPER V. Sociological Foundations of Education (To be examined at the end of Second year).
PAPER VI. Assessment of Human Abilities (To be examined at the end of Second year).
PAPER VII. Educational Technology (To be examined at the end of Third year).
PAPER VIII. Optional (Any one of the following) (To be examined at the end of Third year).
   A. Educational Management.
   B. Dynamics of Human Behaviour
   C. Guidance and Counselling
   D. Adult and Non-Formal Education.

PAPER I

PSYCHOLOGY OF HUMAN DEVELOPMENT

1. OBJECTIVES

a) Give an idea of the basic concept in the psychological development.

b) Develop the ability to understand the behaviour pattern of growing human beings.

c) Create an interest for the study of human behaviour.

2 Human Development :

a) Basic concept of development: growth, development, maturation.

b) Physiological basis of mental life, principles of development.

c) Genetic and environmental influences on development.

3. Cognitive Development :

a) Development of perceptual abilities.

b) Age related changes in concept formation.

c) Developmental stages : Piaget and Erikson.

d) Language Development.

4. Intelligence and Creativity :

a) Meaning and Nature of Intelligence - Concept of I.Q; theories of Spearman and Thurstone.

b) Creativity - Nature and Development.

5. Emmotional correlates of behaviour :

a) Emotions : Nature, Types and development and control.

b) Interests : Meaning, Development and Change.

c) Attitudes : Meaning, Development and Change.

6. Personality :

a) Development of personality : Types and Traits approaches- Freud, Carl Rogers and Eysenck.

b) Role of education in developing personality.

7. Learning :

a) Meaning and nature of learning, Factors affecting learning: Types of learning (Gagne's classification).

b) Association learning (Classical and Operant according to Pavlov and Skinner).

c) Gestalt learning : Koffka, Kohler and Tolman.

d) Transfer of learning.

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PAPER III

EDUCATIONAL SYSTEM IN INDIA

1. OBJECTIVES

a) Develop and understanding of the Evolution of the present system.

b) Develop familiarity with the functioning of the system at various levels.

c) Create an awareness of the main challenges and problems faced by the system.

COURSE OUT LINE :

2. Evolution of the system through ancient, medival colonical and post independence periods with special reference to objectives, organisation, Institutions and practices in each period.

3. The legal and constitutional foundations of the present system. Constitutional provisions - role of local bodies.

4. Progress of Education in post independent India - Literacy, Enrolment at various levels, Institutions, Teachers, and financial outlay.

5. Main problems and issues and the recommendations on them by expert bodies - University Education Commission (1948 - 49); Secondary Education Commission (1952), Kothari Commission (1964 - 66) and the new Education Policy (1986) in relation to :

a) Goals, objectives and curriculum

b) Correction of inbalances.

c) Institutional pattern and organisational set up.

d) Relation with the world of work and employment

e) Financing and resource mobilisation.

6. Education in the North-East India with special reference to tribal communities.

a) Traditional institutions and practices for aculturation.

b) Special cultural and organisational features of tribal communities in relation to education.

c) Progress of education, Problems and Issues.

PHILOSOPHICAL FOUNDATIONS OF EDUCATION

Paper IV

Objectives :

1. Develop familiarity with different philosophical appro to Education;
2. Develop the ability to understand the relationship betw philosophy and education practice.
3. Help the development of a philosophical perspective on Education.

Course Outline:

1. Philosophy - Meaning, Nature and Function. Relationship between Philosophy and Education. Necessity for a Philosophy of Education. Contribution of Philosophy to Education.
2. Educational Aims - Meaning, nature, Need and Importance. Factors which determine educational aims-socio, political religious and cultural . Aims of education in relation to Philosophy of life. Immediate and Ultimate Aims of education.
3. Philosophical Approaches to Education: Concept, Main principles and influence on education aims, curricula and methods of teaching. (i) Idealism, (ii) Realism (iii) Naturalism and (iv) Pragmatism.
4. Freedom and Authority in Education - Reward and Punishment.

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SOCIOLOGY OF EDUCATION

PAPER V:

OBJECTIVES : This course will enable the undergraduate students to:

1. Acquaint themselves with the basic structure and the culture of Indian society and its diversity and their influence on education.
2. Develop sensitivity to social groups and group dynamic and impact of education on group effectiveness and social transformation.
3. Develop skills and values to use education as an instrument of social transformation and nationab integration

COURSE OUTLINE

1. Introduction to Sociology of Education: Meaning, nature and scope of sociology of Education. Reciprocal relationship between education and the social environment; social factors affecting education.
2. Education and Culture.
   Concept of culture material and non-material culture, education and cultural change, culture and personality socialization diversity of Indian culture.
3. Education and social groups:
   Social interaction; Primary groups and secondary groups and their educational implications; group dynamics; social processes and education.
4. Education and Social stratification.
   Social structure; social stratification - caste, tribe, class, gender rural-urban; Education and social mobility equity in educational opportunities.
5. Education and Social Transformation
   Concept and process of social change traditionax and modernity, determinants of education as an instrument of social change. Education and social control.
6. Education and Value-orientation.
   Role of values in society, development of values nationa integration.

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PAPER VI

ASSESSMENT OF HUMAN ABILITIES

Objectives:

1. Develop and understanding of the nature and structure of basic human abilities.
2. Develop familiarity with the method and techniques of studying and assessing them.

Course Outline:

1. Nature and type of human abilities.
2. Concept of measurement, concept of evaluation. Problems relating to the measurement and evaluation of human abilities, characteristics of a good test: validity reliability, objectivity.
3. Measurement of academic Achievement: Teacher-made and Standardized tests, Procedure in the construction and standardization of standardized tests.
4. Measurement of intelligence types of tests; construction and standardisation. Intelligence tests.
5. Assessment of personality: Types of tests; techniques of personality assessment.
6. Statistics in tests and measurement-graphical representation of data; Measures of Central tendency; Measures of dispersion; concept of normality; correlation-its meaning and uses, calculation of coefficient of correlation by Rank difference method.

Note: One question from Unit 6 will be compulsory in the examination.

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PAPER VII

EDUCATIONAL TECHNOLOGY.

Objectives:

1. Develop a perspective of education as a learning system.
2. Create an understanding of the application of Scientific knowledge in the processes of education.
3. Develop familiarity with the technological advances achieved in the educational process.

Course Outline:

1. Systems approach to Education and Educational Technology- Concept and Scope of Educational technology.
2. Communication Process and Educational Technology- Mass Media in communication; communication in the class-room.
3. Teaching - Learning Process:
   i) Goals and objectives-Behavioural objectives, Blooms taxonomy of Educational objectives.
   ii) Organisation of teaching: Task analysis - Selection of appropriate teaching strategies.
   iii) Evaluation of Learning : formative and summative; Quantitative and qualitive types of evaluation.
4. Some Innovations in Teaching - Learning technology: Programmed learning; Distance and open Learning system Personalized system of Instruction (PSI).

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PAPER VIII (A) EDUCATIONAL MANAGEMENT

Objectives : To Develop a prospective of education system from the view point of management science.

2. To Develop familitary with management concepts as applicable & Educational organisation.

3. To Study the management process at work in the educational system.

Course Outline:

1. Organisations - Characteristic, types, Roles in life. Educational organisations-special features-Management organisation at various levels and institutional pattern.
2. Educational planning-its process. Developments in Centre and States. Role of Educational Surveys, studies and expert committees.
3. Division of work decentralisation and delegation. Communication process in organisations -Information systems. Reporting and communicating systems.
4. Personnel Management-Identifying position-Deciding competences-Recruitment-Role satisfaction-Use of human nerveness in organisation-Motivational problems in Work.
5. Financial Management-Resources problem-Sources of Income -Pattern of expenditure-Budgetting, accounting, auditing.
6. Organisation of academic work-deciding objectives-curriculum analysis instruction-, its supervision and evaluation.
   Work ethics and code of behaviour in educational organisation-Teacher as management of teaching learning activity.
7. Controlling of academic work. Methods of monitoring progress. Quantity control and Standards in educational other methods of control.
   Changes as an imperative-areas and scope. Role of Research and development in change.

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PAPER VIII : (B) DYNAMICS OF HUMAN BEHAVIOUR.

OBJECTIVES i) To Develop the ability to observe and understand human behaviour in an objective manner.

ii) To Give an idea of the major influences which shape human behaviour.

iii) To Develop an interest in further study of human behaviour.

COURSE OUTLINE:

1. Determinants of behaviour: Motivation in human behaviour. Needs and their satisfaction.

2. Factors which influence the individual and crowd behaviour, Mass media and its influence on group and individual behaviour.

3. Attitudes, and beliefs as determinates of behaviour. Psychology of religious experience -fanaticism and fundamentalism. Development of secular ethos. Prejudice, and bias in perception-communal and sectarian behaviour.

4. Sources of pressure on behaviour-self-concept family community, peer group, religion, and other organisati... order and discipline.

5. Problems in adjustment - Mechanism of adjustment - Mal adjustment and deviant behaviour.
Drugs and narcotics and Alcoholism-their influence behaviour.

6. Methods and approaches of studying individual and group: Role of case study, Sociometry, psychological tests.

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PAPER VIII

(C)

GUIDANCE AND COUNSELLING

OBJECTIVES:

(1.) To create and awareness of the need for Guidance and Counselling in Educational Institutions.

(2.) To develop familiarity with the process and techniques of Guidance and Counselling.

(3.) To Create an interest in further study in the field.

1. Introduction to Guidance -

Concept, Need and Principles of Guidance; Types of Guidance - Educational, Vocational and Personal; Evolution of Guidance movement with special reference to India.

2. Educational Guidance - Meaning, Importance, Aims, Scope, Principles. Educational Guidance at various stages.

3. Vocational Development - Theories.

Vocational Guidance - Meaning, Need and Context for an organised programme of vacational Guidance; Aims of vacational Guidance.

4. Counselling - Meaning, Need, Types of Counselling; Principles and Techniques of Counselling; Place of case study and cumulative record in Guidance and Counselling.

5. Occupational information -

Sources, Collection, Processing and Dissemination :

6. Job Analysis Importance, Methods Uses and Limitations. Factors affecting job satisfaction.

7. Organisation of Guidance services in Educational Institutions. Role of Principal, Teachers, Parents, Counsellor and Career master.

Paper VIII (D) : ADULT AND NON-FORMAL EDUCATION

Objectives

1. To develop and understanding of the role of adult and non-formal education for overall development.

2. To develop necessary skills of organising adult and non-formal education programmes.

Course outline

1. Meaning, need, Importance and scope of Adult and non-Formal Education. Objectives of adult and non-formal education.

2. Development of Adult and Non-Formal Education in India Plans, programmes and achievements in adult education, NALP, National Literacy Mission (NLM).

3. Adult Education and Development with special reference to Rural Areas.

4. Curriculum for Adult Learners - Adult needs, Learning Experience suitable for Adult Learners, Use of Local learning resources.

5. Teaching - Learning strategies in Adult Education: Psychology of adult learning, Adult Motivation for Learning, Methods of Teaching Adults - Situational, Demonstration, Group Methods and folk-media, Evaluation of learning outcomes.

6. Organisation for Adult Education Work - State set up; Educational Institutions as Centres of Adult and Non-Formal Education; Voluntary Agencies for Adult Education Work; Follow-up arrangements in adult education.

7. Educational Technology and Adult Education: Use of Mass Media including Newspapers, Radio and T.V.

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THREE YEAR B.A. COURSE IN EDUCATION (General and Major)

Suggested Readings

Paper- I

Gagne. R.M. (1985)	:	The condition of Learning and The of instructions. Hotl Saumder's International Editi N.Y.
2. Child Dennis (1981)	:	Psychology and Teacher, Hotl-Rinena, Winston, London.
3. Skinner, C.E. (1984)	:	Educational Psychology, Frentice-Hall New Delhi.
4. Bhatia, B.D. (1977) & Safaya, R.N.	:	Educational Psychology and Guidance Dhanpat Rai and Sons, Delhi.
5. Hare, A.D. (1982)	:	Creativity in Small Group, Sage Publication, New Delhi.
6. Huston, J.P. (1983) Bee, H& Rimm, D.C.	:	Invitation to psychology, Academic Press. New York.
7. Chaube, S.P.	:	Educational Psychology, Laxmi Narayan Aggarwal, Agra.
8. Smith, R.E. Sarason, IG. & Sarason, B.R. (1982)	:	Psychology: The frontiers of Behaviour London.
9. Hurlock, E.B. (1983)	:	Development Psychology, Tata Mcgraw Hill Publishing Co. New Delhi.
10. Bigge, W.	:	Learning theories for teachers.
11 Wilson, Roboeck & Micheal	:	Psychological Foundations of Learning and teaching, Mcgraw Hill, New Delhi.

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Suggested Readings: Paper - II

1. Rawat, P.L. 1981. : History of Indian Education, Ram Prasad & son , Agra.

2. William Boyd & Edmund King, 1981. : History of Western Education, Adam & Charles Black, London.

3. Chaube, S.B. 1977. : Recent Educational Philosophies in India, Ram Prasad & son. Agra.

4. Naik, J.P. 1975 : Equality, Quality and Quantity, Megh. Raj Model Press 1.

5. Agarwal, J.C. 1966. : Progress of Education in Free India. Ram Prasad & Son, Agra.

6. C.Chatterjee : Vendantic Education, British Book Depot.

7. J.P.Banerjee : Education in India, Past, Present and Future.

8. Russel, Bertrand : On Education.

9. Dewey, J. : Democracy and Education.

10. Govt of India : New Education Policy, 1986.

11. UNESCO : Learning To Be.

Paper - III.

1. Report of the University Education Commission 1948-49. Ministry of Education, GOI, New Delhi.

2. Report of the Secondary Education Commission, 1952-53. Ministry of Education, GOI, New Delhi.

3. Educational and National Development : NCERT, 1964-66.

4. Challenge of Education : A Policy Perspective, 1985. Ministry of Education, New Delhi.

5. Shukla, P.D. : Administration of Education in India. New Delhi.

6. Shukla, P.D. : Towards the New Pattern of Education in India, Sterling Publishers, New Delhi.

7. Reddy, G.R. : Open Universities, Sterling Publishers New Delhi.

8. Bhatia, S.C. : Education and Socio-Cultural Disadvantages, Ser Ses, Delhi, 1982.

9. Belille, A (Ed) : Equality and inequality; Theory & Practice, Oxford University Press, Delhi, 1983.

10. Ray, Dutta, 1978 : Report of the Education Commission
: Social and Economic Profile of North-East India, B.R. Publishing corporation Delhi.

11. : Report of the Education Commission Meghalaya-1977, Govt of Meghalaya.

12. Bareh, Hamlet, 1974 : North-Eastern India News and Features, News and Feature Service, Meghalaya.

13. Marwin, T. 1981. : Meghalaya Hand Book (I_II). L. Ropmay Warphlang, Shillong.

14. Administrative Staff College of India, Hyderabad.

15. Saikia, J.P. 1976. : The Land of Seven Sisters, N.K. Gossain & Co. Calcutta.

16. : A Report of Educational Survey, Mizoram 1980, SCERT, Aizawl.

17. NIEPA, New Delhi. : Educational Administration Series- Meghalaya, Nagaland, Mizoram, Assam, Manipur, Tripura, Arunachal Pradesh, 1975

18. State Goverments of Meghalaya, Mizoram and Nagaland. : Five Year Plan Proposals of the States in the Northern-Eastern Region - Meghalaya, Nagaland and Mizoram.

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Paper- IV

1. Ross, J.S. : "Ground work of Educational Theory ", George G.Harrap and Co.Ltd.London 1966.

2. Brubacher, J.S. : "Modern Philosophies of Education".Tata Mcgraw Hill.Publishing Co.Ltd.New Delhi Reprinted 1981.

3. Thakur, A.S. : "The Philosophical Foundations of Education" National Publishing House. (23, Darya Ganj, New Delhi - 10002)1977

4. Dewey, J. : "Democracy and Education", Macmillan Publishing Co.New York 1981.

5. Verma, M. : The Philosophy of Indian Education.

6. John, B.Magee : Philosophical analysis of Education.

7. Curtis, S.J. : Introduction to the Philosophy of Education.

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Paper - V

1. Hargreaves, David D (1972) : Interpersonal Relations and Education, Routledge & Kegan Paul, London.

2. Mannkeim, K & Stewart, W.A.C. (1962) An Introduction to the Sociology of Education, Routledge & Kegan Paul, London.

3. Musgrave, P.W. (1972). The Sociology of Education, Methuen & Co, Ltd., London.

Nayar, P.R., Dave, P.N. & Arora, Kamla (eds.) (1982) Teacher and Education in Emerging Indian Society, NCERT, New Delhi.

Pani. R.N. (1987) Integral Education, Education and Practice, Ashish Publishing House, New Delhi.

Saxena, Shakuntala (1976) Sociological Perspectives in Indian Education, Ashajanak Publications, Delhi.

Sharma, S (1975) Sociometry : A Handbook for Teachers and Counsellors, NCERT, New Delhi.

Shaw, M.E. (1976) Group Dynamics: The Psychology of Small Group Behaviour, Mc-Graw Hill, New York.

Sherif, M and Sherif, C.W. (1969) Social Psychology, Harper & Row, New York.

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Paper VI

Suggested Readings:

1. Freeman, F.S. : Theory and Practice of Psychology testing Oxford & B.H.Publishing Co.

2. Thorndike & Hagen :

3. H.E. Garret : Statistics in Psychology and Education.

4. Anastasi. : Psychological Testing, Ed.IV.

5. Julian C.Stanley & Kennath D.Hopking.1978 : Educational and Psychological.Measurement and Evaluation, Practice Hall of India, Pvt. Ltd.

6. David A.Payne & Robert F.Mc.Morris, 1972. : Educational and Psychological Measurement Oxford and IBH Publishing Co.

7. Vernon, P. : Measurement of Human Abilities, Oxford and IBH Publishing Co.

8. Singha.H.S. 1974 : Modern Educational Testing, Sterling Publisher Co.New Delhi.

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Paper - VII

1. Bruner, J.S. 1966. : Towards Theory of Instruction, Harvard University Press.

2. Davies, I.K. 1965. : The Conditions of Learning. New York, Rinchart and Winstones.

3. Gerlach Veenon, S. & Lily Donald, P. 1971. : Teaching and Media-A Systematic Approach Winglewood Cliffs, Prentice Hall, Inc

4. Popham, W.J. 1973. : Evaluating Instruction, New York Prentice Hall.

5. Skinner, B.F. 1965. : The Technology of Teaching, New York, Appleton Century, Grafte.

6. Wittich, W.A. 1975. : An Instructional Technology-Its nature and Use, Harper and Row, New York.

7. Sharma, R.A., Programmed Instruction: An Instructional Technology, R,R.Printers, Meerut., 1982.

8. Sharma, R.A., Technology of Teaching, Loyal Book Depot, Meerut, 1990.

9. Joyce, B. and Weil, M., Models of Teaching (2nd Edition), Prentice Hall of India Private Limited, New Delhi, 1985.

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Paper VIII (A)

1. Mukherji, S.N. 1962. : Administration of Education in India, Acharya Book, Baroda.

2. Mort and Moss : Principle of School Administration.

3. Morphet, F.L. Johas, R.L. & Reller, T.L. : Educational organisation and Administration, Prentice Hall.

4. NCERT, 1964, 1968 : Year Book in Education, NCERT, New Delhi.

Paper VIII (B)

1. Cartwright, D and Z Aluin Zander

Group Dynamics-
Harper & Row, 1960.

2. Harms, L.S, Human Communications
The New Fundamentals
Harper & Row, 1974.

3. Lieberman, M.A. et. al. Encounter
Groups: First Facts.
Basic Books 1973.

4. Kuppuswary, B. Communication and Social Development in India
Sterling, 1971.

Paper VIII (C)

1. Myers,G.E. : Principles and Techniques of Vocational Guidance,New York,Mcgraw Hill Book Co.

2. Proctor, W.M. : Educational and Vocational Guidance,Boston Hougton Miffern Company.

3. Crow & Crow : An Introduction to Guidance,New Delhi: Eurasia Publishing House.

4. Jones,H.J. : Principles of Guidance,New York:Tata Mcgraw Hill Book Co.

5. Brewer,J.M. : Education as Guidance,New York: The Macmillan Co.

6. Jayswal,R.S. : Guidance and Counselling : An Elective Approach Lucknow:Prabhasan Kendra.

7. Aggarwal,J.C. : Educational Vocational Guidance and Counselling Delhi: Doaba House.

8. Dave Indu : The Basic Essentials of Counselling,New Delhi Sterling Publisher Pvt.Ltd.

9. Mehdi,Baquer : Guidance in Schools,New Delhi: NCERT.

10. Vaughan,T.D. : Educational and Vocational Guidance Today, London:Royrpedge and Kegan Paul.

11. Kochhar,S.K. : Guidance and Counselling in Colleges and Universities,New Delhi: Sterling Publishers.

12. Kochhar,S.K. : Guidance in Indian Education,New Delhi: Sterling Publishers.

13. Happock, R. : Occupational Information,New Delhi: NCERT Harper Brothers.

14. Mehta,H. : Hamdbook of Counsellers,New Delhi: NCERT.

Suggested Readings: Paper VIII (D)

1. Rao, V.K.R.V : Adult Education and Development.
2. Roy,N.R. : Never Too late to learn (Orient)
3. UNESCO : Learning to be.
4. Mathur,B.M. : Adult Education and Social change. Indian Publication, Ambala.
5. Have,Michael,J.E. : Adult Learning: Psychological,research and applications. John Wiley,1978.
6. Kundu,C.L. : Adult Education,Principles,Practice and Prospects (Sterling), 1987.
7. Rogers,Alan : Teaching adults,1989(Sterling)
8. Patil, B.R. : Mass movement for adult education IAEA, New Delhi, 1980.

NORTH EASTERN HILL UNIVERSITY

SHILLONG

REVISED COURSE STRUCTURE FOR THE DEGREE OF BACHELOR OF EDUCATION
(B.Ed)

		MARKS	
A.	COMPULSORY GROUP	WRITTEN	INTERNAL ASSESSMENT
PAPER I.	Education in emerging India	80	20
PAPER II	Educational psychology	80	20
PAPER III	Secondary Education and the Teacher	80	20
PAPER IV	Problems of Education in India with special reference to North-Eastern region.	80	20
B.	ELECTIVE GROUP Teaching Specialisation		
PAPER V.	Any Two	80	20
PAPER VI		80	20

i. Teaching of modern Indian Languages (Taught at the secondary state in the area)
ii. Teaching of English
iii. Teaching of physical Science
iv. Teaching of Life Science
v. Teaching of Geography
vi. Teaching of Mathematics.
vii. Teaching of History
viii. Teaching of Social Studies.
ix. Teaching of Home Science
x. Teaching of Health and Physical Education.
xi. Teaching of Art Education.

g Social studies shall not offer Geography or. chall secon. n.)

C.	ELECTIVE GROUP: Additional specialisation.		
PAPER VII	Any Two	40	10
PAPER VIII		40	10

i. School organisation and management
ii. Education of exceptional children
iii. Education and rural development
iv. Population education
v. Adult and Non-formal education
vi. Educational guidance and counselling
vii. Educational technology
viii. Computer education

Contd..... 2/-

D. PRACTICAL WORKS:

1. Teaching Practical : 20 supervised lessons in each teaching specialisation 5 of which may be practised in simulated situation.

2. Practical Work in one of the following areas : Any one to be taken from any of the following areas.

a. Educational surveys including problem studies.
b. Case studies.
c. Rural hygiene and sanitation
d. Occupational guidance
e. Health education.
f. Adult literacy
g. School drop-outs
h. Juvelile deligency
i. Sociometric studies
j. Study of learning problems of students.
k. Remedial teaching
l. Book review.
m. Programmed learning
n. Evaluation
o. Cocurricular activities
p. Study of classroom climate
q. Organisational study of school
r. Administration of Test.
s. Any other appropriate item.

3. WORK EXPERIENCE : Each candidate will take up any one of the activities under the supervision of college supervisor. This will be assesed internally. The activities will include knitting, embroidery, bamboo and cane work, land development, campus beautification, music, painting, art work, clay modelling, chart, file making, toy making, paper cutting, repair of electrical appliances, making of decorative materials, candle makeng.

EVALUATION OF GROUP D:

i. Practical Teaching -

a) At least one lesson shall be observed by by the Board of Examiners appointed by the University. This will be assessed for a maximum of 80 marks.

b) observation Records - 20 marks. Internally assessed by the colleges

Contd..... 3/-

ii) A Viva - Voce Examination based on the report on practical work and the statistics workbook and lesson plan books, shall be conducted by the Board of Examiners. Assessment will be done for a maximum of 80 marks.

iii) The activity carried out under the work experience shall be assessed internally for a maximum of 20 marks.

iv) The total of the above three categories shall be pooled up and reduced to a percentage.

v) Based on the percentages the final grade will be evolved as :

Grade	O	80 and above.
Grade	A	70 - 79
Grade	B	60 - 69
Grade	C	50 - 59
Grade	F	Below 50 failure

A candidate must get a minimum of C grade to clear the Group D.

PAPER I

EDUCATION IN EMERGING INDIA

COURSE OUTLINE: Our Heritage: Section I : Emerging India

Our common cultural heritage - its composiiteness, Unity, Richness and Continuity.

- Our philosophical traditions - Central teachings of Indian Philosophical (ethics & epistemology)- Western philosophical chools and their general impact on Indian Education (Idealism, Nationalism, Pragmatism and Realism).

Unit II : Contemporary Scene :

- Indian social system, its structures, class, class, caste, stratification and mobility, - Social, Political, Technological forces acting on the society.

Unit III : Emerging future :

- India towards modernisation: Attributes and demands of modernisation. - Constitution of India, Values of democracy, socialism and secularism. - Constitutional rights and obligations - Emerging Directions, Modernisation including futurology and education.

Contd 4-

Section II : Education and Society.

Unit IV : Education :

- Meaning and aims, factors influencing educational aims
- Philosophical, Socio-Cultural, Political & Economic.
- Educational aims for modern India and World

Unit V : Our Educational Heritage :

- Education in ancient and mediaval period.
- Education under the colonial rule.

Unit VI : Education and National Development :

- Efforts towards educational reconstruction.
- Education in the five year plans. Education and human resource development. - Evaluation of the national system of education. - Overview of the recommendations of the Secondary Education and the Education Commissions (1964 - 66), National Policy of Education.

Unit VII : Education and Social Change :

- Meaning of Social Change- factors influencing social change - Role of education in promoting desired social changes in India - Meeting the educational needs of special groups - SC/ST/Women/disabled - Promoting equality of educational opportunity.

Unit VIII: Environment

- State of the environment - global, local, understanding the causes of environmental degradations : Environment and development; Conservation and protection of environment; Role of individuals and society; learning to live in harmony with nature.

Unit IX : Dealing with Population Increase :

- Understanding the population phenomenon, population and development, population pressure and environment population and quality of the factors dealing with population increase, promoting of small family norm the concept and practice of population education.

Unit X : School Community Relationship :

- Interdependence of school, community and parents.
- ways and means of co-ordinating school-community functions.

PAPER - II

EDUCATIONAL PSYCHOLOGY

Unit I : Nature, role and methods of Psychology in Education

- Meaning, nature and scope of educational psychology
- Relevance of educational psychology for secondary t...
- Methods of psychology - Introspection, Observation, Interview, Experiment, Sociometry and Case-study.

Unit II : Human Growth and Development

- Concept of Growth and development, stages of devel... developmental tasks.
- Factors influencing development (genetic, physical, physiological, no environment) Motor development.
- Cognitive development.
- Sensation, perception, concept formation.
- Language development.
- Emotional and aesthetic development
- Social development
- Moral development

Unit III : The Learners as Individuals :

- Meaning and significance of individual differences;
- Factors causing individual differences; Generic, physiological, environmental, Socio-Cultural, Home, School, Community and peer group.
- Areas of individual differences :

  Abilities - intelligence, creativity, aptitude and their measurement achievement - Scholastic achievement and skills affective - Interest, attitudes, values personality fac factors - Self concept, achievement motivation. level of aspiration.
- Catering to individual differences, common measures special techniques, strategies and systems.

Unit Iv : The Learning Process and Related Issues.

- Concept of learning; learning and maturation
- Cognitive, affective and psycho-motor learning
- Trial error learning
- Classical conditioning and operant conditioning
- Insightful learning, productive thinking, problem solving
- Motivation in learning
- Attention and interest
- Meaning : affective conditions and methods
- Transfer of learning
- Factors influencing learning

Contd 6/-

Personal factors - Organisational climate, learning age, sex, intelligences, previous achievement, interests, needs, motives etc.

School factors - Organisational climate, learning facilities, physical conditions

Temper factors - Attitudes, competence, personal mental health

Home factors - Intellectual, cultural, socio-economics status, social and emotional climate, facilities.

Unit V : Learners' Personality and Adjustment :

- Concept of personality - Types and traits
- Concept of balanced mature personality
- Concept and mechanisms of adjustment - maladaptive behaviour
- Mental health and hygiene - Preventing and curative aspects
- Assessment of personality

Unit VI : Learners with Special needs :

- Identifying special needs

a. Physical disabilities

b. Intellectual deficiency or mental retardation

c. Giftedness and creativity

d. Specific learning disabilities, (common types)

e. Low achievement and under-achievement, slow learning

f. Behaviour disorders - delingquency, truancy, withdrawal, day-dreaming etc.

g. Measures for oversoming difficulties, and optinum learning and development.

Unit II: Teacher's Role :

Teacher's role as facilitator of learning, teacher's role vPAPER III

Secondary Education and the Teacher .

Unit I : Secondary Education : Its objectives :

General aims and objectives of secondary Education, Principles and process of Curriculum development in secondary education.

Unit II: Teacher's Role :

Teacher's role as facilitator of learning, teacher's role vis-a-vis transaction of curriculum, teacher's role in preparing students to encounter fur

Contd 7/-

future challenges, teacher as a link between the community, teacher as a mobiliser of community resources, role of a teacher vis-a-vis non-formal and adult education.

Unit III : (a) Communication Process :

- Meaning and significance of communication process in teaching learning.
- Teaching of communication process.
- Intra personal and interpersonal communication
- Factors affecting communication.

(b) Core teaching skills :

- Introducing a lesson
- Writing instructional objectives in behavioural terms.
- Questioning
- Stimulus variation
- Explaining
- Demonstration
- Black Board Writing
- Achieving closure

Unit IV : Co-Curricular Activities :

- Place of Co-curricular activities in a school
- Objectives of co-curricular activities
- Principles underlying the organisation of co-curricular activities.
- Types of co-curricular activities.
- Management of Co-curricular actitivities

Unit V : Management of Resources :

- Concept and scope of School management
- Management of

a. Human resources
b. Material resources
c. Financial resources

- Classroom management
- Supervision.

Unit VI : Research and experimentation :

- Meaning, scope & importance of action research
- Identification of problems in school and classroom.
- Solving a specific problem through action research.
- Trying out various innovative practices.

Contd.....8/-

Unit VII : Instructional technology :

- Concept of instructional technology
- General principles and maxims of teaching
- Distinction between methods, models, strategies of teaching.
- Inquiry training model
- Learning
- Learner centred approach
- Overview of software and Hardware
- Meaning, scope and importance of media teaching
- Criteria for selection of an appropriate media
- Improvising teaching learning material.

Unit VIII : Evaluation :

- Concept, scope and significance of evaluation in educational processes.
- Crit cal appraisal of existing evaluation system, continuous and comprehensive evaluation qualification of a good evaluation tool.
- Oral,written and persormance evaluation
- process & product evaluation
- Construction of a criterion reference teacher made achievement test.

Unit IX : Professional ethics :

- Concept of professional ethics
- Dimension of etics ethics
- Teacher accountability

Contd 9/-

CHAPTER IV

~~PROBLEMS OF EDUCATION IN INDIA~~

WITH SPECIAL REFERENCE TO NORTH EASTERN REGION

1. Preliminary background of the education system during 19th, 20th century.

2. Geographic and cultural background of the North-Eastern Region problem arisen from them.

3. Problems in achieving universalisation of primary education wastage and stagnation in primary and secondary education imbalance in education.

4. New pattern of education - problems involved in its implementation.

5. Teacher Education - problems involved training system backlong of untrained teachers. Dearth of qualified teachers.

6. Non-formal Education - Adult Education for development of the rural society.

7. Administration procedure problems involved at different levels. Supervision - Roll of Local bodies district councils.

8. Educational planning and financing - Problem therein.

9. Innovation and change - Emerging problem

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PAPER V AND VI : TEACHING OF MODERN INDIAN LANGUAGE :

COURSE OUTLINE :

1. (a) Child development and its relationship to language.

   (b) Role of the mother tongue in the development and and Education of the child.

2. The mother tongue - Sound system - Pronounciation, Intonation, Stress.

3. Knowledge of the development of fundamental language skills of listening, speaking, reading and writting.

4. Analysis of the teaching content of the mother tongue in Secondary Schools through study of syllabus and text books.

   (i) Syllabus - General principles, principles of selection and gradation, distinction between language and literature.

   (ii) Text Books - Principles governing construction of text books, special requirements of language teaching textbooks. Organisation of content - reader and supplementary books.

5. Methods of teaching grammar, spelling, composition, prose and poetry.

6. Development of literary appreciation and vocabulary enrichment.

7. Testing and Evaluation.

8. Lesson Planning.

9. Audio - Visual Aids - Use of speech records, tapes etc.

TEACHING OF ENGLISH

COURSE OUTLINE :

1. Content of English :

a) Elements of Phonetics - The sound of English, Stress, Rythm, Intonation, Phonetic Transcription, Use of Pronouncing dictionary.

b) Written English - Principles of paragraph construction, varieties of written English - Narrative, descriptive and expository paragraphs, official and personal letters, reports etc.

c) Revision of selected areas of English Grammar (based on the English syllabus of Secondary Schools).

d) Study of the teaching items prescribed for classes IV - X.

e) Study of a few selected poems suitable for high school classes.

2. CONCEPTS AND BACKGROUND :

a) The role of English in the present day educational context in India.

b) The ims and principles of teaching English in Indian Schools.

c) Learning the mother tongue and learning another tongue.

d) Appropriate stage for beginning to teach English as a second language.

e) Problems of learning/teaching English as a second language.

f) Methods of teaching English - Translation method, Direct method. Dr.West's method.

g) The Structural approach and its application in the classroom.

h) Situational teaching.

i) Language errors, their sources and causes.

3. TECHNIQUES:

a) The teaching of listening and speaking skills-giving pupils practice in listening and comprehension; presentation of English speech sounds in meaningful sequences -words, phrases sentences, connected speech.

b) The teaching of reading skills- loud reading and silent reading, speed reading and comprehension, obstacles to efficient reading, intensive reading vs. extensive reading, teaching the prose text and teaching the supplementary readers.

Contd 2/-

c) The teaching of writing skills- Controlled and free composition, teaching the mechanics of writing, handwriting, correction work.

d) Teaching Poetry .
Aims of teaching poetry in a second language course - Techniques.

e) Audio Visual Aids in language teaching -

Illustrations in the books, the blackboard and how to use it, use of easily available and inexpensive materials as class room aids - bringing radio lessons and broadcasts to the class room.

f) Lesson Planning - Identifying the objectives of a lesson, describing the techniques of presentation, materials for practising the newly learnt vocabulary, structures etc, providing for testing and remedial teaching, preparation of lesson plans - Unit plans.

g) Evaluation - New directions in evaluation - continuous and comprehensive evaluation in English language teaching (ELT), review of existing tests, examination patterns; qualities of a good text in English, construction of objective based test items in English - Unit test.

TEACHING OF LIFE SCIENCES

COURSE OUTLINE :

1. Analysis of the teaching content of life sciences in secondary schools through analysis of science text books, question paper syllabus etc.
2. Importance of science; characteristics of sciences; scientific attitude; steps in scientific methods.
3. Aims, onjectives and values of teaching life sciences in secondary school syllabus in life sciences.
4. Fakiliarity with new areas of study as given in the NCERT high school syllabus in life sciences.
5. Methods of teaching life sciences-lecture, lecture-cum-demonstration, problem methods, project method, laboratory method, heuristic method, and development method.
6. Aids and activities in teaching science, use of local resources as aids, organisation of a laboratory, school musuem science clubs and exhibitions.
7. Main principles of curriculum constuuction andrevision in life sciences.
8. Evaluation in life sciences, different types of tests used.

TEACHING OF PHYSICAL SCIENCES

1. COURSE OUTLINE :

1. Analysis of the teaching content of physical sciences in secondary schools through analysis of science textbooks, question papers, syllabus etc.
2. Importance of science; characteristics of science; sciencetific attitudes; steps in scientific method.
3. Aims, objectives and values of teaching physical science.
4. Familiarity with new areas of study as given in the NCERT high school syllabus in physical sciences.
5. Methods of teaching science - demonstration., lecture, laboratory hauristic.
6. Aids and activitives in teaching science.
7. Use of local resources as aids; preparation of aids, organisation of a laboratory for physical sciences; organisation of science club and exhibitions.
8. Curriculum construction in physical sciences.
8. Evaluation in physical sciences - Different types of tests used.

TEACHING OF HISTORY

COURSE OUTLINE :

1. Meaning and scope of history - history as an imaginative reconstruction of past - history as a social science - social, economic and cultural issues raised by history.
2. Aims and objectives of teaching history as a social science.
3. Corelation of history wth other social sciences - geography, civics, economics etc.
4. Curriculum construction and revision in history
   i) Selection of materials - different approaches - chronological topical, biographical, concentric and regressive.
   ii) Gradation of materials - history at primary, secondary and higher secondary stages of education.
   iii) Organisation of materials - area wise (local, regional, national and world history) - aspect wise (social, political, economic, constitutional, cultural and religious history)-period wise (ancient, mediaval, modern or contempory history).

5. Methods of teaching history - study telling method, discussion method, text book method, lecture method project method, problem method, source method and biographical method.
6. Instructional materials - text books, reference books, teacher's guides and handbooks, community resources.
7. Teaching aids in history teaching - charts, maps models, pictures, inscriptions, coins, historical, document, dramatisation, visits to places of historical and cultural importance.
8. Controbersial issues in the teaching of history.
9. Education for national integration and international understanding through teaching of history
10. Evaluation in history teaching.

TEACHING SPECIALISATION : SOCIAL SCIENCES

SOCIAL STUDIES

COURSE OUTLINE :

1. Meaning and scope of social studies evolution of the concepts.
2. Aims and objectives of teaching social studies, its relationship with other school subjects.
3. Curriculum construction in Social Studies.
   i) Criteria for social studies syllabus for secondary schools.
   ii) A critical appraisal of the school syllabus.
4. Social Studies teacher:
   i) Personal and professional qualities;
   ii) Roles in integrating subject matter in various branches of social sciences in democratic living understand and as an agent of social change.
   iii) Professional growth of the social studies teacher.
5. Methods of teaching social studies :
   i) Lesson Planning - Defects and weaknesses of Lesson Planning based on herbartion step;
   ii) Methods and Approaches in teaching of Social Studies: methods, problem solving, project method, unit approach, lecture method. New trends and approach in Lesson Planning and objective based lesson planning.
6. Instructional materials - text book, reference book, teacher's guide and handbooks, community resourse.
7. Teaching aids in social - studies - Documentary, visual & auditory.
8. Evaluation in teaching social - Studees - Newn devices in evaluation.
9. Social - studies resource centre - social studies library, clubs, musuem and collection.

TEACHING OF GEOGRAPHY

COURSE OUTLINE :

1. Concepts of Geography :
   a) Geography as the description of earth.
   b) Geography as the study of lanscape - physical and cultural.
   c) Geography as the science of distribution
   d) Geography as the science of area differentiation.
   e) Geography as the study of the relationship between man and his environment.
2. Nature and Scope of Geography:
   a) Geography as a bridge between arts and science.
   b) Scope an Geography.
3. Aims and Objectives of Teaching Geography :
   a) To understand the life of man and his environment
   b) To understand interdependence and interrelationship.
   c) To develop mental aptitudes - powers of observation, memory, imagination, judgement and reasoning.
   d) To develop human brotherhood and international understanding.
4. Teaching of Geography with other school subjects.
5. Correlation of Geography with other school subjects.
6. Geography curriculum - Importance of curriculum - Basic principles of curriculum construction in geography, curriculum construction at different levels.
7. Geography room and geography museum, their importance and equipments.
8. Geography teacher - his academic and professional qualifications.
9. Teaching Aids - blackboard, globes, maps, atlas, charts, models, pictures, specimens, projected aids, instruments,etc.
10. Methods of Teaching Geography :
    a) Story telling method.
    b) Text book method.
    c) Source method.
    d) Observation method
    e) Laboratory method
    f) Regional method
    g) Comparative method
    h) Project method
    i) Discussion method
    j) Concentric method
11. Geography Text Books - Criteria for preparation and selection at different levels.
12. Utilising current events in the teaching of Geography
13. Lesson planning in Geography -Importance, Principles and procedures.
14. Local Geography - Meaning and Usefulness, field work in urban and rural areas.
15. Evaluation and Measurement in Geography - Use and Importance of different types of evaluation devices - Principles of constructing evaluation tools.

TEACHING OF MATHEMATICS :

COURSE OUTLINE :

1. An intensive study of the mathematics content included in the high school/higher secondary syllabus in the North-Eastern Region by analysing text books question papers, syllabus-etc.

2. Nature, Scope and Significance of Mathematics.

   i) Aims and objectives of mathematics.

   ii) Aims of teaching mathematics - Utilitarian, disciplinary cultural.

3. General objectives of the teaching mathematics.

4. Methods and techniques of teaching mathematics - analytical, synthetic, lecture, juristic, laboratory, inductive, deductive, problem and project method, oral, practical and written work, drill review and supervised study, assignments, self study including programmed instruction, group work.

5. Curriculum of mathematics in schools and its organisation

6. Evaluation of achievement in mathematics by suing different appropriate methods and instruments.

7. (i) Backwardness in mathematics, diagnosis and remedial measures,

   (ii) Enrichment programme for the gifted.

8. Equipment for the teaching of mathematics, mathematics, Classroom, Audio-Visual aids, Text books.

TEACHING OF HOME SCIENCE

COURSE OUTLINE :

1. Analysis of the teaching content of Home Science in High Schools in the State through study of the syllabus.

2. Aims, objectives, values and outcomes of teaching Home Science in High Schools.

3. The scope and components of Home Science.

4. Techniques and Methods of teaching Home Science-Lecture method Lecture cum-demonstration, Laboratory method, Project methods, Problem solving method, Field trips, Role playing.

5. Curriculum construction in Home Science.

6. Lesson planning in Home Science - Characteristics of a good lesson plan, Prerequisites for good lesson planning, Component of lesson plan.

7. Evaluation in Home Science - purpose, formulation of objectives learning experiences, evaluation techniques, diagnosis of learning difficulties and remedial measures.

8. Home Science Laboratory, Planning and organisation, equipments.

PAPER VII AND VIII

(i) SCHOOL ORGANISATION AND MANAGEMENT

Unit I : The Concept of school organisation - What makes a school ?

Unit II : Material Resources - land, building, furniture, teaching aids and equipments.

Unit III : Human Resources - Headmaster, Teachers, Office staff, students, parents, Management Committee, Inspecting and Supervisory staff.

Unit IV : Curriculum, Syllabus, time table, discipline, library, laboratory, museum, workshop, hobby centres; co-curricular activities - organising different types of co-curricular activities.

Unit V : Evaluation :

- Continuous evaluation of scholastic achievement and co-curricular activities, Cumulative Record Cards,
- Examination - periodic and end of the term, class tests and Unit tests,
- Setting of question papers, Blue prints of question papers,
- Conduct of examinations.

Unit VI : School as a community centre - adult education, community service programmes; parent-teacher association, participation in literacy programmes.

Unit VII : School Administration :

Types : fully government, provincialised, private run by voluntary organisations.

Objectives and Cunctioning of various types of school organisation.

Unit VIII : Leadership in school administration :

Concept of leadership ;

Administrative skills - academic and managerial;

Innovation and change in managing school affairs and organising academic activities.

(ii) EDUCATION OF EXCEPTIONAL CHILDREN

Unit I : Definition of an exceptional child;

Types of exceptional children;

Inteligently gifted and the creative,

Mentally retarded, Auditory handicapped,

Visually-handicapped, Speech-handicapped

Crippled; Characteristics of exceptional children.

Unit II : Special Programmes of education for exceptican children - their needs, objectives, types and nature.

Unit III : Diagnostic Tools and Techniques for identification of exceptional children.

Unit IV : Role and Qualification of Teachers educating exceptional children.

Unit V : Constitutional provision for handicapped children; Programmes and research undertaken in India; Importance of Public education; Creation of public awareness; Use of Communicy .

(iii) EDUCATION AND RURAL DEVELOPMENT

COURSE OUTLINE :

1. The rural world - Population distribution - economic, political and social structures. State of education. Role of traditions.

2. Problems in Rural Development - Land distribution - under employment and unemployment - economic activities - state of agriculture and rural industries - health and sanitation - family welfare - Illiteracy - traditional attitudes - rural urban migration.

3. Role of Education in Development : Education as investment in human resources - equalisation of educational opportunities - educational structures and rural needs - curricular and instructional factors in linking education with life work - role of practical work - school as a centre of rural development - education and instrument of social change.

4. Some Efforts in Rural Development through Education - Basic education- work experience - vocational education - the integrated rural development scheme - adult educational NAE programme. Rural development in India's five year plans.

5. Role of Mass Media in Rural Education - the site project use of radio and television - non-formal agencies and rural education.

(iv) POPULATION EDUCATION

COURSE OUTLINE :

1. Population situation in India - main demographic concepts and characteristics - theories of population and population growth.

2. Population education - concept and definition - objectives - need and importance - nature and scope of instruction at school.

3. Family planning, family welfare and population control through population education.

4. Approaches to population education in the school curriculum integrated approach - special subject approach.

5. Organising learning experiences in population education.

6. Instructional materials and teaching aids in population education.

7. Evaluation programme in population education.

(V) ADULT AND NON - FORMAL EDUCATION

CONTENT :

1. Adult Education - Need and Importance for the overall development special relevance for rural and tribal development.
2. Adult Education related to non - formal education, continuing education, life long education, adult education, adult education and world of work.
3. Status of Adult and Non-Formal education in the North-Eastern Region - contribution of the governmental and voluntary organisations-approaches of organisation.
4. Special problems in remote, sparsely populated and in-accessible hilly and forest areas of the North-Eastern Region.
5. School as Centre of Adult and Non-Formal Education - Utilisation of the school plant, teachers etc.
6. Recent trends and developments in Adult Education.
7. The role of educational technology - Use of mass media - use of local resources.

(VI) EDUCATIONAL GUIDANCE AND COUNSELLING :

COURSE OUTLINE :

1. Need, Nature and Principles of Guidance. Present status of guidance
2. Vocational, educatonal and personal guidance - vocational development and vocational guidance.
3. Guidance services- Orientation service, pupil-information service. Educational and Occupational information service counselling service.
4. Group guidance, general principles, orientation, group discussion panel discussions, school government, role playing, organisation of clubs.
5. Organisation of guidance services in schools, role of career master, counsellor, teachers and parents - career takks, ca-reer corner, career conference and career exhibitions.
6. Non-- Testing techniques of pupil appraisal - observation, cumula -tive record card, information balnk and check lists, autobio -graphy, sociogram, interview, questionnaire and rating scale, ability and aptitude tests.
7. Evaluation of guidance programme.

EDUCATIONAL TECHNOLOGY

COURSE OUTLINE :

Concept of a learning system. Role of Educational technology in the teaching - learning system. The nature and scope of educational technology.

Bloom's Taxonomy of Educational objectives, behavioural objectives and indentifying learning outcomes.

Individual and group methods of teaching. Development of teaching skills through micro teaching techniques, simulated social skill training. Analysis of teaching through flanders interaction analysis category system. Programmed learning.

Roll of Educational Technology in curriculum development.

5. Communication process - communication in the classroom. Use of various teaching aids, audio visual aids and appliances in the instructional process. Improvisation of teaching aids.

6. Mass media - News papers, radio, films, television and their role in Education. Multi - media instructional development.

7. Evaluation as an integral part of teaching learning process.

COMPUTER EDUCATION

COURSE OUTLINE :

Unit - I Introduction to computers :

a) History of computer development and generations. abacus, napier bones, slide rule, pascal's calculator, jacquard's loom babbage machinus, punch card machines.

b) Types of computers :

Mainframe, Mini, and Micro computers, digital and analogue computers. Distinction between calculator and computer, hard ware and soft ware.

c) Block diagram of of computer system :

Block diagram of computer indicating the flow of data and control signals.

Unit - II Computer Programming :

a) Aims and objectives of computer course, computer languages, computer literacy, computer operation and programming, applications of computer, self - development of the students, preperation for employment and higher education.

b) Algorithm development, use of flow chart, Machine language, Assembly language, high level language, Assembly interpreter, compiler.

Programming in Basic -

Constants, variables, use of command statements, assignment statement, conditional and unconditional branching, for - next loop, User defined functions, File creation and handling of file.

Solving sample problems through computer application

Unit - III Data Processing :

Data and information, fact gathering methods, data entry systems - key to diskette, Micro, OCR, OMR etc. Data storage - Random access and serial access.

Data processing and reitrivel, Report generation.

Unit - IV Computer in the Class room :

a) Roles played by computer in the classroom, super calculator, Aid to teaching learning process, the substitute tutor, Administrative and Managerial, data processor, Simulator.

b) Constraints arising in the use of computer in the classrooms technical, Attitudinal, Availability of soft ware, Philosophical and Eliticism.

Unit - V Computer as a Teaching Aid:

a) Automated teaching :

- Computer Managed Learning (CML)
- Computer Assisted Instruction (CAI)
- Computers in Education.

Practical Work :

EDUCATIONAL STATISTICS

1. Numerical date and frequency distribution.
2. Graphical representation of data frequency polygon and Histogram.
3. Measures of central tendency,-means,median and mode.
4. Measures variability - Range Quartile deriation standard deriation.
5. Correlation- by Rank different method.

EXAMINATION SCHEME : The requirements for passing the B.Ed Examination and classification of successful candidates will remain the same as before.

BACHELOR OF EDUCATION (B.Ed) PROGRAMME

LIST OF SUGGESTED READINGS.

PAPER I : Education in Emerging India:

Anand, C.L.and others : The teacher and education in the emergi Indian Society (NCERT).

Brubacher, John S :Modern philosophies of Education.

Cunningham, W.F. : The pivotal problems of education.

David G. Mandelbaum : Society in India.

Humayun Kabir : Indian philosophy of education.

Key, F.B : A history of education in India and Pakistan.

Mathur, S.S. A sociological approach to Indian Education, Agra, Vinod pusthak Mandir, 1976.

Mohanti J : Indian education in the emerging society.

Mukherji R.K.: Ancient Indian Education.

Naik J.P : Education commission and after.

Nawet P.L. : History of Indian education.

Saiyidian K.G. : Education, Culture and Social Order.

Saiyidian K.G. : Facts of Indian Education (NCERT).

Saiyidian K.G. : Human tradition in Indian educational thought, Asia publishing house.

Report of the University education commision (1948 - 49).

Mudaliar, A.L. (Chairman) : Report of the secondary education commission (1953).

17. Ministry of Education : Report of the Indian Education Commission 1966.

18. Ministry of Human Resource Development :National Policy on Education (1986).

PAPER II Educational psychology.

Bhatia H.R Elements of educational psychology,Bombay,Asian publishing company.

Bigge M.L : Learning theory for teachers,New York,Harper and Row.

Bruner J.S:Process of education.

Gagne R : Conditions of learning.

Garrison K.C., Kingston A.J & MC Donald, A.S. : Educational psychology,Appleton century crofts.

Guilford J.P : Personality.

Mathur, S.S.:Educational psychology(Vinod pustak Mandir.)

Kuppuswamy S :Advanced educational psychology,sterling publishers.

Schwartz L.L & Shoben E.J : Educational psychology : Focus on the learner,Boston : Holbrook press.

Skinner B.F :Educational psychology.

PAPER III : Secondary Education and the teacher :

Adaval,Agarwal,Asthana and Saxena : An analytical study of teacher Education in India,Amitava Prakashan 1984.

Berlou,David K.: The process of communication,Holt,Rinehart,1960

Best,John W : Research in Education,Prentice Hall of India,1987.

Brubachar,John S :Modern philosophies of Education,MC Graw Hill,19

Greene H.A,Jorgenson, A.N.and Gerberich J.R: Measurement and Evaluation in the secondary schools,Longmans.

MC Kinlay,J.B :Processing people : Cases in organisational behaviour,Holt, Rinehart and Winston, 1975.

Mohanty J: Modern Trends in Indian education,Deep and Deep publications, 1968.

Mukherji S.N: Education of teachers in India,Vol I & II, S.Chand & Co,1968.

Mukherji S.N; et al : Education in India today and tomorrow, Vol I & II Acharya Book Depot, 1964.

Saettler,Paul :A history of instructional technology,Mc Graw Hill 1968.

Sampath K.S & Santhanam : Introduction to educational technology, sterling publisher,1990.

Taba, Hilda : Curriculum Development.

Passi B.K : Becoming Better teacher - Micro teaching approach, Baroda.

Thorndike R.L. & Hagen,E : Measurement and Evaluation in Psychology and Education, John Wiley, 1961.

PAPER IV

Problems of Education in India with Special Reference to North-Eastern Region

1. Five Year Plans (N.E. Region) NEC Publications.
2. Administration of Education in the North-East State (Shillong, Nagaland & Mizoram).
3. Mukherjee S.N. Educational Administration Planning and Finance.
4. Rawat P.L. History of Indian Education, Ram Prasad and Sons, [illegible]
5. J.Mohanti-Indian Education in the Emerging Society, Sterling Publishers.
6. Safaya R.N., Current Problems in Indian Education.
7. Naik J.P., Education, Equality, quantity, quality Bombay Allied Publishers, 1975.

PAPER VII AND VIII SPECIAL COURSE

(i) Adult and Non-formal Education :

1. Adult Education and Development by V.K.R.V.Rao.
2. Never too late to learn by N.R.Roy, Publisher : Orient B.K. Co. 1953.
3. People's Participation in Adult Education (Report of the National Seminar, 4/8/1971). Publisher : Central Institute of Research and Training in Public Cooperation.
4. UNESCO - Learning to be.

PAPER VII & VIII : EDUCATIONAL TECHNOLOGY

1. Packiam S. Curricular Innovations and Educational Technology.
2. Sharma R.S. Technology of Teaching.
3. Dececco (Ed) Educational Technology.
4. Chauhan S.S. A text book of Programmed Instruction.

PAPER VII & VIII : SPECIAL EDUCATION OF EXCEPTIONAL CHILDREN.

1. Translay A.E & Guilford R. -The Education of slow learning children, Routledge and Kegan Paul.
2. Torrance P.E - Gifted children in the classroom.
3. Cruickshank and Johnson. -Education of exceptional children and youth.
4. Cyril Burt -The Backward child.
5. Baron F.A. -Backwardness in School.

PAPER VII & VIII EDUCATIONAL CHILDREN AND COUNSELLING

1. Warter M.P. - Techniques of Guidance.
2. Garret H.E - Testing for Teachers Eurasia.
3. Jones - Principles of Guidance.
4. Crow and Crow- An introduction to guidance.

PAPER VII & VIII EDUCATION AND RURAL DEVELOPMENT

1. Dube, S.C. - India's Changing Villages.
2. Munit, A. - Social system in rural India.
3. Dayal, Rajeswar - Community development programme in India.
4. Chandrasekheriah, K - Educational problems of Scheduled Castes (NCERT).
5. Batten, T.R. - Communities and their development.
6. Shriman Narayan - Education of the future.
7. Report of the Indian Education Commission.
8. Salamatulla - On Basic Education.
9. Handbook of Basic Education, Ministry of Education, Govt. of In

PAPER VII & VIII POPULATION EDUCATION

1. Gopal Rao, D - Population Education (Sterling)
2. Aggarwala S.N.(Ed), India's Population : Some problems in Persp m Planning (Asia)
3. Central Health Education Bureau, India, Population Education Gui Book for Secondary School teachers.
4. Mehta, T.S. et.all (Ed). Population Education in School curricu (NCERT).
5. Mehta, T.S. et.al (Ed). Readings in Population Education (NCE
6. Mehta, T.S. National Seminar on Population Education, (NCE T).

PAPER VII & VIII : SCHOOL ORGANISATION AND MANAGEMENT

1. Mohiyuddin - School Organisation & Management (West Pakistan Publishers)
2. Wren - Indian school Organisation.
3. Kochlar S.K. - Secondary School administration.
4. Mathur S.S. - Educational Administration.

PAPER V & VI : TEACHING SPECIALISATION

(I) LIFE SCIENCES.

1. Saunders H.M - Teaching of Biological Science in Tropical Secondary School.
2. Twiss G.R. - A text-book in the principles of science teaching.
3. Summer W.L - The Teaching of Science.
4. Millar and Blaydes - Methods and Materials for teaching in Biological science.
5. NCERT. - Text-Books and teacher guides in Biology, for middle and secondary schools.

(II) PHYSICAL SCIENCES

1. Richard J.S & Cahoon G.T. - Teaching general and physical science.
2. Science Masters Association - Secondary Modern Science Teaching.
3. Nunn G.T. - Handbook for Science teachers in Secondary Schools.
4. Kohli V.K. - Teaching of Science.
5. Srikantan Nair - Teaching Science in our Schools.

(III) SOCIAL SCIENCES : HISTORY

1. Vajresvari R. - Handbook for History Teaching.
2. Ghati V.D. - Teaching of History.
3. NCERT - A Handbook for History Teachers.
4. UNESCO - Some suggestions on the teaching of World History.
5. Burston W.H - Principles of History Teaching.
6. Ghose K.D - Greetive Teaching of History.

(IV) SOCIAL SCIENCES : GEOGRAPHY

1. Dhills Z.A - Teaching of Geography.
2. UNESCO - Source book for Geography teaching.
3. Fairgrieve - Geography in Schools.
4. Verma O.P - Geography teaching.
5. Gopsill G.H - Teaching of Geography.

(V) SOCIAL SCIENCES : SOCIAL STUDIES

1. James Hemming - Teaching of Social Studies in Secondary Schools.
2. Foresterer J - Improving Social Studies Teachers.
3. NCERT - Handbook for Social Studies Teachers.
4. Allen B - The Teacher of Social Studies.
5. Iswari Prasad - A History of Modern India.
6. Dannikar K.M - A survey of Indian History.

(VI) HOME SCIENCE :

1. Das, H.A and Roy B. - Teaching of Home Science (Sterling).
2. Devdas R.I - Methods of Teaching Home Science (NCERT).
3. Devdas R.P - Textbook of Home Science.
4. Staff of Irwin College. - Domestic Science.

(VII) MATHEMATICS :

1. Longman & Young - The Teaching of Mathematics.
2. Buller and Wren - Teaching of Secondary Mathematics.
3. Sundara rajan S. - Theory and practice of teaching School Mathematics.
4. Kuppuswamy Ayyangar. - Teaching of Mathematics.

(VIII) MODERN INDIAN LANGUAGES :

1. Ryburn W.M - Suggestions for the teaching of mother tongue.
2. Ballan F.B - Teaching of Mother Tongue.
3. Gairvy E.V - The teaching of Modern Language.
4. Palmer H.R - Principles of Language teaching.
5. Gummy F - Teaching of Mother Tongue.
6. Yogendra Jeet- Hindi Shikshan.
7. Goswami J.N - Teaching of Assamese.
8. Sukhamoy Sen - Bangla Shikshan Padhati.

(IX) ENGLISH :

1. Allen H. H. Campbell R.N. - Teaching English as a Second Language.
2. Gatenley - English as a Foreign Language.
3. Gantett J.C - Teaching English as a Foreign Language.
4. Srivastava B.D. - Structural Approach to teaching of English.
5. Merrow T.K.N - Teaching of English as a Foreign Language.

and

Patel M.S.

(iii) Nomination of members to the Board of Under-Graduate Studies in Sanskrit.

The term of the present members of the Board of Under-Graduate Studies in Sanskrit is due to expire on 9.1.93. In terms of the provisions of the ordinance, the Academic Council is required to nominate three members not below the rank of Readers for reconstitution of the Board.

The matter is placed before the Council for nomination.

O/C

5.1.30(1)

OF
AMENDMENT/REGULATION OC-1/R-1 ON ADMISSION TO POST-GRADUATE DEPARTMENTS

The Academic Council vide its Resolution No.AC:44:92:5:08 (iv) authorised the Vice-Chancellor to constitute a Committee to look into the various aspects of reservation in the Post-Graduate Departments, including the output of students vis-a-vis intake. The Committee submitted its report for amendment of the Regulation OC-1/R-1 on admission to Post-Graduate Departments. The Revised Regulation recommended by the Committee may be seen at Annexure 'A'.

The matter is placed for consideration of the Council.

O/C

5/13(2)

Annexure - "A"

ON ADMISSION TO POST-GRADUATE DEPARTMENTS

1. The authorised seats for admission in each Department shall be as given in the Annexure.

2. Only those Candidates who have passed a Three-Year Honours/Major Course in the relevant subject shall ordinarily be admitted to the Master's Course. Some seats may be assigned to students from other disciplines at the discretion of the Department.

3. The distribution of authorised seats in the Post-graduate courses in the University shall be as follows :

i)	Open category	- 45 %
ii)	Reserved for ST/SC candidates	- 45 %
iii)	Discretionary seats with the Vice-Chancellor	- 10 % over and above the authorised seats

Note : The discretionary seats will relate to special cases like students nominated by the Central Government and those from unrepresented backward areas/ physically handicapped/outstanding sportsmen/sportswomen, and the children of the NEHU employees, if any.

4. For determining inter-se priority from amongst those claiming to hail from unrepresented backward areas the level of literacy obtaining in that area may be taken as the guiding factor. For outstanding sportsmen/women, the level of participation at the inter-University, state or at the national within the last three years only shall be taken into account. Proficiency in performing arts should be supported by suitable documents.

5. Departments will prepare a consolidated list of all applicants for the total number of seats authorised by the University. 45 % of the seats should be filled up on merit and shall include SC/ST students who by merit can figure in the open list. From the remaining 45 % seats, a list of candidates belonging to SC/ST will be prepared and the seats will be filled up from those candidates in order of merit. Any or all of the discretionary seats of 10 % of the authorised seats under category (iii) will stand converted to category (ii), if unfilled.

Contd....

6. Departments may, if they consider necessary, conduct written test/ interview for admission to the Post-graduate programme in accordance with Ordinance OC_7 Performance of a candidate in the under-graduate course together with eligibility test, if any, shall be taken into consideration while preparing the merit list of students. Weightage for eligibility test/ interview shall, however, not exceed 50 %.

7. In case of all internal students, i.e. students who have graduated from colleges affiliated to or maintained by the University, 10 % marks obtained in Honours/Major subjects shall be added to the subject concerned. In case of those candidates who have not offered the subject in the Honours/ Major no such weightage shall be given.

8. All Departments shall constitute Admission Committees and assign them specific responsibilities.

9. Students who have already obtained a Master's Degree from this University or any other University, will be considered for admission only if there is any vacancy after considering all eligible candidates.

(iv) Introduction of a Five Year Integrated Course in Social Work - Report of the Committee.

The Committee appointed to examine the possibility of introducing a five-year integrated course in social work met on the 5th December, 1992 under the Chairmanship of Prof. M.Miri.

At the outset the Committee would like to express its opinion that the course in social work of Education is very much a requirement of the North Eastern Region and the introduction of such a course especially as envisaged by the Board of Post-Graduate Studies in Social Work would go a long way in rendering need-based training and Education of Social Welfare/ development workers thereby improving the professional officiency of Social Works belonging both to the Government Agencies as well as the private organisations.

As per the structure recommended by the BPGS, the course content is spread out over a period of five years in which every year is a terminal year in itself thus allowing the participants to discontinue at the end of any particular year and resume studies at a subsequent date according to their convenience.

The Academic Council in its last meeting had accepted the introduction of the programme in principle but had expressed its views that the structure of the proposed programme was such that it might require substantial amendments in our present Ordinance covering undergraduate and Post-Graduate Studies. The Committee, however, felt that instead of making large amendments in the present Ordinances a separate ordinance may be enacted by which a Board of Studies may be created to govern the 5-year integrated course in Social Work and the same ordinance may also govern other professional courses of a similar nature.

The Committee also feels strongly that necessary infrastractural facilites be immedialy created so that the proposed programme may be started from the Academic Session beginning in july 1993. Meanwhile the Council may direct the Department to make necessary preparations particularly relating to field work.

COMPUTER EDUCATION

BOOKS RECOMMENDED :

1. Subramaniam, A and Menon, A.K.S. System Analysis and data processing. Delhi : A.H. Wheeler & Co.Ltd. 1984.

2. Subramaniam, N. Computer Genesis, Programming and Application in FORTRAN, BASIC and COBOL. Delhi : A. H. Wheeler and Co. 1985.

3. Rajaram, V. Fundamentals of Computers. New Delhi: Prentice Hall of India, Pvt.Ltd. 1985.

4. Shelley, John and Hunt, Roger. Computer Studies - First Course. Delhi, : A. K. Wheeler & Co. 1986.

5. Shelley, John and Hunt, Roger Computer and Commonsense. Delhi : Prentice Hall of India Pvt. Ltd. 1991.

6. Wellington. Children, Computers and the Curriculum.

7. Woodhouse, David and Mc.Dougall, Anne Computer Promises and Challenges in Education.

8. Gave, R and Greeden, G. Computers in the Classroom, Reflections and Projections.

9. Bork, A. Learning with Computers.

10. Scidel, R. J. and Rubin, M.L. (ed). Computers and Communications : Implications for Education. Academic Press, 1977.

. . .

APPOINTMENT OF TEACHERS FROM CAMPUSES AS DEANS OF SCHOOLS AND HEADS OF DEPARTMENTS :

DEANS OF SCHOOLS :-

As per the present practice, Deans of Schools and Heads of Departments are appointed by rotation according to seniority. There are Departments in Nagaland Campus as well as the Mizoram Campus assigned to the School of Social Sciences, School of Environmental Sciences, School of Education and School of Languages. Teachers from the Campuses may have to be appointed as Deans of Schools, when their turn comes, according to seniority and by rotation. But so far none of the teachers from the Campuses has been appointed as Deans of Schools. The Council may, therefore, consider and take a decision whether the teachers from Campuses, when due, may be appointed as Deans of Schools and whether the functions of the Deans can be performed from the Campuses when larger number of Departments are located at Shillong. This relates mostly to the School of Social Sciences. In the case of the School of Education, the Department of Education functioned in all the three Campuses. Similar is the case of the Department of English under the School of Languages, which includes also the Department of Linguistics. As regards the School of Environmental Sciences, the Department of Geology is located at Kohima while the other Department of Geography is at Shillong.

HEADS OF DEPARTMENTS :-

The University has Departments of Education at Shillong, Kohima and Aizawl and the Council may consider whether the Head of the Department of Education may be appointed from the Campuses and whether they may function from the Campuses. The cases of the Department of English and Department of Economics are similar to that of the Department of Education.

The matter is placed before the Council for consideration.

B.A.(Pass) Compulsory

Paper III : Indian Political System

1. Nature of the Indian State : Alternative approaches - Marxist and Liberal Democratic. Impact of British Rule. Making of the Indian Constitution - Ideology & Philosophy, Socio-economic structure -Caste and Class.
2. Institutional structure of Parliamentary Democracy - Indian and its functioning
   a) Interaction among Executive Legislature and Judicial Institutions at the Union and State levels.
   b) Federal Structure and Dynamics; State of the Federal Polity today.
   c) Role of Bureaucracy in Socio-economic Development
3. Development Policy : Planning Process in India. Policy of Mixed Economy - Public sector, Private sector and the Current economic liberalisation
4. Agrarian Structure and Politics of Land Reforms
5. Electoral Politics in India
   a) pattern and trends
   b) political participation
   c) Issues of Legitimacy
6. Political Movements; Ethnic, student, women and movements of the rural poor.
7. Party System and pressure groups in India
8. Politics of Democratic Decentralisation: Panchayati Raj Systems and its function with reference west Bengal, Assam.
9. Communalism in India.

Suggested Readings :-

1. A.R.Desai, State and Society in India : Essays in Dissertations (Bombay, Popular, 1974)
2. Anupam Sen, The State, Industrialization Class Formations in India (London, R&K Paul, 1982)
3. Inamdar, et.al., (eds), Contemporary India : Socio-economic and Political Process (Poona, Continental Prakashan, 1982)
4. Pranab Bardhan, The Political Economy of Development in India (Delhi, 1984)
5. Charles Bettelheim, India Independent (Delhi, 1973)
6. Dandekar and Ralte, Poverty in India (Bombay, 1971)
7. A.R.Desai (ed), Peasants Struggles in India (Bombay, 1984)
8. A.R.Desai (ed), India's Path of Development (Bombay, 1984)

   R.F. Frankel, India's Political Economy, 1947-77 (Princeton, 1978)

9. S.K.Goyal, Monopoly Capital and Public Policy (Delhi, 1979)
10. R.L.Hardgrave, India : Government and Politics in a Developing Nations (New York, 1975)
11. P.C.Joshi, Land Reforms in India : Trends and Perspective (Delhi, 1975)

Contd....2/-

12. Karat Prakash, Language and Nationality Politics in India (Madras, 1973)

13. Susheela Kaushik, Elections in India : Its Social Basis (Calcutta 1982)

14. Mathew Kurien(ed), India :State and Society (Delhi,1972)

15. Rajni Kothari, Politics in India (Delhi,1970)

16. Ashok Mitra, Terms of Trade and Class Relations (Calcutta,1979)

17. A.K.Mukhopadnya(ed), Society and Politics in Contemporary India (Calcutta,1974)

18. Iqbal Narain(ed), State Politics in India (Meerut, 1976)

19. Gail Omvedt (ed), Land, Caste and Politics in Indian States (Delhi,1981)

20. Ajit Roy, Monopoly Capitalism in India (Calcutta,1976)

21. Ranjit Sau, India's Economic Development : Aspects of Class Relations (Delhi,1981)

22. Daniel Thorner, Agrarian Prospect in India (Delhi,1956)

23. Daniel Thorner, The Shaping of Modern India (Bombay,1964)

24. Myron Weiner, India at the Poles (Washington,1978)

25. M.S.A.Rao(ed), Social Movements in India (2 volumes) New Delhi, Monohar,1978)

26. Gunnar Myrdal, Asian Drama : An Inquiry into the Poverty of Nations (3 volumes)(New York,1968)

27. David Selbourne, An Eye to India (Penquin,1977)

28. V.V.Rao, A Century of Local Self Government in Assam

29. Rajni Kothari, Politics in India (Orient Longman, 1989)

30. Rajni Kothari, Caste in Indian Politics (Orient Longman, New Delhi,1986).

31. Rudolf & Rudolf, In pursued of Lakhmi, The Political Economy of Indian State (Hyderabad, Orient Longman, 1987).

32. D.N.Dhanagare, Peasant Movements in India (1922-1950) (O.U.P., Delhi, 1983).

Periodicals :-

a) Economic and Political Weekly (Bombay)

b) Mainstream (Delhi)

c) Social Scientist (Delhi)

d) Teaching Politics (Delhi)

e) Seminar (Delhi)

f) Asian Survey

g) Teaching Politics.

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Proposed syllabus for Mathematics for the New integrated 3-years degree course (general/Major)

Introduction : The proposed syllabus has been drafted in accordance with the general guidelines approved by the Academic Council in its meeting held on 7.8.1992. The subject matter is distributed for the pass course in 4 papers of 100 marks each and for the Major course in 8 papers of 100 marks each. Both pass and the Major course will spread over 3 years with yearly examination . The structure and the content of the syllabus are determined to a large extent by the following factors:

(a) The pass course is a part of the major course; The courses run together from the very first year.

(b) Courses in Algebra and Calculus must form the core of the syllabus.

(c) Calculus and Vectors are pre requisit es for Differential Equations and Mechanics.

(d) Vectors and 3-d geometry should be studied together as far as practicable.

(e) In view of the changes in the School Syllabus for Mathematics, the future teachers must have a good grounding in set theory, elementary Number theory, group theory and computer applications.

Course Structure : Yearly distribution.

First year - Paper I (Pass) Group A : Calculus I (60)
Group B : Vectors and Geometry I (40)
Paper V (Major) Group A : Elementary Number Theory (40
Group B : Advanced Calculus I (60).

Second year - Paper II (Pass) Group A : Calculus II (60)
Group B : Algebra I (32)
Paper III (Pass) Group A : Mechanics I (60)
Group B : Geometry II (40)
Paper VI (Major) Group A : Advanced Calculus II (40)
Group B : Mechanics (60)

Third year - Paper IV (Pass) Group A : Algebra II (70)
Group B : Mechanics II (30)
Paper VII (Major) Group A: Differential Equations (40)
Group B: Advanced Algebra (60)
Paper VIII (Major) Optional paper (100)
to be chosen among the following :
(a) Probability and Sta tistical Method.
(b) Complex Function Theory
(c) Computer application
(d) Astronomy and Hydrostatics.

Note : The numbers in parentheses after the name of each course are the maximum allotted marks.

General Instructions

(1) Since pass and major courses run concurrently, to avoid difficulty, the topics should be taught in the sequence outlined in the syllabus.

(2) The theorems and the results listed in the syllabus must be taught with proof unless otherwise instructed.

Paper I (Pass course)
Group A : Calculus I Marks 60

(To answer four questions out of eight to be set)

UNIT I Functions and graphs : real valued function such as polynomials, rational functions, logarithmic functions, exponential function, hyperbolic functions. Limits: ε, δ definition, standard theorems on limits, standard limits. Continuity : Intuitive idea, ε-δ definition, theorems on sum, difference, product, quotient and composite of continuous function. Discussion of continuity of the functions mentioned earlier and their composites. Properties of continuous functions on closed, bounded intervals : (statements with illustrations only) boundedness, Intermediate value theorem, Uniform continuity.

UNIT II. Derivatives of real valued functions on inter-vals : definition, derivative as a rate measurer, derivative as the gradient of tangent. Theorems on sum, difference, product, quotient and composite of differentiable functions. Working out the derivatives of the common functions mentioned in UNIT I; Review of methods of differentiation. Differentials. Successive differentiation; Liebnitz's theorem.
L'Hospital's Rules (statements only with application)

UNIT III. Antiderivative : review of the standard methods; integration by parts and by partial fractions. Intgral of a continuous function as the limit of RiemannSum (including sums arising out of unequal division of interval); examples of evaluation of integrals from the definition. Statements with illustration of the following two results. Fundamental theorem of Integral calculus; differentiability of integral functions. Properties of definite integral, evaluation of integrals using these properties. Reduction formulas for $\int \sin^n x\,dx$, $\int \cos^n x\,dx$, $\int \tan^n x\,dx$, $\int e^{ax} \sin mx$, $\int \sin^n x \cos^m x\,dx$
Improper integrals, convergence and evaluation from definition.

UNIT IV. Sequences of real numbers : definitions of bounded sequences, convergent sequence, limit of a sequence, monotonic sequence; examples Proof of monotonic and bounded sequence is convergent (using completeness of $\mathbb{R}$ as an axiom). Cauchy sequence, Evaluation of limits of standards sequences by Rieman integrals. Infinite series of real numbers : partial sums, convergent series; comparison test, ratio test, root test. Absolute convergence. Leibnitz's theorem for Alternating series. Power series; radius of convergence (without the motion of limit superior).

Group B : Vectors and Geometry I

Marks: 40

(To answer two questions out of four to be set)

UNIT I. Space co-ordinates : rectangular cartesian, cylindrical, spherical polar. Vectors (in space) as directed line segments drawn from a fixed point; addition and scalar multiplication. Free vectors and localised vector. Distance between two points in space; section formula for position vectors. Rectangular resolution. Dot product and cross product. Application of vectors in plane geometry and plane trigonometry.

Direction cosines of a line; magnitude and direction of a vector in terms of components. Dot product and cross product in terms of components; laws obeyed by dot product and cross product. Projection of a line segment; angle between two directions. Triple scalar product, geometric significance. Triple vector Product. Equation of planes and straight lines; coplararity of two straight lines. Angle between two planes, perpendicular distance of a point from a plane or a straight line. Bisectors of two planes. (all equations to be derived in both vector and Cartesian notations)

UNIT II. Sphere : Plane section and equation; sphere through a given circle; tangent plane; pole and polar plane; intersection of two spheres radical plane (all equations to be derived in both vector and cartesian notation). Vector valued function of one or more variable upto 3; derivatives of such a function of a single variable; properties and geometrical application. Directional derivatives. Gradient of a scalar-valued function. Curl and Divergence of vector-valued function. Geometrical and physical signifance of gradient; physical significance of divergence.

Text Book (1) (For both the groups): Thomas, Finney; Calculus and aralytic geometry (Narosa Publishing House).

Paper II (Pass course)

Group A : Calculus II Marks 68

(To answer four out of eight questions to be set)

Unit I. Real-valued functions of two or three variables: limits; continuity; partial derivatives of first and second orders; Schwarz's theorem (statement only). Differentials. Chain rules. Euler's theorem on homogeneous functions, statement only for the general proof upto three variables case. Evaluation of line integrals (in a plane). Double integrals; change of order of integration; application in determination of area, volume and centre of mass (simple cases only).

UNIT II. Sign of the derivative of a real-valued function of a real variable; vanishing of $f'(x)$. Rolles theorem; geometric interpretation. Lagrange's Mean value theorem; geometric interpretation. & Cauchy's Mean value theorem. Applications of the Mean value theorems: (i) Increasing and decreasing functions, (ii) Concavity upwards and downwards, (iii) points of inflections, multiple roots, (iv) location of roots of $f'(x)$, (v) proof of the fundamental theorem of Integral calculus, (vi) Taylor's and Maclaurin's theorem with Lagrange's and Cauchy's form of remainders. Taylor's and Maclurin's Series; expansion of standard functions such as e^x, sin x , Cos x, log $(1+x)$, $(1+x)^{\alpha}$.

UNIT III. Application of differential Calculus; Equations of tangents and normals to plane curves; Newton's method of approximation of roots; use of differentials in approximation and error estimeates; Maxima and minima; Asymptotes; Tracing of simple plane curves having no singular points. Curvature of plane curves (Cartesian and parametric equations only) Applications of integral Calculus : Determination of (i) areas under simple plane curves, (ii) lengths of simple plane curves, (iii) volume and surface areas of solids of revolution in standard cases.

UNIT IV. Formation of differential equation. Equations of first order and first degree; solutions by separation of variables, by substitution. Homogeneous equation; linear equation; Bernoulli's equation. Exact equation; reduction to exact forms by integrating factors. Differential equations of first order but higher degrees; clairaut's equation and singular solution; geometrical interpretation. Application of first order differential equations to geometric and physical problems including orthogonal trajectories. Linear equation of second and third order with constant coefficients.

Text book 1. Calculas with Analytic geometry : Thomas and Finney (Narosa Publishing House).

Group B : Algebra I Marks 32

(To answer two questions out of four to be set).

UNIT I. Brief review of basics in set theory such as ways of describing a set, set operations, empty set, Disjoint sets, De Morgan's Laws, Venn diagrams.

The number $n(A)$ of elements of a finite set A; proof of $n(A \cup B)=n(A)+n(B)-n(A \cap B)$; applications. Power set $P(A)$; $n(P(A)=2^{n(A)}$. Ordered pairs; Cartesian product of two sets; elementary properties; IR x IR as the plane. Formula for $n(A \times B)$. Relation as a subset of Cartesian product (notation xRy if $(x,y) \in R$). Relation on a set; reflexive, symmetric, anti symmetric; transitive; examples from geometry and number systems. Equivalence relation and equivalence classes; partitions; examples. Functions/mappings from A to B as a rule of correspondence; as a subset of A x B. Graph of a real-valued function on $\mathbb{R}$. Identity map; inclusion map; restriction of a map. Composition of maps; associativity. onto, 1-1, bijective maps; elementary facts, examples. Inverse of a bijective map. finite and infinite set; proof of "If A is a finite set, then $f: A \longrightarrow A$ is 1-1 if and only if f is onto; examples where this assertion does not hold.

UNIT II. Binary operations; as a map $f: A \times A \longrightarrow A$; change of notation from $f(x,y)$ to $x \ y$ to xy. Commutative and associative binary operations; Identities and inverses (one-sided as well as two-sided); examples and nonexamples of these concepts. Groups; definition; detailed study of examples such as $\mathbb{Z}$, $\mathbb{Q}$, $\mathbb{R}$, $\mathbb{C}$, $\mathbb{Q}^\times$, $\mathbb{R}^\times$, $\mathbb{C}^\times$, $\mathbb{Z}_n$, S_n, $M_2(\mathbb{R})$, $GL_2(\mathbb{R})$, D_{2n}, $\mathbb{R}^2$, $\mathbb{R}^3$, n^{th} root of unity etc. Laws of indices in both additive and multiplicative notation. Right and left cancellation laws; uniqueness of identity and inverses. Group tables of groups of low order (upto 8). Subgroups; examples. Cyclic subgroup generated by an element; cyclic group. Abelian group. Subgroups of cyclic groups. Determination of all subgroups of $\mathbb{Z}$. Order of an element; examples of elements of finite order; of infinite order. Coset of a subgroup; cosets as equivalence classes; $\mathbb{Z}/n$ as cosets. Lagrange's theorem and its applications; groups of prime order; Fermat's (little) theorem; Euler's generalisation; application to simple number theoretic problems.

Text Book (1) Fraleigh : Abstract Algebra.

Paper III (Pass course)
Group A : Mechanics I (60)

(To answer three questions out of six to be set)

UNIT I. Velocity and acceleration in Cartesian co-ordinates. Rectilinear motion with variable acceleration. Simple Harmonic motion. Collision of elastic bodies; direct and oblique impact.

UNIT II. Projectiles.

Rectilinear motion in resisting media on a horizontal plane where resistance varies as (i) velocity, (ii) square of velocity, (iii) displacement. Vertical motion under gravity where resistance varies as (i) velocity, (ii) square of velocity.

UNIT III. Tengential and normal acceleration on smoth systems; Motion on a smoth plane curve such as vertical circles and cycloids. Nork done by a force; work energy equation. Potential function. Conservative forces.

Text books: 1. Gupta and Juneja : Dynamics.

Group B : Geometry II Marks 40

(To answer two questions out of four questions to be set)

UNIT I. (2-D). Change of axis- invariants. Pairs of straight lines. Geneal equation of second degree; the standard form; reduction of the general equation to standard form; conditions for different conics. General conics : equations of tangents, normals, pairs of tangents, chord of contact, Chord in terms of middle points, pole, polar, conjugate lines, diameter, asymptotes. Polar equation of conic; directrix, chord tangent and normal.

UNIT II. (2-D). Parabola, ellipse, hyperbola; conjugate diameters of ellipse and hyperbola; rectangular hyperbola; conjugate hyperbola.

(3-D). Equation of a cone with a conic as a guiding curve; enveloping cone; mutually perpendicular generators; tangent planes; reciprocal cone; right circular cone; Equation of a cylinder with a conic as a guiding curve; right circular cylinder.

Text Books: (i) B. Das : Analytical geometry and Vector Analysis.
(ii) Shanti Narayan : Analytical Solid Geometry.

Paper IV (Pass course)

Group A : Algebra II Marks: 68

(To answer four questions out of eight to be set)

UNIT I. m x n matrix over $\mathbb{R}/\mathbb{C}$ as a rectqngular array of numbers (motivation through systems of linear equation), square matrix. Row vectors and column vectors of a matrix. Equality of matrices. Addition, scalar multiplication and multiplication of matrices; elementary properties. Transpose, conjugate transpose, inverse of matrix; elementary properties. Special types of matrices; diagonal scalar, upper/lower treangular, nilpotent, idempotent, symmetric, skew-symmetric, hermitian, Skew-hermitian, their le elementary properties. Trace of square matrix; elementary properties.
Row rank/column rank of an m x n matrix (in terms of linear independence of row/column vectors of the matrix) Elementary operations; elementary matrices; Row/column reduced echelon form of a matrix, elementary properties.. Determination of the inverse of a matrix by elementary operations.

UNIT II. Theorem of the equality of row-rank and column rank ; Rank of a matrix. Determination of the rank by elementary operations. Determinants (as eliminants of system of equations), properties (without proof; statements only). Adjoint of a matrix; inverse in terms of adjoints. Determinantal rank of matrix; equality of rank and determinantal rank. Systems of linear equations; consistency; solutions; Cramer's rule. Evaluation of standard determinants (upto fouth order), Laplace's expansion.

UNIT III. Polynomials over $\mathbb{Z}/\mathbb{Q}/\mathbb{R}/\mathbb{C}$; properties with respect to addition and multiplications (statements only; emphasis should be on intuitive understanding based on previous experience with polynomials). Degree of a polynomial; degree of sum & product of two polynomials. The division algorithm; remainder theorem. GCD; the Euclidean algorethm. Irreducible polynomials; unique factor sation theorem. Roots of a polynomial; Factor theorem. Statement only of the Fundamental theorem of algebra; its failure for polynomials over $\mathbb{Z}/\mathbb{Q}/\mathbb{R}$. Simple tests of irreducibility of polynomials with rational/ integer coefficients.

UNIT IV. (Theory of equation). Detailed study of roots of a Polynomial with real coefficients: Immediate consequence of the fundamental theorem of Algebra. Multiple roots, common roots, complex roots, surd roots. Relation between roots and coefficients of a polynomial. Symmetric

functions of the roots of a polynomial equation with special reference to cubic and biquadratic equations. Transformation of equation. Descarte's rule of signs; simple application. Location of roots using Rolle's theorem. Solution of a Cubic by Cardan's Method. De Moivre's theorem (for rational exponent); application to solution of equation.

Text books. (1). Bhattacharya, Tain, Nagpaul: First course in Linear Algebra. Wiley Eastern

(2) B. Das: Higher Algebra.

Group B : Mechanics II Marks:32

(To answer two questions out of four to be set)

UNIT I. Coplanar forces: Reduction of coplanar forces; equilibrium of coplanar forces; general condition of equilibrium of any system of coplanar forces.

UNIT II. Friction : Laws of statical friction; laws of limiting friction. Coefficient of friction, angle of friction, cone of friction. Solution of problems on equilibrium of heavy bodies (such as uniform rods, solid spheres) resting on plane surfaces.

Centre of gravity of thin uniform rod; uniform lamina triangular and parellelogram; Centre of gravity of circular ares; of uniform sector of a circle. Moments and products of Inertia; theorems of parallel and perpendicular axes. Angular momentum of a rigid body about a fixed point; about a fixed axes. Principal axes.

Text books. 1. R.S. Varma : Statics (Pothishala, allahabad)

2. Chorlton; Text book of Dynamics, (CBS Publishers and Distributors, Delhi).

Paper V (Major)

Group A : Elementary Number Theory

Marks: 40

(To answer Two questions out of four to be set)

I. Divisibility in the set of integers; basic properties. The division algorithm. GCD; elementary properties; the Euclidean algorithm. LCM. Primes (in the set of natural numbers.) The fundamental theorem of Arithmetic. Euclid's proof of the infinitude of primes. Arbitrary gaps in the distribution of primes. Congruenees in the set of intgers module a positive integer; basic properties. Complete Residue system. Reduced residue system. Euler's ϕ-function. Fermat's theorem; Euler's generalisation of Fermat's theorem; application. Wilson's theorem.

II. Solution of Congruences : linear congruence; Chinese remainder theorem; congruences of higher degree modulo a prime power, modulo a prime.

Greatest integer function; elementary properties. Arithmetic functions; multiplicative functions; functions such as $\phi(n)$, $\mu(n)$; $\tau(n)$, $\sigma(n)$, $\sigma_k(n)$. Moebius Inversion formula; Solutions of (i) linear Diophantine equation, (ii) Pythagorean equation.

Text book: (1) An Introduction to the theory of Numbers (3rd Edition): Niven & Zuckerman , Wiley Eastern Ltd.

Group B: Advanced Calculus I

Marks: 60

(To be answer three out of six questions to be set)

I. Riemann Integral of functions of one variable; Darboux's theorem. Conditions for integrability; classes of bounded and integrable functions. Properties of integrable functions; inequalities for an integral. Functions defined by integrals; their continuity and differentiability. Mean value theorems for integrals. Improper integrals; Tests for convergence when the integrand is non negative. Absolute convergence; tests for absolute and conditional convergence ; Abel's theorem, Dirichlet's theorem. Frullani's integral.

II. Integrals as functions of parameters; continuity, differentiability and integrability of such a function; applications to evaluation of integrals. Improper integrals as functions of a parameter; uniform convergence and tests for uniform convergence; continuity, differentiability and integrability of such functions (ie, of uniformly convergent improper integrals of continous functions involving parameters.) Evaluation of integrals.

III. Sequences of (real valued) functions; pointwise and uniform convergence; properties of uniformly convergent sequences of functions. Series of functions; uniform convergence, tests for uniform convergence; properties. Power series; interval of convergence; term by term integration and differentiation; standard examples of power series.

Text Books : 1. Shanti Narayan : A Course of Mathematical Analysis (S. Chand & Co. Delhi)

2. Apostol : Mathematical Analysis (Narosa)

Paper VI (Major)

Group A : Advanced Calculus II Marks: 40

(To answer two questions out of four to be set)

UNIT I. Usual distance function in the Euclidean space $\mathbb{R}^n$. basic properties. Properties of $\mathbb{R}/\mathbb{R}^2/\mathbb{R}^3$ under the distance function: open sets, closed sets, adherent points, limit points, interior points; Bolzano-Weierstrass theorem; Cantor intersection theorem, (rested Interval) Lindelhof convering theorem, compact sets; Heine-Borel theorem; equivalent statements. Study of maps from subsets of $\mathbb{R}^n \to \mathbb{R}^m$, $n=1,2,3$): Continuity, in terms of ϵ, δ notation, in terms of inverse images of open sets and closed sets. Elementary properties of continuous functions Continuous functions on compact sets; special cases of continuous real valued functions on closed, bounded intervals of $\mathbb{R}$- bounds; Intermediate value theorem; uniform continuity.
Discontinuities of real valued functions. Monotonic functions; continuity of the inverse of a strictly monotonic function.

UNIT II. Real-valued functions of two or three real variables; partial derivatives; directional derivatives; differential; change in the order of partial derivatives- Young's theorem; Schwarz's theorem. Differentiation of composite functions; chain rule. Mean value theorem for two variables; Taylor's expansion of functions of two variables; extreme values of such functions; critical points. Lagrange's multipliers- application.
Line integral in $\mathbb{R}^2$. Riemann integral of functions of two variables; evaluation of double integrals- Change of order of integration; change of variable; Jacobian, Green's theorem in $\mathbb{R}^2$. Beta and Gamma functions.

Text Books : 1. Shanti Narayan: A Course of Mathematical Analysis (S. Chand. Delhi)
2. Apostol - Mathematical Analysis (Narosa)

Group B : Mechanics Marks : 60

(Three questions to be answered out of six to be set)

UNIT I. Motion on a rough curve; Cycloidal motion with resistance. Velocity and acceleration in polar Co-ordinates. Motion of a particle under central forces; use of reciprocal coordinates; use of pedal co-ordinates and pedal equations. Kepler's laws of Planetary motion.

UNIT II. Kinetic energy of a rigid body rotating about a fixed axes. Momental ellipsoid; equimomental systems. Coplanar distributions. General motion of a rigid body.

UNIT III. Two dimensional rigid body dynamics : Problems illustrating the Laws of motion, Laws of conservation of energy. Impulsive motions.

Text Book.

1. F. Chorlton : Text book of dynamics (CBS Publishers and Distributors, Delhi.)

Paper VII (Major)

Group A : Differential equations Marks: 40

(To answer two questions out of four to be set)

UNIT I. Linear differential equations with variables coefficients. Homogeneous equations; Exact equations. 2nd order equations. Simultaneous equations. Total differential equation $Pdx + Qdy + Rdz = 0$.

UNIT II. Partial differential equation of First order. Standard forms. Lagrange's Methods. Charpit's Method.

Text Books : For unit I (1) Piaggio : An Elementary Treatise on Differential equations and applications (G. Bell & Sons)

For Unit II (2) Sneddon : Elements of Partial Differential Equation (Mc Graw Hill).

Group B : Advanced Algebra

Marks: 60

(To be answer three questions out of six to be set)

UNIT I. Brief review of the group-theoretic material in Algebra I, group B of paper II (Pass).

Normal subgroups; examples; conditions for a subgroup to be normal. Centre of a group; examples. Quotient group; the group Homomorphism, kernel, isomorphism. Fundamental theorem of group homomorphism Isomorphism theorems. Automorphisms; inner automorphisms. examples.

Rings (motivation through $\mathbb{Z}$): Definitions and examples of (i)rings with identity, (ii) commutative rings, (iii) rings with and without zero divisors, integral domains, (iv) division rings, (v) fields (Examples include $\mathbb{Z}$, integers mod n $\mathbb{Z}_n$, fields $\mathbb{Q}, \mathbb{R}, \mathbb{C}$ polynomial rings $R[X]$, matrix rings $M_n(R)$, R commutative with identity). Basic properties of rings; chacteristic. Finite integral domain. ($\mathbb{Z}$ as an example). Subrings. Ideals : right, left and two-sided; generated by a sub-set, more specifically by a finite number of elements in a commutative ring with 1. Principal ideals. Examples of ideals in $\mathbb{Z}$, $\mathbb{Z}_n$, $M_n(R)$; result

about ideals in fields. Prime ideals, maximal ideals in a commutative ring with 1; examples. Quotient ring; $\mathbb{Z}/n$ as a quotient ring.

UNIT II. Ring homomorphisms; Kernels; isomorphisms. Homomorphism and isomorphism theorems including the correspondence theorem. Determination of ideals in $\mathbb{Z}/n$.
Divisibility in integral domain (with 1); units, associates, Prime elements, irreducible elements, GCD ; examples and basic results. Euclidean domain; Principal ideal domain; Unique Factorisation domains; def examples and basic results. Polynomial ring R [X], R Commutative with 1, basic properties. Result about F [X] where F is a field. Eisenstein's theorem; application.

UNIT III. Vector spaces (Motivation through $\mathbb{R}^2$, $\mathbb{R}^3$); examples, basic properties. Subspaces. Homomorphism or linear maps between vector spaces; Homomorphism or linear maps between vector spaces; isomorphisms; standard homomorphism and isomorphism theorems. Direct sum (internal and external). Linear dependence and independence; basis, dimension. verification of V. into W; algebra axims for L(V,V). Dimension of L(V,W); special cases. Dual space. Statement of the V. Space property of $M_{mxn}(F)$, of algebra property of $M_n(F)$. The matrix of a linear transformation in L(V,W); similar matrices, change of basis theorem. The vector space is isomorphism between L(V,W) and $M_{mxn}(F)$; the algebra isomorphism between L(V) and $M_n(F)$ (statement only for these two isomorphism). Rank and nullity of a linear transformation; "rank + nullity = dim". theorem. Equality of rank of a linear transformation and the rank of the associated matrix.
Characteristic roots, ch. polynomial, ch. vector of a linear transformation/matrix; determination of ch. roots and ch. Vectors (2 x 2 or 3 x 3 matrices over $\mathbb{R}$) Test of linear independence of ch. vectors; corresponding diagonalisation theorem.

Text Books : 1. Herstein : Topics in Algebra (Vikas Pub. House).

2. Fraliegh : A first course of Abstract Algebra (Narosa)

Paper VIII : Probability and Statistical Methods (Optional) Marks : 100

(To answer five questions out of ten to be set)

I. Probability ; classical definition and its limitation the axiomatic approach. Theorems on total probability, conditional probability and compound probability. Bey's theorem. Statistical independence of events. Continuous probility; density functions; distribution functions ; geometrical and other related problems.

II. Random variable; definition; mathematical expectation of a random variable. Theorems on the sum and product of several random variables. Moments as expectation; mean and variance. Moment generating functions; characteristic functions. Tchebyshev's lemma and inequality. Weak law of the large numbers.

III. Distributions; hypergeometric, binomial and poisson distributions and their elementary properties. Derivation of the expectation of $x_{(p)}=x(x-1)(x-2).....(x-P+1)$.
Moments (upto the 4th order); Recursive relations among the moments of the binomial and poisson distributions Normal distributions; properties; its importance in theory and in practice. Normal distribution as the limit of the binomial.

IV. General differential equation of Pearsonian family of curves relations among the moments. Derivation of the equations of types I, IV, VI.

V. Sampling distributions; Distribution of a linear function of independent normal variables. Distributions of χ^2, t and F; derivations and properties. Distribution of the sample mean and variance of independent random observations from a normal population.

Text books

1. Goon, Gupta & Dasgupta - Fundamentals of statistics Vol.I

2. Uspensky

3. Kapur and Saxena - Mathematical Statistics.

Paper VIII (Major)

Complex Function Theory (Optional)

Marks : 100

(To answer five out of ten questions to be set)

I. Complex numbers; field properties. Absolute value, conjugate Basic properties. Real and imaginary parts. Identification of the plane with the complex numbers. Distance function (in terms of the abs value); triangle inequality , parallelogram law; related inequalities. Polar representation; magnitude, argument. DeMoivre's theorem; roots of unity.
Geometry of complex numbers - straight lines, circles in terms of complex numbers. Equation of circles through three points. Spherical representation.
Sequence of complex numbers; convergence, ratio test, root test lim inf, Cauchy sequence.

Power series; absolute convergence, uniform convergence. Circle of convergence; Cauchy-Hadamard formula for the radius of convergence; ratio test.

Analytic function (as function differentiable only at every point of a domain); basic properties. Analiticity of power series. Power series de-finition of (complex) exponential function, sine, cos functions. Branch of a logarithm; Principal branch of a power function Z^x for complex x. Cauchy Riemann theorem and its converse.

III. Integration of complex - valued function along a "piece -wise differentiable" curve (using real integrals for real and imaginary parts); basic properties (including inequalities). Cauchy's Integral formula for the disc. Power series representation of analytic functions. Cauchy's estimate, Liouville's theorem, fundamental theorem of Algebra. Zeros of an analytic function; related results. Maximum Modulus theorem.

IV. Singularities; classifications; properties related to removable singularity, pole, essential singularity. Laurent's expansion. Calculus of residues; evaluation of standard real integrals. Bilinear/Moebius trans-formation; translation, magnification and rotation, inversion. Cross ratio. Preservation of st. lines and circles (statement only). Special transformations such as ones (a) mapping real axis onto itself, (b) unit circle onto itself (c) real axis onto unit circles. (d). unit circle to unit circle.

VI. Analytic function as mappings, Conformal maps. "Bilinear transformation are conformal maps". Properties Mappings such as

Mappings of given domains to others.

Text Books:

1. Shanti Narayan : Theory of functions of a Complex variable (S. Chand & Co.; Delhi)
2. Conway : Functions of one Complex Variable (Narosa). (For section II).
3. Alforhs : Complex Analysis, (Mc Graw Hill) (for the def. of integrals and properties in section III).

Paper VIII (Major)
Astronomy and Hydrostatics (Optional) Marks: 100

Group A: Astronomy (20 x 3= 60)

(To answer three out of six questions to be set)

I. Spherical Triangles; Formulas for spherical trigonometry. Solution of spherical triangles. Position of a point of a sphere. Length of a small circular arc. The celestial co-ordinates. Rising and setting of stars. Dip of the horizon.

II. Atmospheric refraction, twilight. Orbital and synodic periods of a planet; direct and retrograde motions of planets; stationary points. Phases of the planets and the moon. Brightness of planets. Kepler's Laws. Apparent solar motion; signs of the zodiac, sidereal time and mean time; correction of time; equation of time. Seasons, calendar.

III. Geocentric parallax , stellar parallax; effects on right ascersion; declination; longitude & latitude; paralactic ellipse; aberration; eclipses.

Text Books : 1. Todhunter : Spherical Trigonometry (Machmillan)

2. Dey, K.K. : Astronomy (Book Syndicate)

Group B : Hydrostatics
(20 x 2 = 40)

(To answer Two out of four questions to be set)

I. Fluid pressure; transmissibility of fluid pressure. Conditions for equilibrium. Pressure equation. Surfaces of equi-pressure; surfaces of equi-density. Conditions of equilibrium of a floating body; Stability of equilibrium.

II. Resultant pressure on surfaces (plane or curved); centre of pressure. Rotating fluids; atmosphere. Adiabatic expansion. Isothermal convective equilibrium.

Text book : Gupta : Hydrostatics (Kedarnath Ramnath)

Paper VIII (Major) — Marks-100
Computer Application (Optional)
Theory (10 x 5 = 50) — Fortran 77

I. Evolution of computers : Nature of computers, first, Second. third, fourth and fifth generation computers.

Logic level : Boolean Algebra- AND, OR, NOT, NAND, NOR gates, truth tables, flip flops, half adder, full adder.

Number representation : Binary, decimal, octal, hexadecimal, signed magnitude representation, one's complement representation, fixed and floating point representation.

Computer Software : Hardware, software, High level languages, assembly language, machine language system software consisting of Assembler, Macro-assembler, Interpreter, Compiler, Loader, Linker, Text editor, (an introduction to the above concepts only) operating system- Definition types, major functions. Difference between a subroutine and a macro.

Memory organization : Memory hierarchy, RAM, ROM, magnetic disk memories, floppy disk, tape, bubble and CCD memories. Peripheral devices.

Flowcharts, Algarithms - Definition and characteristics. Euclid's Algorithm for HCF.

II. Fortran, Fundamentals - Characters, variables, variable names, syntax, statements, subprograms.

III. Constants, variables and expressions; names, types, evaluation of expressions.

IV. Input-Out put statements : unformatted and formatted input output; Integers, Reals, Complex, Double Precision, Logical Variables, Alphanumeric Information, Data Statements; Blanks and record specification.

V. Branches and Loops - Unconditional, computed; Assigned GOTO statement; IF and DO statements; Nesting of DO Loops.

VI. Arrays : DIMENSION Statement. Order of storage; Equivalent statements. Input and output of Arrays. Implied DO notation.

VII. Function and subroutines; Functions and their references. Statement function. Subroutines call and return statements. Common statements. Library functions.

Text Books :

1. Ram Kumar; Programming with Fortran 77,
2. Dr. V.K. Gupta, Computer Programming in Fortran IV, (Pragati Prakashan, Meerut.)
3. Meissner, L.P., and Organick, E.I: Fortran-77, Addison-Wesley '80.

Practicals (50 marks) Fortran 77

(Involves about 10 lectures covering sections VIII and about 50 hours on machines)

VIII. Disk operating systems : Fundamentals, operating systems. Peripherals their functions and care. DOS commands. Creation of files and editing; copying, merging of files. Entering program and executing them.

IX. Practice in solving the following programs -

1. Evaluation of roots of quadratic equations.
2. Arranging given set of numbers in increasing/decreasing order- Calculation of mean.
3. Evaluation of Sum of power series eg. e^x, sin x Cosx , log (1+x)
4. Evaluation of Legendre polynomials from recurrence relations.
5. Solving simple/Algebraic/Transcendental equations; Nenton's Method (real roots only).
6. Evaluation of integrals (Simpson/Trepezoidal Method)
7. Numerical differentiation : Finding maxima, minima from Interpolation
8. Matrix operations : adding, multiplying, Powers, transpose etc,
9. Inversion of real matrices.
10. Eigenv lue and eigen vecto: of real symmetric matrices.
11. Solving socond order differential equations (Runga-Kutta)
12. Least square fit of straight lines, parabola.

Notes:

1. Programs 9, 10, 11, 12, to be done making use of library programs.
2. For the mathematical concepts like Legendre polynomial, Newton's method, Simpson/Trepezoidal method, interpolation, least square fit of straight lines etc. only working knowledge necessary for writing programs is required.

		Marks
Paper VI (Major III)	Regional Geography	70
	a) Asia b) North America Or Europe	
	Practical	30
	Total.	100
Paper VII (Major III)	History and Nature of Geography	70
	Practical	30
	Total.	100
Paper VII (Major IV)	Optional Papers -Theory +Practical	
	Out of following papers students are required to offer one for Major/VII Paper. (a) Advance Geomorphology. (b) Environmental Geography (c) Geography of Rural Settlement (d) Cartography & Surveying.	70
Paper VIII (Major V)	Practical	30
	Out of following papers students are required to offer one for Major/VIII Paper. (a) Population Geography (b) Urban Geography (c) Resource Geography & Regional planning. (d) Agriculture Geography.	70
	Practical	30

5 4 2 3(21)

P A P E R - I

PHYSICAL GEOGRAPHY Maximum Marks: 70
Time : 3 Hours.

Candidates will be required to answer five questions, Two from Part "A" and two from Part "B" and one from Part "C".

PART "A". Geomorphology 28

1. Theories regarding origin of the earth - The views Kant, Laplase, Jean and Jeffrey and Chambarlin.
2. Internal Structure of the earth with reference to Seismological evidences.
3. Earth movements - Mountain building forces, Theories regarding the origin of Mountains, Continental drift theory, Conventional current theory, Isostasy and Plate Tectonics.
4. Work of the Rivers, Wind, glaciers, underground water with their associated Landforms.
5. Cycle of Erosion - Normal cycle of erosion, cycle of Erosion in arid region and coastal region. Interruptions in a Cycle of erosion and the resultant topography.
6. Evolution of drainage and drainage patterns .Origin and types of Lakes.

PART "B" . Climatology 28

1. Structure of the atmosphere; Insolation, Heat budget, Norizontal and Vertical distribution of temperature and Inversion of temperature.
2. Origin, classification and characteristics of air masses, Fronts & Front-genesis.
3. Atmospheric disturbances - Tropical and temperate cyclones and Anti-cyclones.
4. Classification of world climates- Thornthwaite, Koppen and Trewartha.

PART "C". Oceanography:- 14

1. Configuration of the Ocean floor - Pacific, Atlantic and Indian Ocean
2. Salinity distribution - Horizontal and Vertical.
3. Temperature distribution in the Oceans - Horizontal and Vertical.
4. Water masses, Ocean deposits, Coral reefs theories of coral-reefs formation - Darwin and Murray Hypotheses.

Suggested Readings:

1. Strehler - Physical Geography.
2. Strehler - Modern Physical Geography
3. Strehler - Elements of Physical Geography.
4. Holmes A. Principles of Physical Geology.
5. Thornbury - Principles of Geomorphology.
6. Worcester P.G. A Text Book of Geomorphology.
7. Enayat Ahmed-Physical Geography.
8. Trewartha G.T.- An Introduction to Climate.
9. Chritchfield - General Climatology.
10. D.S.Lat - Climatology.
11. R.C.Sharma - Oceanography for Geographers.
12. Steers J.A. - Unstable Earth
13. Woolridge and Morgan - Principles of Geomorphology.

Paper I Practical — Total Marks
Time 3 hrs.

1. Enlargement & reduction of maps. 8
combination of maps on two different scales.

2. Representation of releef and elevation 8
(a) Methods of Representation.:

(i) Pictorial Method- Hachures and Hill shading
(ii) Combination of several methods, such as [illegible] and Hachures, contours and layer tints.

(b) Representation by contours and their profiles.

(i) Cliff (ii) Curque (iii) Watershed (iv) [illegible] meander (v) River Terraces (vi) Ox-bow-lake (vii) Fiord coast (viii) Ria Coast (ix) Limestone region (x) Glaciated region.

3. Chain Tape Surveying. 8

4. Practical Note Book and Viva Voce 3+3=6

BOOK RECOMMENDED

1. Monkhouse F. & J.& Wilkinson H.R. : Maps and Diagrams
2. Singh, R.L. : Elements of Practical Geography.
3. Hanry and Raiz : Cartography.

5:2:3(24)

- 7 -

P A P E R - II.

Economic and Human Geography Maximum Time

Candidates will be required to answer five questions selecting atleast two question from each part.

PART "A": Human Geography

1. Meaning and scope of Human Geography, Branches of Geography, Approaches to the study of Human Geography.
2. Man and Environment felationship, the concepts of determinism and possibilism.
3. Classification, characteristics and distribution of the races.
4. Early steps in Human progress- Stone age tools metals, agricultural revolution, domestication of animal and early apparatus of civilisation.
5. Growth, distribution and migration of population in the world.
6. Mode of life in selected natural regions.
   (a) Tundra-Eschimo (b) Equatorial(Pygmies)
   (c) Temperate (Kirghiz)
7. Settlements: (a) Rural Settlements(Factors controlling rural settlements, Functions of rural settlement, Types rural settlement. (b) Urban Settlement(Factors controlling Urban settlements, Types of urban settlement).
8. Human culture - Definition of culture, Cultural change Languages of mankind, religions of mankind.
9. Houses and their types in the world.
10. Recreation and Tourism in the world.

PART "B": Economic Geography:-

1. Meaning, scope and importance of Economic Geography.
2. Agriculture - Factors affecting agriculture, Types of agriculture, Distribution, production and trade of Millets, Jute, Sugar beet and rubber.
3. Mineral and power resources - Coal, Petroleum and water powers. Distribution, production and trade of Iron ore, Manganese and atomic minerals.
4. Manufacturing Industries - Factors of localization - of industries. Detail study of Iron & steel, Petroleum and Cotton textile industries in the
5. Transport linkages - Railways - Trans-Siberian Railway, Canadian Pacific Railway.

   Sea routes - North Atlantic route, Suez Canal route, Panama Canal route, Cape route. Airways - International Airways.
6. International Trade - Basis of International trade. India's foreign trade in relation to U.S.A., USSR and Japan.

Suggested Readings:

1. Hamond - Human Geography.
2. H.Robinson - Human Geography
3. Leong - Human and Economic Geography
4. Broke - Geography of Mankind.
5. Balbir Singh Negi - Human Geography.
6. Huntington - Principles of Human Geography.
7. Khanna and Gupta - Economic and Commercial Geography
8. Guha and Chattoraj - Economic Geography.
9. Alexander John - Economic Geography.

Paper II Practical Total Mark
Time

1. Interpretation of Topographical maps, the topogr... maps had to be selected with respect to (i) a pa... (ii) a part of plateau (iii) a part of mountain ...

2. Map projection with properties & uses

a) Zenithal stereographic, orthographic (polar ...
b) Simple cylindrical and cylindrical equal area
c) Bonnes & conical with two standard parallels

3. Prismatic compass surveying with close and open tr...

4. Practical Note Book and Viva Voce. 3+3=...

BOOK RECOMMENDED

1. Monkhourse & Wilkinson : Maps and Diagrams.
2. Kanetkar, T.P. : Surveying & Levelling Vol.I & II.
3. Singh, R.L. : Elements and Practical Geography.

Paper III Regional Geography of India Maximum
Time :

(Stduents will be required to answer five questions, selecting at least two from each part. ~~selecting three from Part A and two from Part B.~~

Part A : Geography of India :-

1. Regional study of India based on physiography, climate, soil Natural Vegetation.
2. Agricultural - Types of agriculture, agriculture regions, and prospects of agriculture.
3. Mineral and Power resources - Iron Ore, coal, petroleum and
4. Industries - Location and distribution of Iron & Steel, petrochemical, cement and sugar Industries.
5. Population - Growth of population since 1901, distribution population and density of population.
6. Racial groups, Lingustic groups, Religious groups and their distribution.
7. Settlement patterns and Trend of urbanisation.
8. Regions India - Geographical study of the following regions in details.
   (a) Rajasthan Desert (b) Kashmir region (c) chotanagpur region. (d) Malabar coastal region.

Part "B" : Geography of North East India :-

1. Regional study based on physiography, geological structure, climate, soils and natural vegetation.
2. Agriculture - Types of agriculture, Problems and prospects of agriculture.
3. Resources - Utilisation of resources with special reference forest, agriculture, mineral and power resources.
4. Population - Growth, distribution and density of population Rural and Urban population, Linguistic groups and religious
5. Distribution of tribal population, Tribes of North-East India settlement patterns.
6. Means of Transport and communication, problem and prospects transport linkages.

5.2.3(28)

7. Industries - Manufacturing and cottage industries, problems prospects of industrial development. Agricultural, Mineral & forest based industries in North-East India.

8. A detail study of the following :-

(a) Arunachal Pradesh (h) Assam.
(b) Assam.
(c) Manipur
(d) Meghalaya
(e) Mizoram
(f) Nagaland
(g) Tripura.

Suggested Readings :-

1. O.H.K. Spate - India and Pakistan
2. R.L. Singh - India - A Regional Geography
3. B.S. Negi - Geography of India (1989)
4. R.C.Sharma - Economic and Commercial Geography of India.
5. H.P.Das - Geography of Assam.
6. R.P.Singh - Geography of Manipur.
7. Chib S.S. - Meghalaya
8. Chib S.S. - Nagaland.
9. Mathew T. - North-Eastern Hill Region of India. (Problems Prospects development)
10. Mathew T. - Tribal Economy of N.E. Region.
11. NEICSSR, Shillong - Shifting cultivation in N.E. India.
12. Science Society Shillong - Resource potentials of N.E. India Vol I & II
13. Pankaj Thakur - Development strategy for India's North-E
14. P.C.Goswami - Economic Development of Assam.

5:2:3(29)
12

Total Marks
Time - 3

Paper III Practicals

1. Representation of statistical data 8

(a) Prepration of thematic map using proper colour or shades.

(b) an excersise on distribution of map showing the density of population in N.E. India by shade

(c) Super imposition of proportionate circles on

2. Statistical methods 8

(a) Measurment of dispersion

(b) Time Series analysis

(i) Simple

(ii) Moving average

(c) Use of Index number

3. Plane table survey. 8

4. Practical Note Book and Viva Voce 3+3=6

BOOK RECOMMENDED

1. Monkhouse & Wilkenson : Maps & Diagrams.

2. Aslam Mahmood : Statistical Methods.

3. Goon,Gupta, Das Gupta : Fundamentals of Statistics Vol, I & II.

4. Singh, R.L. : Elements of Practical Geography.

Paper IV : Physical Basis of Geography Marks

Students have to select at least two questions from Part A and one each from other Parts.

(A) GEOMORPHOLOGY (28)

1. Theories regarding origin of the earth. Particularly to stress on the views of Schmidt and other modern theories.

2. Seismological evidences for the study of the interior of earth, isostasy and an outline of Plate tectonics.

3. Weathering and mass wasting, characteristics of slopes.

4. The geomorphic cycle, views of Davis and Penck. Interplay and movement of base level, peneplain concept, bajadas and Pediplain, erosion surfaces.

5. Theories about the evolution of coast lines.

(B) CLIMATOLOGY (14)

1. Insolation, heat budget, heat balance, inversion of temperature and horizontal and vertical distribution of temperature, hydrological cycle.

2. Air masses & Fronts-origin, characteristics, tropical and temperate cyclones, Frontogenesses etc.

3. Mechanics of monsoon, distribution and effects.

4. World classification of climates, Thornthwaite's and Koppen's and special studies of Indian climate.

(C) OCEANOGRAPHY (14)

Density of oceanic water, water masses, oceanic deposits, theories of formation of coral reefs.

(D) BIOGEOGRAPHY (14)

(1) Meaning and scope and significance of biogeography.
(2) Ecological conditions of plant and animal life.
(3) Global distribution of major plant and animal communities.
(4) Introduction and extinction of plants and animals.
(5) Concept of ecosystem and food chain.

BOOKS RECOMMENDED

Physical basis of Geography

1.	Tikkha, R.N.,	Physical Geography (1981-82 Ke... Ram Nath, Me...)
2.	Monkhouse, J.F.,	Principles of Physical Geogra...
3.	Strechler A.N.,	Intriduction to Physical Geogr... (International Ed., 1973)
4.	Holmes, A.,	Principles of Physical Geolog...
5.	Thornbury, W.D.,	Principles of Geomorpholog...
6.	Pitty A.F.,	Introduction to Geomorphology
7.	Worcestor P.G.,	A Text Book of Geomorphology
8.	Trewartha G.T.,	An Introduction to climate
9.	Chritchfield, H.J.,	General Climatology
10.	Barry & Charley.,	Atmosphere, Whather and Climate
11.	Miller, Austin	Climatology
12.	Patterson,	Introduction to Meteorology
13.	Sharma R.C.,	Oceonography for Geographers
14.	Growe P.R.,	Concepts in Climatology
15.	Yann, H.,	Geography of Landforms
16.	Steers, J.A.,	The Unstable Earth
17.	Hidore	Geography of Atmosphere
18.	Woolridge & Morgan	Principles of Geomorphology

Marks -
Time- 3

PAPER IV (MAJOR I, PRACTICAL

1. **Methods of Representation & Analysis of Relief and drainage.**

   (a) Relief Profiles - simple, projected, composite or super imposed.

   (b) Cross and longitudinal profiles of streams.

2. (a) Prepration of average slope maps.
   (b) Drainage frequency maps.

3. (a) Area-hight curve
   (b) Hypsometric curve
   (c) Block diagrams.

4. Practical Note Book and Viva Voce. 3+3

BOOK RECOMMENDED

1. Miller, A., : Skin of the Earth.
2. Hanery and Raiz : Cartography.
3. Monkhouse and Wilkenson : Maps & Diagrams.
4. Singh, R.L. : Elements of Practical Geography.

5.2.1(33)

Paper V : Regional Geography :- Maximum Mark-

(Students will be asked to answer 5 questions selecting at least two from each part)

Part "A" : Regional Geography of Asia :-

(a) Regionalisation of the continent with special emphes on physiographic regions, climatic regions, soil regi and population density zones.

(b) Detail study of the following countries :-

China, Japan, Pakistan and Nepal. (The countries will b studie d under the following heads :- Physiography, climate, Natural vegetation, Agriculture, Mineral re Industries and population distribution).

Part "B" : Regional Geography of North America or Europe

(a) Regionalisation of the continent with special emphesis on physiographic regions, climatic regions, soil regi and population density zones.

(b) Detail study of the following countries :-

North America - U.S.A. or Canada. Europe - U.S.S.R. France. (The countries will be studied under the fol heads :- Physiography, Climate, Natural Vegetation, Agriculture, Mineral resources, Industries and popul distribution).

BOOK RECOMMENDED

1. Rawson, R.R., : Monsoon Lands of Asia, Hutchinson Educational Ltd., 1963.

2. Spencer, Joseph and Thomas, William,L. : Asia-East A Cultural Geography, John Wiley & Sons, New Y

3. Trewartha,G.T. : Japan : A Physical, Cultural and Regional Geography,Methuen & Co., London, 1960.

4. Fisher, Charles, A. : Southeast Asia. Methuen & Co.,

5. Chiao-nim Hsieb : China, Ageless Land and Countless

6. Van Nostreand, New York, 1967.

6. Singh, R.L. (Ed.) : India : A Regional Geography, Geographical Society of India, 1971.

7. Kolb, A. : East Asia, Methuen & Co. Ltd., London,

North America

BOOK RECOMMENDED

1. Birdsall, S.S. : Regional Landscapes of United States / America and Canada, John Wiley & Sons, New York, 1978.

2. Patterson, J.H., L North America, Oxford University Press, New York, 1975.

3. Monkhouse, F.J., and Clain,H.R. : North America, Longman, London, 1975.

4. Hudson, F.S. : North America, McDonald & Evans, Plymouth.

Europe

1. A Regional geography Western Europe F.J. Monkhuse.
2. Europe excluding Brilish Islos and U.S.S.R. Branigan,J.
3. Europe- a regional Geography- Shahleton,Margret Reid.
4. Europe in Maps - Knowler R.

PAPER V (MAJOR II) PRACTICAL.

Marks : 30
Time: 3 Hours

1. Study and Interpretation of toposheets of mountain plateau, Plain, and coastal areas with reference to land forms, drainage, landuse, settlements, and mode of transport.

2. Representation of Temperature, pressure and Rainfall data:-

   a) Use of Isotherms, Isobars and Isobyets.

   b) Construction and significance of Climograph and Hythergraph..

3. Use of Ghat tracer to draw road profile and Telescopic alidade for the determination of height.

4. Practical Note Book and Viva Voce. 3 + 3 = 6 Marks

Books Recommended:

1. Monkhouse & Wilkinson : Maps & Diagrams.
2. Singh R.L. : Elements of Practical Geography
3. Kanatkar, T.P. : Surveying and Levelling Vol. I & II

 5:2:3(36)

Paper VI : History and Nature of Geography Maximum Marks

(Students will be asked to answer 5 questions)

1. Geography in the classical period.

   (a) Geographical concepts and knowledge in ancient India
   (b) Contribution of Roman and Greek Geographers.

2. Medieval Geography with special reference to Arab Geography

3. The Revival of Geography in Europe - Varenius to Kant.

4. Founders of Modern Geography-Von-Humbolt and Carl Ritter

5. Contributions of Ratzel, Semple, Davis, Herbertson and Blache.

6. Concepts of Geography :-

   (a) Geography as an Earth Science.

   (b) Geography as the study of landscape both physical and cultural.

   (c) Geography as the study of areal differentiation.

   (d) Geography as the study of distribution.

   (e) Geography as the study of relationship between man and his environment.

7. The place of geography in a classification of sciences dealing with reality.

8. Concepts of a region, Regional geography Vs systematic geography, Division of geography into physical and Human geography.

SUGGESTED READINGS :-

1. Richard Hartshone - Perspective on the Nature of Geography.

2. Majid Hussain - Evolution of Geographical thought

3. Preston E. James - All possible world - A History of Geographical Ideas.

4. Jones P.A. - Fieldwork in Geography. Lonfmans.

5. Preston - American Geography - Inventory and Prospect. Rawat publishers, Jaipur.

6. Association of American Geographers - (Indian Reprint) Survey Research for Geography

PAPER VO(MAJOR III) PRACTICAL Marks : 30

Field Study

1. Under the guidance of a teacher a field report will be prepared based on field/village study.

2. The students are to be taken for field study of a village areas of a town or city/expeditions to study physical geography for a minimum of 6 days.

3. The students are to write a project report on a specific theme, each student with one such theme(as far as possible).

4. The report should be in students' own language and should be written in manner of a paper with reference etc.

5. The mark distribution will be :-

   (i) Report 20 Marks

   (ii) Viva-Voce10 Marks.

5.2.3(38)

Special Paper - [illegible] VII. Maximum [illegible]

Time : [illegible]

Advance Geomorphology.

(Students will be asked to answer 5 questions)

1. Definition and Scope of Geomorphology.
2. History of development of Geomorphic Ideas.
3. Approaches to the study of Geomorphology :-

   (a) Chronotogical (b) observation (c) Inductive

   (d) deductive (e) Empirical-Quantitative and (f) [illegible]
4. Evolution of landforms and drainage in domal, faulted and folded areas.
5. The concept of multi-cyclic development of landscape.
6. The fluvial processes of erosion, weathering and mass-wasting.
7. Drainage patterns, drainage texture ordering of streams and river capture.
8. The erosion surfaces and their interpretation- peneplain, panplains, pediplains, [illegible] of marine denudation, glacial and periglacial erosion surfaces and exhumed surfaces.
9. Detail geomorphological study of the following regions :

   (a) Meghalaya Plateau
   (b) Chotanagpur Plateau
   (c) Brahmaputra Valley
   (d) Himalayan region.
10. Application of Geomorphology :-

    (a) Geomorphology and Agriculture.
    (b) Geomorphology and Transport
    (c) Geomorphology and Trade
    (d) Geomorphology and the problems faced by [illegible] engineers.
    (e) Geomorphology and Mineral exploitation
    (f) Geomorphology and settlements.

SUGGESTED READINGS :-

1. Thornbury - Principles of [illegible]
2. Leopold - Fluvial processes in [illegible]
3. Pitty A.F. - Introduction to [illegible]
4. Sparks B.W. - Geomorphology
5. Enayat Ahmad - Geomorphology
6. V.K. Sharma - Geomorphology [illegible] forms.
7. R.J.Small - Study of landforms.
8. C.A.M. King - Techniques in Geomorphology
9. R.K.Rai - Geomorphology of Sonar-Bearma Basin.
10. P. Dayal - Geomorphology.
11. R.K.Rai et. at. - Environmental Management. Rawat publishers, Jaipur.

SPECIAL PAPER - VII

ENVIRONMENTAL GEOGRAPHY

Maximum Marks: 70
Time : 3 Hours

(Students will be asked to answer 5 questions)

1. Defining Environmental Geography, its nature and scope.

2. Man-Environment relationship. Man's role in transforming the environment.

3. Resources, its nature(renewable and non-renewable), resource depletion problem, management of resources for sustainable development.

4. Specific resources:
   (i) Energy
   (ii) Metals
   (iii) Water
   (iv) Land.

5. Human resource: Investment in human capital, development and human resource with specific relation to third world countries.

6. Current Environmental problems and issues:
   (i) Deforestation.
   (ii) Soil degradation and ercsion.
   (iii) Food production and shortages
   (iv) Green House Effect & Ozone depletion and its likely impact.

7. Problems related to urbanisation and industrialisation. Alternative development strategies including sustainable development.

References:

1. E.F.Schumacher : Small is Beautiful
2. P.R. Ehrlich et al. : Eco-Science.
3. [illegible] : Man' role in Changing the Face of the earth.
4. Peter Haggett, : Geography a Modern synthesis
5. R.C.Smith : Man and His Environment: An Eco-System Approach.
6. R.K.Rai et,al - Environmental Management Vol,I & II, Rawat Publishers, Jaipur.
7. Surendra Singh :- Environmental Geography.

Special Paper - VII Max Marks

Geography of Rural Settlement Time -

(Students will be asked to answer 5 questions)

1. Nature and Scope of the Geography of Rural Settlement. Classification of Settlements, Processing of settling.
2. Spacing and pattern of settlements.
3. Types of Rural Settlements - their characteristics and distribution with special reference to India,
4. House types - characteristics, association and distribution
5. Field - patterns - categories and related factors.
6. Functional aspects of rural settlements and their spatial characteristics with special reference to India.
7. Rural Settlement and spatial organisation.

Books Recommended :

1. Clout, R.D. :Rural Geography, London, Pergamon Press,
2. Money, D.C. :Patterns of Settlement, Evan Brothers, Lond 1972.
3. Mukerji, R.K. :Man and His Habitat, Popular Books, Bombay,
4. Singh, R.L.et.al. :Readings in Rural Settlement Geography. B.H.U. Dept. of Geography, Varanasi 1972.
5. Misra, H.N.(ed) :Rural Geography, Heritage Publishers, N.Delhi 1987.
6. Chisholm, M. :Rural Settlement and Landuse, Hutchinson, London, 1970.
7. Sharma, Savita A. :Rural Settlement - A Cultural Ecological Analysis, Inter - India Publications, New Delhi, 1986.
8. Singh, S. :Integrated Area Planning, Shri Publishing House, New Delhi, 1990.

Special Paper - VII

CARTOGRAPHY AND SURVEYING

(Students will be asked to answer 5 questions)

Maximum Marks: 70
Time:3 Hours

i) Nature and scope of Cartography

ii) History of map-making

iii) Geographical ordinates and their function including points of origin, latitudes and longitudes, astronomical and geocentric latitudes and the grid system.

iv) Map projections and their functions: principles of map projections, properties, mode of construction and uses of Zenithal projections (Polar and equitorial cases), simple conical projections(with one and two standard paral Marcator's projection and Molloweide's projection, Gall's stereographic cylindrical projection, Interrupted cases of Sinuscidal and Mollweid's projections, choice of Map projections.

v) Principles of Surveying:- The concept of Surveying the land, History of plane and geodetic surveying horizontal and vertical controls, chain survey and measurement of a base li errors and adjustments in prismatic compass survey and determination of included angles from bearings, plane table surveying, theory and use of plane table, method of interpretation and two point and three point problems, use of clinometer and telescopic alidade with plane table. Contour by Dumpy's level and determination of R.L. by method of flying level in a large area, traverse survey by Theodolite and computation of co-ordinates, triangulation and measurem of height and distances by theodolite, determination of latitude by Pole Staic and by circummeridional observations. Principle and use of a box and a nautical sextent. Elementar steps in determination of shape and size of the earth.

Books Recommended:

1. Steers, J.A., An Introduction to the study of Map projection.
2. Kellaway, G.P., Map Projection.
3. Misra, R.P. & Ramesh, A., Fundamentals of Cartography
4. Kanetkar, T.P., Surveying & Levelling vol.I&II
5. Strahler, A.N. Physical Geography.
6. Singh, R.L. - Practical Geography
7. Monkhouse, F.W. ~~Maps~~ and Diagrams.

5.2.3(42)

PAPER VII(MAJOR IV)PRACTICAL

Maximum Ma
Time: 3 Hour

1. Map Projection:

   a) Construction(Only methematical methods) Princi properties and uses of the following map projection (suitable outline maps should be drawn on gra
      i) Zenithal equal area and equidistant projection.
      ii) Polyconic and International projections
      iii) Molloweide and Sinusoidal projection.
      iv) Mecator's and Gall's projection.

2. Representation of statistical data:

   a) Drawing of population map using spheres and multiple dots.
   b) Drawing of geographical maps
   c) Age-sex pyramid Trend graph, cumulative graph.
   d) Surface chants-hundred percent and multiple surface.
   e) Block and pile diagram.
   f) flow diagram and isochronic cartograms.

3. Practical Note Book and Viva-Voce 3

POPULATION GEOGRAPHY

Special Paper - VIII
(Students will be asked to answer five questions)

Maximum Marks :
Time : 3 Hours

Definition and scope of population geography
Historical development of population geography.
Distribution of Population: Significance of the study. the aggregative and distributive approaches. Factors affecting distribution and density of population.
Distribution of ruraland urban population in the world.

Growth of population: Pre-historic, historic and recent trends in world population growth, regional pattern of recent growth of population in the world.

Population composition in terms of age and sex, educational status and occupational structure. Significance of these elements in population analysis. Broad world patterns and spatial patterns in India.

Movements of population, causes and characteristics of migration. Pre-historic migrations. International and internal migration in India. Seasonal migration. Population regions of the world. Population regions of India.

Books Recommended.

1. Mitra.A., Population and Land Inequality in India-Geography of Hunger(1980)
2. Mandal, R.B., Frontiers of Migration Analysis (1981)
3. Chandaa, R.L., Introduction to Population Geography (1980)
4. Wolfson,M., Changing Approaches to Population Problems(1981)
5. Casees, R., Planning for Growing Population(1981)
6. Clarke., Population Geography and Developing Countries(1981).
7. Ghosh, B.N., Population Theories & Demographic Analysis(1981).
8. Dubey, R.M., Population Dynamics in India(1981)
9. Bhattacharya., Population Geography of India (1981)
10. Clarke, J., Population Geography(1980)
11. Mitra, A., India's Population, 1978 Vol.I & II
12. Singh, V.C., Dynamics of India's Population Growth(1979)
13. Demoo., Population Geography
14. Bhande., Population Studies, Mimalayan Pub House, Bombay.
15. Thompson W.S., Population Problems
16. Agarwala, S.N., Some Problems of India's Population
17. Baker, G.R.H, Geography of Rural Settlement(1968)

6.2.3(44)

Urban Geography

(Students will be asked to answer 5 questions selecting atleast one from each part.)

Marks :

Time :

Part - I

1. Nature, Scope and significance of Urban Geography, recent trends in Urban Geography.

2. Origin and growth of Urban centres.

3. Definition of Urban places and Urban agglomerations (city, metropolis, conurbation, megalopolis).

Part - II

4. Functional classification of Urban centres

5. Central place Theory and Urban hirarchy.

6. Rank Size Relationship of Zipf.

7. City morphology models : Concentric zonal model, Sector model and Multiple Nuclei model.

Part - III

8. Urbanisation in India

9. Growth of Indian cities since 1901.

10. Metropolitan growth and associated problems. Case study of one metropolis.

11. Urban poverty, slums and urban housing in India.

SUGGESTED READING :

1. Carter Harold : The study of Urban Geography. Edward Arnold publishers Ltd, London, 1972.
2. Hudson, P.F.S. : Geography of settlements.
3. Johnson, J.H. : Urban geography : An Introduction, Pergamon Press, London, 1967

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4. Jones, E. : Towns and cities

5. Mayer, J.M. & Kohn,C.F.(Eds): Reading in Urban Geography, University of Chigago Press, 19[illegible].

6. Smailes, A.E. : Geography of Towns, Hutchinson University Library, London, 1953.

7. Beaujee Garnier,J. and Chabot,G. : Urban Geography.Longmans London, 1969.

8. Mumford, K. : The city in History : Its origins, its Transformations & its prospects, Harcourt Brace N.York, 1961.

9. Gottman, Jean : Megalopolis : The Urbanized North-Eastern Seaboard of the United states Twenticth Century Fund, N.York. 1961.

10. Pao,V.L.S.P. : Urbanization in India, Allied publishers, Bangalore, 1984.

Special Paper - VIII

RESOURCE GEOGRAPHY AND REGIONAL PLANNING

Answer five questions selecting at least two from each part

Maximum marks :
Time: 3 hours

PART "A" RESOURCE GEOGRAPHY

(1) Development of the concept and scope of the subject.

(2) Nature and classification of resources.
(a) Land (b) Water (c) Minerals (d) Biotic resources and (e) Human resources.

(3) World distribution, utilisation and potentials of resources.

(4) Concept and problems of conservation of resources with special reference to soils, forests, minerals, energy and water.

(5) Role of technological change in resource utilisation.

PART "B" REGIONAL PLANNING.

(1) Geographical concept of planning, the regions and regionalization.

(2) Landuse planning.

(3) National planning and regional resource patterns of India.

(4) Aspect of planning in regional structure as a basis to urban structure.

(5) Integrated area planning, Demarcation of planning regions in the North-East India.

Books Recommended:

1. Freeman, P.W.	Geography and Planning
2. Glikson, A.	Regional Planning and Development
3. Keeble, L.	Principles and Practice of Regional Planning.
4. Bhatt, L.S.,	Regional Planning in India.
5. Galina, S. and Sengupta, P.	Economic Classification of India Census Pub. 1961.
6. Sen, A.K.	Growth Economics, Penguin PB, 1973.
7. Myrdal, G.	Economic Theory & Under-developed Regions, 1957.
8. Robinson, EAG & Kidron, M.	Economic Dev. in South Asia, London, 1970.
9. Renner, G.T.	Conservation of Natural resources.
10. Zimmerman, E.W.	World Resources and Industries.
11. Wales, H. and H.O. Lathorp	The conservation of Natural Resources.
12. Ramarao, M.S.V.	Soil conservation in India.

5.2.3(47)

Sepcial Paper - VIII (Students will be asked 5 questions) Maxi Marks - 75
Agricultural Geography Time - 3 hrs.

1. Agricultural Geography - Natire, scope and significance.
2. Relationship of Agricultural Geography with economics and statis
3. Approaches to the study of Agricultural Geography- Comm Regional, Environmental and systematic, system analysis, B oural and ecosystem approaches.
4. History of Agriculture.
5. Determinants of Agriculture-physical,social,economic and cu
6. Whittlesey's agricultural systems, their characteristics and d tribution in the world.
7. Agricultural Typology - Concept, methodology and basis; exten and Intensive farming, Humid, Dry and Irrigation farming.
8. Agricultural regionalization and crop.-Combination regions of India.
9. Indian Agriculture - Land Use pattern in India, Development o agriculture after the independance with special eference t irrigation, Farming types in India.
10. Shifting cultivation in India.
11. Green revolution in India.
12. Agriculture in North-East India.with special referenc cultivation.
13. Field studies and Surveys in Agricultural Geography.

SUGGESTED READINGS :-

1. Hussain - Agricultural Geography
2. Jasbir Singh - Agricltural Geography
3. Hasbir Singh - The Green revolution in India - How green it is.
4. Sen B - Green revolution in India.
5. Ayoade J.O. - Introduction to climatology for the tropics- Chapter XII.
6. Alexander J.W. Economic Geography
7. Simons - Agricultural Geography.
8. Grigg- D.B. - Agricultural systems of the world; An Evolutio Approach.
9. Tiwari P.S. - Contributions to Agricultural Geography.
10. Morgan and Munton - Agricultural Geography.
11. R.K.Rai,et.al - Hill Area Developments
12. Noor Mohamad - Perspectives of Agricultural Geography.

Paper VIII (Major V)

Practical.

PAPER V MAJOR (VIII)

Maximum Mark: 30
Time: 3 Hours

1. Statical Methods 12

   (a) Scatter Diagram, Correlation - Carl Pearson and Rank Correlation.

   (b) Bi-variate Regression and its testing.

   (c) Sampling - Random, Purposive and, Stratified sample methods.

2. Surveying- 12

   (1) Use of Dumpy Level to determine the difference in elevation between two points.

   (2) Preparation of Road profile by Dumpy level.

   (3) Theodolite Survey to draw contour heights and Triangulation.

3. Practical Note Book and Viva-Voce 3 + 3 = 6

Books Recommended:

1. Goon Gupta, Das Gupta, : Fundamentals of Statistics Vol. I & II.
2. Simpson & Kafka : Basic Statistics.
3. Kanet Kar, T.P. : Surveying & Levelling Vol. I & II.
4. Singh. R.L. : Elements of Practical Geography.

5:2:4(1)

Revised Syllabus in M.A. Anthropology-

The School Board of Social Sciences in its meeting held on 17th & 18th September'92 approved the revised syllabus in M.A. Anthropology subject to the condition that the total marks should be 1600(400 in each semester including practical)

The revised syllabus is placed at Annexure ''A' for consideration of the Council.

5:2:4(2)

P L E A S E

Annexure 'A'

The Department of Anthropology in North Eastern Hill University was initially known as the Department of Cultural Anthropology when it was separated from Department of Sociology and Social Anthropology in 1981. For two years, till 1983, it was manned singly by Dr. A. P. Sinha after which it was recognised as a full-fledged Department of Anthropology. Ever since then this Department has been pursuing the same syllabus, which is not only backdated but also vaguely spelt out, and with the same arrangement of Sharing Courses with Sociology Department. After one decade or so this Department felt the necessity of having autonomy and also revising its syllabus and updating it. Accordingly, the Department revised its syllabus in 1989, which was approved by the BPGS. On December 1989, but which somehow never got through the School Board. Our syllabus was initially lost and in later occasions it was deferred. Finally, the Dean sent it back on 27th March, 1992 suggesting to resubmit it after the undergraduate course is restructured.

We resubmit that the proposed revised syllabus submitted herewith for consideration cannot wait till the under-graduate course is restructured, which may take sometime in view of the fact that anthropology is yet to be introduced in the colleges at honours level.

The syllabus enclosed here has been drafted and redrafted in the light of the NET, UPSC model syllabi so that the students passing out from this department are in a position to compete at the national level. But due attention has been paid not to let it become unduly career-oriented or to provide an integrated knowledge of the discipline also. Updating and revision are done without losing sight or the historical background of the discipline, the cultural context of India, and the regional commitment of North Eastern Hill University.

We would like to add that the practical component has been given 25% weightage in this proposed syllabus. This is done in view of the fact that anthropology is and has been recognised as a science subject by the UGC, most universities in India and abroad.

Finally, this syllabus has been revised in the light of suggestions made by the members of the BPGS and the School Board.

A. K. Ghosh.

5:2:4(3)

PROPOSED COURSE STRUCTURE

SEMESTER I	MARKS		
	Th	Pr	Total
1. Physical Anthropology	100	-	
2. Social Anthropology	100	-	
3. Anthropology in India	100	-	
4. Practicals in Physical Anthropology	-	100	
	300	100	400

SEMESTER II			
1. Palaeoanthropology and Prehistoric Archaeology	100	-	
2. Methods in Anthropological Studies - I	100	-	
3. Anthropological theory	100	-	
4. Practicals in Palaeoanthropology & Prehistoric Archaeology	-	100	
	300	100	400

PHYSICAL ANTHROPOLOGY STREAM

SEMESTER III			
1. Human Genetics	100	-	
2. Human Growth, Development & Physique	100	-	
3. Demography and Biostatistics	100	-	
4. Practicals in Advance Physical Anthropology - I	-	100	
	300	100	400

SEMESTER IV			
1. Human Ecology and Adaptation	100	-	
2. Population Biology	100	-	
3. Field Work (Dissertation)	100	-	
4. Practicals in Advance Physical, Anthropology - II	-	100	
	300	100	400

SOCIAL CULTURAL ANTHROPOLOGY STREAM SEMESTER III	MARKS Th	Pr	Total
1. Demography and Bio-Statistics	100		
2. Methods in Anthropological Studies - II	100		
3. Advance Anthropological Theory	100		
4. Optional Paper	100		
	400		

SEMESTER IV			
1. Ecological Anthropology	100		
2. Development Anthropology	100		
3. Field Work (Dissertation)	100		
4. Optional Paper	100		
	400		

OPTIONAL PAPERS FOR SEMESTER III AND IV (PHYSICAL ANTHROPOLOGY).

1. Human Origins and Evolution	100
2. Applied Physical Anthropology	100
3. Physiological Anthropology	100
4. Human Cytogenetics	100
5. Dental Anthropology	100
6. Sports Anthropology	100

OPTIONAL PAPERS FOR SEMESTER III AND IV (CULTURAL ANTHROPOLOGY)

1. Economic Anthropology	100
2. Anthropology of Religion	100
3. Political Anthropology	100
4. Medical Anthropology	100
5. Applied Social Anthropology	100
6. Linguistic Anthropology	100

5:2:4(S)

COURSE I . 1.

Full Marks - 100

PHYSICAL ANTHROPOLOGY

This paper introduces how the approach of Physical Anthropology have developed.

I. Definition, scope and objectives of physical anthropology and development, relation to other branches of anthropology and other biological sciences. Concept of race; racial criteria, major racial classifications, race formation; classifications of Indian populations - Risley and Guha.

II. Man's place in animal kingdom, phylogenetic development of man; classification and characteristics of primates; relation of man to higher primates like chimpanzee; gibbon, orangutan and gorilla.

III. Anatomical changes due to errect posture and bipedalgait; evolution of teeth and brain.

IV. Theories of evolution - Lamarkism, Darwinism, Neo-Darwinism; Neo-Lamarkism, Synthetic Theory.

SUGGESTED READINGS :

1. Alexander Allaud Jr. (1980) To be Human : An introduction to anthropology. New York : Alfred A. Knopf.

2. Ashley - Montagu, M. F. 1961. An introduction to physical anthropology. Illinois : Charles C. Thomas

3. Buttner-Janusch, J. 1966. Origins of Man. New York. John Wiley and Sons, Inc.

4. Clark, W. E. Legros. 1964. The fossil evidence for human evolution Chicago: University of Chicago Press.

5. Dobzhansky, T. 1965. Mankind Evolving. New Haven and London : Yale University Press.

6. Harrison, G. A., Weiner, J. S. Tanner, J. M. & Barnicott. W. A. 1964. Human Biology : an introduction to human evolution variation and growth : Oxford Clarendon Press.

7. Hooton E. A. 1965. Up from the Ape. New York. The Mac-millan Co.

8. Laskar, G. W. 1976. Physical Anthropology. N. Y : Holt, Rinehart and Wiston.

9. Loring Brace,C. 1967. The stages of Human Evolution : N. Jersey : Prentice Hall Inc.

10. Peter Volpe, E. 1989. Understanding Evolution, N. Delhi Universal Book Stall.

11. Pilbeam, D. R. 1972. The Ascent of Man. N. Y. Macmillan & Co.

5:2:4(6)

COURSE 1 : 2

SOCIAL ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is to familiarize the students with the basic concept in Social Anthropology.

I. Development and scope of social anthropology - relationships with other sub-disciplines; palaeoanthropology and physical anthropology; relationships with other disciplines; sociology, economics, political science, history and psychology.

II. Basic concepts in social anthropology - (i) community, society and culture, (ii) institution, group and association, (iii) social structure, social organisation and social function, (iv) status and role.

III. Marriage - definition, forms and types of marriage; marriage regulations; marriage payments; incest; marriage in India.

IV. Family and Kinship - definition, types and functions of family; the joint family in India; family and kinship; rules of residence and descent, alliance; kinship terminology; joking and avoidance relationship.

SUGGESTED READINGS :

1. Beatle, J. 1976. Other Cultures. London : Routledge & Regan Paul.
2. Beteille, A. 1974. Essays in Comparative Sociology. Delhi : Oxford University Press.
3. Bohannan, P. 1963. Social Anthropology. New York : HRW.
4. Evans Pritchard, E. E. 1962. Essays in Social Anthropology. London.
5. Firth, R. 1977. Elements of Social Organisation. London. Tavistock.
6. Fox, R. 1967. Kinship and Marriage. Baltimore : Polican.
7. Hammond P. B. (ed). 1976. Cultural and Social Anthropology. Selected Readings, N. Y. MCM.
8. Herskevitz, M. J. 1969. Cultural Anthropology. New Delhi. Oxford University Press.
9. Honingmann, J. J. 1967. Handbook of Cultural and Social Anthropology. New York. Harper & Row.
10. Kapadia, K. M. 1968. Marriage and Family in India. Bombay : [illegible].
11. Leinhardt, G. 1965. Social Anthropology. London.
12. Linton, R. 1936. The Study of Man. New York. Appleton Century Crafts.
13. Mair, L. 1976. Social Anthropology. Oxford : Clarendon Press.
14. Pocock, D. F. 1961. Social Anthropology. London.

5:2.4(7)

COURSE 1 : 3

ANTHROPOLOGY IN INDIA FULL MARKS - 100

The objective of this course is to introduce the students to anthropological thoughts and concepts developed in India.

I. Origin and growth of anthropology in India - anthropological heritage of India, legacy of the west.

II. Dimensions of Indian culture - Paleolithic, Mesolithic, Neolithic and protohistoric.

III. Aspects of Indian Social Systems - Varna, Jati, Ashram, Purusharatha, Jana, Jouthoupariwar.

IV. Social change in India - Sanskritization, Modernisation, Urbanisation and Industrialisation.

SUGGESTED READINGS :

Baden-Powell, B. J. 1970. The origin and growth of village communities in India. London. Swansonnens Cheinflo.

Bailey, F. G. 1960. Tribe. Caste and Nation. Bombay UUP.

Bateille, A. 1969. Caste, Class and Power, New Delhi : OUP.

Bhowmik, P. K. 1980. Some aspects of Indian Anthropology. Cal. Subarnalekha.

Dube, S. C. 1962. India's changing villages. Bombay : Allied.

Dumont, L. 1966. Homo Hierachocus, Delhi : Vikas.

Karve, I. 1968 Kinship organisation in India. Bombay : Asia.

Mandelbaum, D. C. 1970. Society in India. Berkeley : University of California Press.

Srinivas, M. N. 1967. Caste in Modern India and Other Essays. Bombay : Asia.

_____ 1966. Social Change in Modern India. Bombay. Allied.

Vidyarthi L. P. 1975. Rise of Anthropology in India. 2 vols. Delhi Concept.

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5:2:4(8)

COURSE : 1 : 4

PRACTICAL IN PHYSICAL ANTHROPOLOGY

FULL MARKS - 100

I. Study of Human Skeleton : introduction, shape and proportion of bones, functions of bone and skeleton. Study of Skeletal Connective Tissues - Cartilage, Bone. General features, properties and growth of bones. Identification, drawing and description of bones of human skeleton: skull, vertebrae, sternum, sacrum, clavicle, ribs, humerus, ulna, radius, femur, tibia, fibula, hand and foot skeleton.

II. Somatometry & Somatoscopy : introduction, scope. Somatosmetric Landmarks; Somatometric measurements; height, vertex, sitting height, biacromial diameter, head length; head breadth; minimum frontal diameter, bizygomatic breadth, bigonial breadth, nasal height, nasal breadth, nasal depth, mouth breadth, physiognomic ear length, physiognomic ear breadth, physiognomic, facial length, morphological superior, facial length, external orbitallength, horizontal circumstance of head, weight, indices, ponderal index, relative sitting height, relative biacromial, cephalic index, (upper), facial index (morphological), fronto-parietal index, fronto-zygomatic index, transverse cephalic index, zygomandibular index, nasal index.

III. Somatoscopic observations :

(a) Skin colour
(b) Hair, form texture, colour, bread and moustache
(c) Eye, colour, iris, sclera, eyelits, eyefold
(d) Nose, nasal depression, bridge, septum, tip
(e) Lips
(f) Chin
(g) Prognathism.

IV. Craniograms, drawings, linear and angular measurements.

Suggested Readings :

1. Poddar, S. & Bhagat, A. 1987. Handbook of Osteology. Scientific Book Co.

2. Sarkar, S. S. 1957. A Laboratory Manual of Somatology. Scientific Book Agency, Calcutta.

3. Singh, I. P. & Bhasin, M. K. 1968. Anthropometry. Bharati Bhavan. New Delhi.

4. Williams, P. L. & Warmick. 1980. Gray's Anatomy. Churchill Livingstone, London.

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5:2:4(9)

COURSE : 2.1

PALAEOANTHROPOLOGY AND PREHISTORIC ARCHAEOLOGY

FULL MARKS : 100

I. Palaeoanthropology and Prehistoric Archaeology : Introduction, aims and objectives, principles of study, and relationship with other scientific disciplines, geochronology, stratigraphy, correlation, dating methods.

II. Fossils : their preservation and uses, index and pseudo fossils. Diagnotic features, description and distribution in time and space of Dryopithecus, Gigantopithecus, Ramapithecus.

III. Techniques of tool making and its origin. Palaeolithic, Mesolithic and Neolithic cultures of India.

IV. Palaeolithic Art : cave and home art. Megalithic cultures of India. Indus Valley Civilization.

SUGGESTED READINGS :

Allchin, B. 1982. Rise of Civilization in India and Pakistan. Cambridge University Press.

Bhattacharya, D. K. 1972. Prehistoric Archaeology. Hindustan Publishing Corp., New Delhi.

Buttner-Janusch, J. 1966. Origin of Man. John Wiley and Sons, Inc., New York.

Clark, W. E. Le Gros. 1979. Antecedents of Man.

Pilbeam, D. R. 1972. The Ascent of Man. Macmillan & Co. New York.

Sankalia, H. D. 1974. The Prehistory and Protohistory of India and Pakistan. Deccan College, Poona.

Washburn, S. L. & Jay, P. C. 1972. Perspectives in Human Evolution. Hold, Rinehart & Winston. New York.

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5:2:4(10)

COURSE : 2. 2.

METHOD IN ANTHROPOLOGICAL STUDIES - I

FULL MARKS - 100

The objective of this course is to acquaint the students with the tradition and techniques of fieldwork. It also seeks to train them in the collection and processing of data collected from the field.

I. Preliminaries of anthropological research - review of literature, definition of the problem of research, formulation of hypothesis.

II. The fieldwork tradition in anthropology - main features of anthropological fieldwork, knowing the field, establishing report, learning the language, the use of informants, interpreters and field guides.

III. Techniques of data collection - interview, observation, schedule/questionaire, case study, genealogical method, and ethnomethodology, use of personal, official and historical documents.

IV. Processing of data - classification, tabulation, histogram, plechart, scarter-disgram, use of manual and electronic devices.

SUGGESTED READINGS :

Beteille, A. & T. N. Madan (eds) 1975. Encounter and Experience. New Delhi. Vikas.

Casagrande, J. B. (eds) 1960. In the Company of Man. New York.

Epstain, A. L. 1978. Crafts in Social Anthropology. Delhi, Hindustan.

Evans-Pritchard, E. E. 1962. Social Anthropology & other essays.

Foster, G. M. et al. 1979. Long term field research in social Anthropology. New York : Academic Press.

Goode, W. J. & P. K. Hatt. 1952. Methods in Social Research. New - York. Mc Graw Hill.

Goodenough, W. H. 1970. Description and Comparison in Cultural Anthropology. Cambridge University Press.

Johnson, A. W. 1978. Research Methods in Social Anthropology. London, Dowerd Arnold.

Royal Anthropological Institute. 1967. Notes and Queries on Anthropology. London.

Williams, T. R. 1967. Field Methods in the Study of Culture. London : Holt, Rinehart & Winston.

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5:2:4(11)

COURSE : 2. 3.

ANTHROPOLOGICAL THEORY

FULL MARKS - 100

The objectives of this course is to familiarise the students with some of the basic theories in anthropology.

I. Evolutionism - general orientation of the theory; contributions of Tylor, Spencer and Morgan, Neo-evolutionists : Childe, Steward and White.

II. Diffusionimsm - British, German and American Diffusionism.

III. Functionalism - Concept of function, contributions of Malinowski, Durkheim and Redcliffe-Brown.

IV. Structuralism - concept of structure, symbolic anthropology, contributions of Levi-Strauss and Leach.

SUGGESTED READINGS :

Brace, G. 1973. History of Anthropology. Minneapolis Burgess.

Davis, K. 1949. Human Society. New York : Macmillan.

Evans-Pritchard, E. E. 1981. History of Anthropological Thought. London.

Goode, W. J. 1973. Explorations in Social Theory. New York. Oxford University Press.

Harris, M. 1968. Rise of Anthropological Theory. London. Routledge and Kegan Paul.

Kroeber, A. L. (ed) 1953. Anthropology Today. Chicago University Press.

Lewie, R. H. 1937. The History of Anthropological Theory. New York : Rinehart.

Penniman, T. K. 1965. A Hundred Years of Anthropology. London. Gerald Duckworth.

Redcliffe-Brown, A. R. 1952. Structure and function of primitive society. London : Routledge & Kegan Paul.

5:2:4(12)

COURSE : 2. 4.

PRACTICAL IN PALAEOANTHROPOLOGY AND PREHISTORIC ARCHAEOLOGY.

FULL MARKS - 100

I. Anthropometry : Introduction and scope, anthropomethic instruments.

II. Landmarks on the cranium and mandible.
Direct measurment on cranium :

(a) Linear : Maximum cranial length, maximum cranial breadth, glabellainion length, nasion-inion-length, greatest occipital breadth, bi-mastold, dismeter, biauricular breadth, dreatest frontal breadth, minimum frontal breadth, bizygomati breadth, bimaxillary breadth, inner boirbital breadth, outer biorbital breadth, inter orbital breadth, orbital breadth, oribital height, nasion-basion line, prosthian-basion line, nasion-prosthian line, nasal height, nasal breadth, maxillo-alveolar breadth, maxello-alveolar length, lalate length, lalate breadth, palate height, length of occipital foramen, breadth of occipitalforamen, frontal, chord, pareital chord, basillo bregmatic height, occipital chord.

(b) Angular metopic angle, nasal profile angle, facial profile angle, alveolar profile angle, profile angle of nasal root, calvarial base angle, inclination angle of foramen, magnum, frontal angle of schwable, lanbda angle of schwable, bregma angle of schwable.

(c) Circumferential : horizontal circumstance of cranium, sagittal cranial arch, transverse cranial arch, frontal longitude arch, occipital arch, parital longitudinel arch.

III. Direct measurements of Mandible :

Bicondymar breadth, bigonial breadth, ramus height, minimum breadth of ramus, symphyseal height, mandibular length, mandibular angle.

IV. Indentification, drawing and description of tools of : (a) Palaeolithic, (b) Mesolithic, (c) Neolithic, ages of India.

SUGGESTED READINGS :

1. Bhattacharya, D. K. 1971. Prehistoric Archaeology. Hindustan Publishing Corp., New Delhi.

2. Sankalia, H. D. 1974. The Prehistory and Prohistory of India and Pakistan. Deccan College Poona.

3. Singer, I. P. & Brasin M. K. 1978. Anthropometry. Bharati Bhawan, New Delhi.

Wilder, H. H. 1920. Laboratory Manual of Anthropometry. P. Blakistan's Son & Co., Philadelphia.

5:2:4(13)

PHYSICAL ANTHROPOLOGY STREAM

COURSE : 3. 1.

HUMAN GENETICS

FULL MARKS - 100

This paper tells about the population genetics and various evolutionary changes and also the quantitative compositions of genetics.

I. Concept scope and development, relation to other sciences, cell divisions and Mandel's Laws of inheritance, probability.

II. Single factor inheritance, sex-linked, sex-influenced and sex limited traits, multiple allelism and blood groups.

III. Selection and polymorphism, polytypism, genetic drift, mulation-genic and chromosomal, Hardy-Weinberg Law, sex determination, Lyon hypothesis, mating patterns.

IV. Chemical aspects of genetics, composition of hereditary materials, Watson-Crick model and some of its implications, gene and protein formation, Messenger RNA Transfer RNA, Ribosomal RNA, Amino acids and steps in protein construction, genetic code, collinear molecules and their significance.

SUGGESTED READINGS :

Ashley-Montagu, M. F. 1960. Human Heredity. N. Y. The American Library.

Bailey, N. T. J. 1967. The mathematical approach to biology and medicine. N. Y. John Wiley & Son .

Harrison, G. A. Weiner, J. S. Tanner, J. M. & Barnicott, W. A. 1964. Human Biology : An introduction to Human Evolution Variation and growth. Oxford : Clarendon Press.

Lyon, M. F. 1971. "Possible mechanism of chromosome inactivation". Nature of New Biology, 232 (229).

Merrel, D. J. 1975. An Introduction to Genetics. N. Y. W. W. Norton.

Race, R. R. & Sanger, R. 1973. Blood Groups in Man. Oxford : Blackwell Scientific,

Rothwell Normal V. 1978. Human Genetics. NewDelhi : Prentice Hall. Pvt. Ltd.

Stern, C. 1973. Principles of Human Genetics. San Francisco : W. H. Freeman & Co.

Sutton H. E. 1975. An Introduction to Human Genetics. N. Y. Hort. Rinehart and Wiston.

Watson, J. D. 1968. The double helix. New York. Athenum Publishers.

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5:2:4(14)

COURSE : 3. 2.

HUMAN GROWTH, DEVELOPMENT AND PHYSIQUE.

FULL MARKS - 100

I. The concept of growth and development. Stages of growth - Prenatal, infant, childhood, adolescence, maturity, senesence and gerontology, methods of studying growth and development.

II. Factors affecting growth and development, growth curves and variation in growth. Growth as an indicator of nutritional status. Developmental age and physiological maturity. Catchup growth, Secular changes in growth.

III. Endocrinology : the role of endorcines, and hormones in growth.

IV. Human physique and somatotypes : Viola, Sheldon, Kretschmer, Heath-Carter methods. Body composition, models, methods and application, obesity and fatness.

SUGGESTED READINGS :

Baker, P. T. & J. S. Weiner. 1966. The Biology of Human Adaptability. Clarandon, Oxford.

Brozech, J. 1956. Human Body Composition : Approach and Applications.

Falkner, et al. 1964. Human Development. B. Cambridge.

Gensolozio et al. 1963. Physiological measurements of metabolic functions in man.

Harrison, G. A. Tanner J. M. & Weiner J. S. 1975. Human Biology. Oxford University Press. London.

J. M. Tanner, 1962. Growth at Adolescence. Blackwell. Oxford.

Thompson, J. 1980. On Growth and Form. New Edition Cambridge University Press.

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5:2:4 (IS)

COURSE 3 : 3

DEMOGRAPHY AND BIOSTATISTICS

Full Marks - 100

The main objectives of this paper is to acquaint the students with the basic principles of demography and bio-statistics.

I Definition, nature, scope and importance of demography; origin and development, relation to other sciences, nature and demographic data and population census basic concepts of dempgraphic analysis and measurements, life table, migration.

II Malthusian Theory; Social and Economic Theories of population; Biological and Natural Theories of population; Demographic transition theory.

III. Demographic structures and social structures; differential fertility and morality, population trends in India, Family Welfare Planning and Population Policy.

IV. Biostatistics : Introduction, Collection of data, Sampling techniques, test of significance and confidence, Chisquare, Student's t-test, F-test, Correlation and regression.

SUGGESTED READINGS :

Agarwala, 1974 : India's population problems : New Delhi, Tata Mc. Graw Hills.

Bailey, N.T.J. 1959 : Statistical methods in Biology. Oxford University and English University Press.

Barclay, G.W. 1958 : Techniques of population analysis. New York. John Wiley and Sons.

Bhende, A. & Kanilkar, T. 1991 : Principles of population studies. Bombay. Himalaya Publishing House.

Bogue Donal 1969 : Principles of demography : New York John Wiley and Sons.

Cor.Peter, R. 1980 : Demography : Cambridge : Cambridge University Press.

Mukherjee, R. 1976. : Family and Planning in India. Orient Longman.

Peterson, W. 1969 : Population : London The Macmillan Co.

Thonpson, W.S. & Lewis D.T. 1980 : Population Problems. New Delhi : Tata Mc. Grow Hills Publishing Co. Ltd.

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COURSE : 3 .4.

PRACTICAL IN ADVANCE PHYSICAL ANTHROPOLOGY - I

Full Marks - 100

I. Blood Groups Systems:
(a) ABO, (b) Rh, (c) MN.
Secretor status; P.T.C. tasting ability.
Dermatoglyphics
Colour blindness.

II. Auxology: introduction, application: Auxological measurements stature, sitting height vertex, body mass, height acromian, height illios - height iliocristale, trunk height, height sternale, chest depth, chest length, chest circumference, biacromial diametes biocristal diameter, maximum hip, breadth, upper arm length, fore arm length, hand length, hand breadth, leg length, foot length, foot breadth, humerus bicondylar breadth, femur bicondylar breadth, body mass index, relative sitting height, relative biacromial diameter, relative bicristal diameter, relative chest girth, acromoliac index, acromochest index, chest volume, inter-bicondylar index; brancial index, index, index of hand, thorac index.

III. Skin fold measurements; Biceps, triceps, sulescapular, suprailiac calf, abodomen, mid-axillary, juxta-nipple, thigh, fore arm.

Techniques of measuring biological maturity:
(a) Sexual maturity, (b) Dental maturity, (c) Bone maturity.

IV. Appropriate basic statistical analysis.

SUGGESTED READINGS :

1. Bhatia, H.M. 1977 : Procedures in Blood Banking and Immunohaematology. Blood-Group Reference Centre, Bombay.

2. Cummins, H. & Midlo, C. 1961 : Finger Prints, Palm and Soles. Dover Publicatio n Inc. New York.

3. Krogman, W.M. 1986 : The Human Skeleton in Forensic Medicine. Charles C. Thomas, London.

4. Weiner, J.S. & Lourie. 1969 : Human Biology. Blackwell Scientific Publications, Oxford.

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5:2:4(17)

COURSE : 4.1

HUMAN ECOLOGY AND ADAPTATION

FULL MARKS - 100

I. Human Ecology : definition, objectives and relationship with other disciplines. Adaptation and acclimatization, individual and group adaptation, genetic and non-genetic factors.

II. Ecosystems : classification, populations and their subsistence ways in various ecozones and cultural adaptations. Concepts of whether and climate. Biological clock.

III. Adaptative significance of physiological characters in men : high altitude, hot desert, cold environment, long term and short term effects. Climate and nutrition.

IV. Stress and Strain : Climatic, epidemiological, infectious and non-infectious disease, alnutrition, work physiology-ethnic and ecology variation, sports and exercise.

SUGGESTED READINGS :

1. Carr-Saunders, A. M. 1922. The Population Problems : A study in human evolution. The Clarendon Press. Oxford.

2. Coon, S. C., S. M. Garn & J. B. Birdsell. 1950. Races, A study of the problems of race formation in man. Charles C. Thomas, Springfield, Illinois.

3. Harrison, G. A., J. S. Weiner, J. M. Tanner & N. A. Barnicot. 1975. Human Biology, Oxford University Press, London.

4. Hewley, A. H. 1950. Human Ecology : A Theory of Community Structure.

5. Montagu, Ashley, M. F. 1946. Adulescent Sterility. Charles C. Thomas. Springfield, Illinois.

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5:2:4(18)

COURSE : 4 . 2.

POPULATION BIOLOGY

Full Marks - 100

This paper is meant to acquaint the students with the methods of studying human populations, nature and nurture problems, and some applied aspects of physical anthropology.

I. Twin -diagnosis nature and nurture problems; family and population studies; some statistical methods used in human population genetic studies.

II. Population structure genes in demes : Genetic variation in populations; population size sampling and evolutionary changes, demographic data relevant to the analysis of population structure.

III. Polygenic inheritance : Genetic models of quantitative variation, interaction of genotype and environment; basic models of polygenic inheritance; concept of heritability; effect of natural selection on quantitative characters.

IV. Biology of fertility, eugenics, euphenics and human welfare, genetic counselling; disease and sociology; medico-legal application.

SUGGESTED READINGS :

1. Bulmer, M-G. 1970 The Biology of Twinning in Man. Oxford : Clarendon Press.

2. Cayalli-Sforga L.T. & Bodmer, W.F. 1971 The Genetics of Human Populations. San Francisco. W.H. Freeman & Co.

3. Crow, J.F. & Kimura M. 1970 An introduction to population genetic theory. New York, Harper & Row.

4. Meltler, L.L. & Grett. T.C. 1969 Population genetics and evolution. Prentice-Hall, Inc., New Jersey.

5. Mittler, Peter. 1971 The Study of Twins. Baltimore. Penguin Books Ltd.

6. New-Man, H.H. 1940 Multiple Human Births. Double Day: New York.

7. Newman, H.H. Freeman, F.N. & Holziger, K.J. 1937 Twins : A Study of Heredity and Environment. University of Chicago Press, Chicago.

8. Rothwell, N.V. 1978 Human Genetics. New Delhi : Prentice Hall Pvt., Ltd.

9. Stern, C. 1973 Principles of Human Genetics. San Francisco : W.H. Freeman and Co.

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COURSE : 4.4

PRACTICAL IN ADVANCE PHYSICAL ANTHROPOLOGY - II

FULL MARKS - 100

I. Physiological Measurements :
   a) Pules rate
   b) Temperature
   c) Handgrip
   d) Forced Vital Capacity
   e) Blood Pressure

II. Skin reflectance spectrophotometry. Total Haemoglobin estimation. Total Blood count - REC. WBC, Serum Proteins - Qualitative, quantitative.

III. Osteometry : direct measurements on scapula, clavicle, Humerus, Ulna, Radius, Femur, Tibia, Fibula.

Diatograph tracins and measurements on scapula, clavicle, Humerus, Ulna, radius, femur, tibia.

Parallelographic projection and measurements of scapula, femur, tibia.

IV. Red Blood cell enzymes.

SUGGESTED READINGS :

1. Comas, Juan. 1967 A Manual of Physical Anthropology.

2. Damon, A. 1975 Physiological Anthropology. Oxford University Press. New York.

3. Moutagu. M.F.A. 1961 An Introduction to Physical Anthropology. Charles C. Thomas, Illinois.

4. Singh, I.P. & Bhasin, M.K. 1989 Anthropometry. Kamla Raj Enterprises, Delhi.

5. Weiner, J.S. & J.A. Laorie. 1969. Human Biology : A guide to field Methods. Blackwell Scientific Publications, Oxford.

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5:2:4(20)

SOCIAL ANTHROPOLOGY STREAM

COURSE 3.2

METHODS IN ANTHROPOLOGICAL STUDIES - II

The objective of this course is to acquaint the students with the methodology of anthropological studies.

Full Marks - 100

I. Techniques, method and methodology distinguished - 'the' comparative method of evolutionists, diffusionists, and functionalists.

II. Norms and values in anthropological studies - cultural relativism versus universal value.

III. Explanation in anthropology - Hampel's covering law model of explanation for anthropology. Positivistic and non-positivistic approaches (sorokin).

IV. 'Re-study'and 're-interpretation' distinguished - methodological differences between 19th century ethnography and comtemporary ethnography : Leach, Needham and Clifford.

SUGGESTED READINGS :

Barnes, J.A. 197- : The Ethics of Enquiry in Social Sciences. Delhi. OUP.

Brown, R. 1963. : Explanation in Social Science. London Routledge and Kegan Paul.

Durkheim, E. 1938 : The Rules of Sociological Method. New York : Free Press.

Evans.Pritchard E.E, 1962. : Social Anthropology and other essays.

Myrdal, G. 1962 : Value in Social Theory. London: RKP.

Radcliffe.Brown, A.R. 1952 : Structure and Function of Primitive Society. London Routledge & Kegan Paul.

Redfield, R. 1966 : Human Nature and the Study of Society Chicago : University of Chicago Press.

Sarana, G. 1975 : The Methodology of Anthropology : Comparison. The University of Chicago Press.

Weber, M. 1949 : The Methodology of Social Sciences. New York : Free Press.

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5:2:4(21)

COURSE 3.3

ADVANCE ANTHROPOLOGICAL THEORIES

FULL MARKS - 100

This course seeks to deal with the advance anthropological theories and the theoretical contribution of Indian and Western anthropologists to the understanding of Indian Society.

I. Structural - Functionalism - Merton. Latent and manifest functions, disfunction; personell action frame of refe-rences; functional prerequisites and pattern variables.

II. Culture and personality - Mead and Benedict.

III, Theoretical contributions to anthropology in India - Indian Anthropologists; Bose, Vidyarthi, Srinivas and Roy Burman: Western anthropologists : Mc.Kim Marriot, W.H.R. Rivers; Milton Singer, Louise Dumont and Henry Maine.

IV. Recent developments in anthropological theories: post modernism and the new ethnography,

SUGGESTED READINGS :

Benedict, R. 1934 : Patterns of Culture, Boston: Houghton Miffin.

Clifford, J. 1988 : Predicament of Culture. Harvard : University Press.

De Bous, Cora 1944 : People of Alor Minnesota : University Press.

Geertz, C. 1973 : The Interpretation of Cultures. New York Basic Books.

Foode, W.J, 1973 : Explorations in Social Theory. New York : Odford University.

Harris, M. 1968 : Rise of Anthropological Theory, New York, Thomas G. Growell.

Mead, M. 1928 : Coming of Age in Samoa. New York Mirror.

Merton, R.K. 1961 : Social Thoery and Social Structure, New Delhi : Amerind Publishing.

Parson, T. 1951 : The Social System, London : Routledge and Kegan Paul.

Radcliffe. Brown, A.R. : Structure and Function in Primitive Society. London : Routledge Kegan Paul.

Wallace, A.F.C. 1961 : Culture and personality. New York : Random House.

5:2:4(22)

COURSE NO. 4.1

ECOLOGICAL ANTHROPOLOGY

FULL MARKS - 100

The Course is intended to acquaint the studets with the 'phenomena of nature' and the crucial significance of man-environment interaction in terms of biology, socio-cultural milieu, and human behaviour. Main emphasis in the course will be on the arrange of perspectives developed in the anthropology of preliterate societies, with special reference to India.

I. Basic concept (i) Nature, Habitats, Resources, Environment and Ecology. (ii) Needs, Adaptation, Technology.

II. Ecosystem - concepts, structural features, productivity, biogeochemical cycling.

III. Demographic pressure - (i) competition, extraction, depletion, regeneration and symbiosis; (ii) Niche-concept, ego-centric behaviour, transfer of technology and man-made environments (iii) Habitat and human biology - Health and natal capacity.

IV. Theoretical Interpretations - (i) theories of culture ecology. Organic analogy and lebensraum (Razzel) (ii) Evolutionary explanation (Julian Steward), Habitat-ecology society (Daryl Forde), Man-nature-spirit (Vidyarthi) and ecological wholes (Redfield).

SUGGESTED READINGS :

Adams, L. (ed.) 1970 Population Ecology. Belmont. Calif Dickenson.

Boughey, Arthur, S. Fundamental Ecology. London : Intertex Books. 1970.

_____(ed.) 1971. Man and the Environment : An Introduction to Human Ecology Evolution. New York. Macmillan.

Bresler, J.B. (ed.) 1966 Human Ecology : Collected Readings. Mass : Addison Wesley.

Detwyler, T.R. (Ed) 1971 Man's Impact on environment. New York : Mc. Graw Hill.

Forde, C.D. 1970 Habitat, Economy and Society - a geographical introduction. London.

Fried, M. (ed).1973 Explorations in Anthropology. New York : Thomas & Crowell.

Hardesty, D.L. 1977 Ecological Anthropology. London : Wiley Eastern.

Geertz, C. 1963 Agricultural involution. Berkeley : University of California Press.

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COURSE : 4.2

DEVELOPMENT ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is to familiarize the students with the issues, safeguards, strategies, and impact of development in India in general and North Eastern Indian in particular.

I. Aims and scope of development anthropology - concept of development in anthropology and other sciences.

II. Issues in development anthropology - forests, land alienation, shifting cultivation, health and sanitation, indebtedness and education.

III. Constitutional safeguards - fifth and sixth schedules; reports of Dhebar, Elwin and AO Commissions.

IV. (i) Development steategies - LAMPS, ITDP, CDP, IRDP, and TRYSEM.
(ii) Development costs : displacement, dependence, identity crisis and nativism.

SUGGESTED READINGS :

AO, S. 1967. Report of the study team on tribal development programmes. New Delhi. Gor.

Cochrane, G. 1971. Development Anthropology. New York : Oxford University Press.

Danda, A. K. 1991. Ethnicity in India. New Delhi : Inter India Publishing.

Dey, S. K. 1960. Community Development. Delhi : Kitab Mahal.

Dhebar, U. N. 1961. Reports of the Scheduled Tribe Commission. New Delhi : GOI Press.

Elwin, V. 1960. Report of the Committee on Special and Multi-Purpose Tribal Blocks. New Delhi : GOI Press.

Mair, L. 1984. Anthropology and Development. London : Macmillan Press.

Mathur, H. M. 1977. Anthropology in Development Process. New Delhi : Vikas.

Pitt-David, C. 1976. Development from Below : Anthropologists and Development Situation. The Hague : Mouton Publishers.

Subba, T. B. 1991. Ethnicity, State and Development. New Delhi : Vikas.

Todaro, M. P. 1971. Development Planning, Models and Methods. Nairobi : OUP.

Vidyarathi, L. P. & B. N. Sahay. 1980. Applied Anthropology and Development in India. New Delhi : National.

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OPTIONAL PAPERS FOR PHYSICAL ANTHROPOLOGY

OPTIONAL PAPER - I

HUMAN ORIGINS AND EVOLUTION

FULL MARKS - 100

I. Processes of Evolution; irreversibility, parallelism and concergence. Adaptive radiation in primates. Process of hominization.

II. Evolutionary trends and classification of order primates through successive geological periods.

III. Plio-Pleistocene hominids : Australopithecus, Homo-erectus (Pithecanthropines, Sinathropines, Heidelberg Man).

IV. Anatomical features of Homo habilis, Homo Sapiens neanderthalensis, Homo Sapien.

Book Suggested :

J. Beuttner-Janusch. 1969. Origins of Man. Wiley Eastern Pvt. New Delhi.

Le Gros Clark. 1964 Fossil Evidence for Human Evolution. Chicago University Press. Chicago.

Le Gros Clark. 1971 The Antesedents of Man. Edinburg University Press Edinburg.

Juan Comas 1960 A Mannual of Physical Anthropology. Charles C. Thomas, U.S.A.

T.Dobzhansky 1965 Mankind Evolving. The Evolution of Human species. Yale University Press. New Heaven.

M.F.A. Montagu 1973 The Origin and Evolution of Man. Thomas Y. Crowell Company, New York.

E.L. Simons 1972 Primate Evolution : An introduction to Man's place in Nature. Macmillan New York.

G.G. Simpson. 1953 The Major Features of Evolution. Columbia University Press, New York.

M.L. Weiss and A.E. Mann 1981 Human Evolution and Behaviour. Little Brown, Boston.

B.G. Campbell 1966 Human kind emerging. Heinemann Educational Books, London.

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OPTIONAL PAPER - 2

APPLIED PHYSICAL ANTHROPOLOGY

FULL MARKS - 100

I. Aims and scope of applied anthropology. Personal identification, Ageing and sexing.

II. Human Engineering. (Human factors). Seats and work spaces gear (anti-gravity suits, oxygen masks, uniforms, ready-made garments for mass use, etc). Genetic counselling, disputed patternity.

III. Anthropology and medicine, including growth, occupational health, nutrition and sports.

IV. Odontology : estimation of age, population differences in size and morphology. Dermatoglyphic - applications.

BOOK SUGGESTED :

L.P. Vidyarthi (ed) 1981 — Applied Anthropology in India. Kitab Mahal, Allabahad.

H. Cummins & C. Midlo 1961 — Finger, Palm and Sole Prints. Dover Publications. New York.

I.P. Singh & M.K. Bhasin 1989 — Anthropometry. Kamla-Raj Enterprises. Delhi.

T.E. Steward 1979 — Forensic Anthropology. Charles C. Thomas, Springfield.

Modi, J.P. 1977 — Textbook of Medical Jurisprudence and Toxicology. Tripathi Pvt. Ltd. Bombay.

W.G. Krogman. 1986 — Human Skeleton in Forensic Medicine. Charles C. Thomas, Publishers, Springfield.

S. Pheasant 1986 — BodySpace : Anthropometry Ergonomics and Design. Taylor & Francis, London.

E.J. Brill. 1988 — Bones : Treasuries of Human Experience in time and Space. Leiden.

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OPTIONAL PAPER - 3

PHYSIOLOGICAL ANTHROPOLOGY

FULL MARKS - 100

I. Bilogical clock - circadian, cirannual and cirseasonal rhythyms in man. Physiological variations - ethnic, genetic and environmental factors.

II. Age, sex and population variation in physiological characteristics Haemoglobin levels, body fat, pulse rate, breathing rate, blood pressure, sense perceptions, in different cultural and socio-economic backgrounds.

III. Physiological hamaeostasis - entogenic and temporal liability and plasticity. Stress and strain - climatic, disease, nutritional and demographic.

IV. Work Physiology - ethnic and ecological variation. Sports and exercise. Biodynamics, Pollutions, Occupational Hazards to human Physiology. Smoking, drinking and drug addiction.

BOOK SUGGESTED :

Baker, P.T., J.S. Weiner 1966 : The Biology of Human Adaptability. Clarendon Press. Oxford.

Bresler, J.B. 1978 : Environments of Man. Addison. Wesley Publication Company, Inc.

Damon, A. (ed). 1975 : Physiological Anthropology. Oxford University Press. New York and London.

Bill, D.G., L.E. Adolp. C.G. Wilbor : Handbook of Physiology : Adaptation to the Environment.

Frisancho, A.R. 1981 : Human Adaptation : A Functional Interpretation. The University of Michigau Press, Ann Arlior.

Yousef, M.K., S.M. Horvath, R.W. Bullard 1972 : Physiological Adaptations : Desert and Mountain. Academic Press. New York.

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5.2.1.4(27)

OPTIONAL PAPER 4

HUMAN CYTOGENETICS

FULL MARKS = 100

This paper introduces the development and scope of human genetics. It also deals with the techniques applied in the old of Human Cytogenetics.

I. A. Traits and Chromosomes :

1. Chromosome and Mendel's patterns
2. Human Chromosome
3. Karyotyping
4. Syndromes associated with Chromosome
5. Sex-chromosome and Barrbodies; sex mosaics

B. Genes and Mutations :

1. Genetic Code
2. Mutagenic agents
3. Types of mutation and their mechanism
4. Sister-chromatin exchange and chromosemal observations.

II. A. Genetic disorders and human behaviour :

1. Chromosome abnormality
2. DNA repair deficient and chromosome instability
3. Influence of single gene defects on behaviour
4. Nature and nurture
5. Mental Retardation - Fragile sites
6. Heredity and environment in multifactorial inheritance
7. Sex-limited chromosome and hormonal encironment

B. Inborn errors of metalolism :

1. Historical account
2. Enzymes blockdein various diseases
3. Molecular aspects of errors

III. A. Diagnosis of Genetic disorders

1. Prenatal diagnosis of birth defects; use of amniocentesis
2. Prenatal diagnosis by Dart analysis
3. Genetic counselling
4. Gene therapy

P.T.O.

B. Human Genetics Programme and Chromosomal Map

1. DNA in Human chromosome
2. Mapping of human chromosome
3. Chromosomal rearrangement
4. Human cancer

IV. A. Cytogenetical Techniques

1. Microscopes : Phase contradace and Flucreascent Microscopes.
2. Hypotonic treatment, Fixation and Airdrying/Flame drying method
3. Handing of Chromosomes
4. Autoradiography
5. Flow cytometry
6. Tissue culture techniques
7. - In situ hybridization
8. Differential staining
9. Cell fusion : Premature chromosome condensation

SUGGESTED READINGS :

1. Hagle, C.J. 1989 : Heredity of Human Affairs. IIIrd Ed. Mosay, Toronto.

2. Nora[illegible], E. 1982 : Human Genetics, Ed. 2nd Macmillan.

3. Obe, H and Basler A: Cytogenetics, Springer-Verlag. 1987

4. Ordern D.T. Shasad : [illegible], 1984 Willey, N.Y.

5. Praser Roberts, T.A. : An introduction to Medical Genetics, & Pembreg, M.F. 1978 7th Ed. Oxford University Press.

6. Tricberger, H.W. 1985: Genetics. 3rd Edn., MacMillan.

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OPTIONAL PAPER 5

DENTAL ANTHROPOLOGY

FULL MARKS - 100

I. Meaning, nature and importance of Dental Anthropology. Its relation with other sciences. Trends of evolution in the dentition of non-human primates and man.

II. Morphology and anatomy of human dentition. Structure, function and development of teeth - Age and sex determination from human teeth.

III. Dental morphology. Variations and odotometry of the populations of mankind and non-human primates, and their genetic significance.

IV. Dential pathodology in various human groups of the world. Eruption pattern of teeth in various ethnic groups, and the factors influencing the patterns.

SUGGESTED READINGS :

Brothwell, D.R. 1963 : Dental Anthropology. Pergamon Press New York.

Colyer, J.F., L. Sprawson 1974 : Dental Surgery and Pathology, Longman Green & Co., London.

Rami Reddy, V. 1986 : Dimension of Anthropology: dentition, pathology and crown morphology. B.R. Publishers, New Delhi.

Segal, A.H. 1963 : Morphology of the Anatomy of Human Dentition. Chicago Yearbook Medical Publishers. Inc. Chicago.

Simons, E.L. 1972 : Primate Evolution. Macmillan, New York.

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5:2:4(30)

OPTIONAL - 6

SPORTS ANTHROPOLOGY

FULL MARKS - 100

I. Importance of Sports in Human Society. Heredity and Environment in body dimensions and proportions. Relationship of different types of sports efficience and different body proportions. Ecological, ethnic and genetic variation of body shape and size in relation to sports efficiency.

II. Family environment and heredity background of special physical abilities of sports performance. Effects of exercise and Yoga on Physical fitness and sports efficiency. Psysiological variation in relation to sports activities.

III. Nutritional status and requirements in relation to sports and exercise, diammal and seasonal variation in body related to sports exercise, physical fitness and mental alertness.

IV. Body composition, body type-somatotypes, and physiological profile of sportsmen and women. Bio-anthropological study of Indian sportsmen and sportswomen.

SUGGESTED READINGS :

Arstrand and Rodhal 1970 : Textbook of Work Physiology. Mc Graw Hill. New York.

Damon. A. (ed) 1975 : Physiological Anthropology. Oxford University Press, New York London.

Singh, S.P., P.Malhotra 1989 : Kinanthropometry : Human Size shape, proportion, composition, maturation and gross function. Lunar Publications. Patiala.

Sodhi, M.S. 1991 : Sports Anthropometry. Anova Publications, Mohali.

Sidhu, L.S. (ed) 1988 : Trends in Sports Sciences. IASSPE. Patiala

Sidhu, L.S. 1989 : Sports Sciences : Health, Fitness and Performance. IASSPE Patiala.

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OPTIONAL PAPERS FOR
SOCIAL ANTHROPOLOGY STREAM

OPTIONAL COURSE NO. 1
ECONOMIC ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is to familiarize the students with socio-cultural dimensions of the economic systems and activities of different societies beginning with simple societies.

I. Definition, scope and development of economic anthropology.

II. Types of economy - hunting, food-gathering, pastoralism, shifting cultivation, peasantry, and urban-industrial economy.

III. Approaches to economic anthropology - formalist versus substantivist controversy; marxist thesis on economy and society.

IV. Types of economic activities - production; division of labour and technology; distribution; barter ceremonial exchange, reciprocity and market consumption wealth and social differentiation.

SUGGESTED READINGS :

Basham, M. 1966. Primitive and Peasant Economic Systems. New York, Chandler.

Belshaw, C. 1975. Traditional Exchange and Modern Markets. New Jersey : Prentice Hall.

Bohanann, P. & G. Dalton (eds). 1962. Markets in Africa. Washington. American Musuem of Natural History Series.

Dalton, C. 1971. Primitive, Archaic and Modern Economics : Essays of Karl Polanyi. Boston : Little Brown.

Dalton, G. 1975. Reading in Economic Anthropology. Washington. American Museum of Natural History Series.

_____ 1974. Economic Anthropology and Development. Washington. American Museum of Natural History Series.

Danda, A. K. 1991. Tribal Economy in India. New Delhi. Inter India.

Firth, B. (ed). 1975. Themes in Economic Anthropology. London : Tavistock.

Herskovitz, M. J. 1975. Economic Anthropology. New Delhi : Eurasia Publication.

Le Clair, E. E. & H. K. 1968. Economic Anthropology. Readings in theory and analysis. Holt. Rinehart and Winston.

Nash, M. 1974. Primitive and Peasant Economic Systems. San Francisco : Chandler Publication.

Sachchidananda. 1979. "Horizons of Economic Anthropology". Eastern Anthropologist.

Singh, K. S. (ed). 1982. Economies of Tribes and Their Transformation. New Delhi : Concept.

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OPTIONAL COURSE NO. 2

ANTHROPOLOGY OF RELIGION

FULL MARKS - 100

The objective of this course is to acquaint the students with the various aspects of religion with special reference to tribal societies.

I. Religion as a social institution - oral and textual religion.

II. Tribal religions - ancestor-worship, totemism, taboo, sorcery, witchcraft, myth, ritual and magic.

III. Tehories of religion - evolutionary : Frazer, Spencer and Tylor : Functional; Redcliffe-Brown, Durkheim and Malinowski; Raychol-analytic and dialectical : Freud and Marx.

IV. Religious change : identity crisis, indigenization and revivalism.

SUGGESTED READINGS :

Banton, M. (ed). 1966. Anthropological Approaches to study of Religion.

Beattie, J. 1976. Other Cultures. London : Routledge & Kegan Paul.

Dawns, F. 1981. "Administrators, Missionaries and a world turned upside down". Indian Church Historical Review, 15 (2).

Durkheim, Emile, 1961. The Elementary Forms of Religions Life. New York : Colline.

Evans-Pritchard, E. E. 1972. Theories of Primitive Religion. London. OUP.

Frazer, J. G. 1922. The Golden Bough : A Study of Magic & Religion. New York : Macmillan.

Lessa and Vogt. 1958. Reader in Comparative Religion. Evanstco.

Lewis, I. M. 1972. Ecstatic Religion. Harmondsworth : Penguin.

Lowie, R. H. 1948. Primitive Religion. New York : Liveright.

Luckmon, T. 1967. The Social Reality of Religion. New York : Macmillan.

Malinowski, B. 1954. Magic, Science and Religion. Glencoe : The Free Press.

Midlleton, J. (ed). 1967. Gods & Rituals, Gardencity : Natural History Press.

Redcliffe-Brown, A. R. 1962. Structure and Function of a Primitive Society. London : Cohen and West.

Sangma, Milton. 1987. History of American Baptist Missionary in North East India.

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OPTIONAL COURSE NO. 3

POLITICAL ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is to acquaint the students with the political organizations and behaviour of the tribal societies in general and North East India in particular.

I. Scope and development of Political Anthropology.

II. Political organisation of tribal societies - band, headman/chief tribe, segmentary/stateless society, kinship.

III. Power elite, influence and authority - Weber's typology of authority.

IV. Law and justice dispensation in tribal societies : Vengence, Feuds, Ordeals, Oath and Justice; Super-natural and Legal.

SUGGESTED READINGS :

Balandier, G. P. 1970. Political Anthropology. New York : Random House.

Banton, M. (ed). 1965. Political Systems and Distributions of Powers. London.

Beattie, J. 1976. Other Cultures. London : Routledge & Kegan Paul.

Bohannan, P. J. 1957. Justice and Judgement Among the Tiv. London.

Bottomore, T. B. 1966. Elites and Society. Harmondsworth : Penguin.

Fried, M. H. 1967. The Evolution of Political Society. New York : Random House.

Hoobel, R. A. 1954. Law of primitive man. Harvard : University Press.

Huizer, G. & B. Mannheim (eds). 1979. The politics of anthropology. The Hauge : Monton.

Mair, L. 1970. Primitive Government. (2nd edition).

Malinowski, B. 1926. Crime and custom in savage society. London.

Middleton, J & D. Tait (eds). 1958. Tribes without Rulers.

Schapers, I. 1956. Government and Politics in Tribal Societies.

Seaton, S. L. & H. M. Claessen (eds). 1979. Political Anthropology. The Hague : Mouton.

Southal, A. 1968. "Stateless Society". Int. Ency. of the Sec. Scs, Vol. 15.

Swartz, M. J. et. al. 1966. Political Anthropology. Chicaga : Aldine.

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OPTIONAL COURSE NO. 4.

MEDICAL ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is familiarize the students with social, cultural and religions aspects of the folk medicines and folk medical systems in general and in India in particular.

I. Medical Anthropology - Meaning and Scope.

II. Concept of health and disease in India - Socio-cultural dimensions illness; occupational disease; and faith-healing.

III. Ethnomedicine - Cultural factors connected with causation, transmission, and epidemiology of selected diseases; ethnography of tribal and folk medical systems and folk medicines in India.

IV. Application of Anthropological Knowledge in promoting health care in tribal and rural communities, programme promotion and changing health behaviour.

SUGGESTED READINGS :

Caudill, W. 1953. Applied Anthropology in Medicine. Chicago : University of Chicago Press.

Foster, G. M. et. al. 1978. Medical Anthropology. New York : John Wiley.

Landy, D. 1977. Culture Disease and Healing. New York : Macmillan.

Paul, B. D. 1955. Health, Culture and Community. New York : Russel Sage Foundation.

Read, M. 1966. Culture, Health and Disease. London : Tavistock Publications.

Rivers, W. H. R. 1924. Medicines, Magic and Religion. New York : Harcourt Brace.

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OPTIONAL COURSE NO. 5

APPLIED SOCIAL ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is to familiarize the students with the uses of anthropological knowledge in development and social counselling.

I. Definition, scope and nature of 'applied' and 'action' anthropology relationship between 'applied' and 'action' anthropology.

II. Application of anthropological knowledge in programmes by governmental and non-governmental agencies about tribal development.

III. Application of anthropological knowledge in education - curricular development, training, health and nutrition education.

IV. Application of anthropological knowledge in research and development, disputed parentage, race relations and adaptation problems.

SUGGESTED READINGS :

Applied Anthropology (Journal).

Barnett, H. 1973. Anthropology in Administration . London Croom Helm.

Bhowmick, P. K. 1990. Applied Action-Development Anthropology. Institute of Social Research and Applied Anthropology.

Cochrane, G. 1971. Development Anthropology. New York : OUP.

Elwin, V. 1959. A Philosophy of NEFA. Shillong : P. C. Dutta.

Mair, L. 1956. Anthropology and Social Change. London : Athlone Press.

Mead, M. 1955. Cultural Patterns and Technological Change. New York : New American Library.

Paul, B. D. (ed). 1955. Health, Cultural and Community. New York.

Vidyarthi, L. P. (ed). 1968. Applied Anthropology in India. Allahabad : Kitab Mahal.

_____. 1957. Studies in Applied Anthropology. London.

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OPTIONAL COURSE NO. 6

LINGUISTIC ANTHROPOLOGY

FULL MARKS - 100

The objective of this course is to introduce the students to language as a cultural phenomenon and to explain to them how the study of language helps them in understanding the society itself.

I. Scope of linguistic anthropology - relationships with anthropology of language, socio linguistics and ethno linguistics. Descriptive linguistics and classification of Indian language by Grierson.

II. The Cultural setting of language - Benjamin Whorf and Sapir.

III. Dialectology and language geography - languages of the tribes of North East India.

IV. Ferdinand de Saussure and structure of language - paradigmatic and syntagmatic relations; prague linguistic school; Chomsky's contribution; Levi-Strauss's contribution.

SUGGESTED READINGS :

Bloomfield, L. 1953. Language. London : Dalton University.

Chomsky, W. 1975. Reflections on Language. New York : Pantheon.

Gleason, H. A. 1961. An Introduction to Descriptive Linguistic. New York : Halt, Rinehart & Winston.

Goodenough, W. H. 1971. Culture, Language and Society. Mass : L. Addison Wesley.

Greenberg, J. H. 1968. Anthropological Linguistics : An Introduction.

Hickerson, N. P. 1980. Linguistic Anthropology. New York : Holt, Rinehart and Winston.

Hockett, C. F. 1958. A Course in Modern Linguistics. New York. Macmillan.

Hymes, D. H. (ed). 1964. Language in Culture and Society. New York : Harper & Row.

Labov, W. 1978. Sociolinguistic Patterns. Oxford : Basil Blackwell.

Lehmann, W. P. 1962. Historical Linguistics : An Introduction.

Lyons, J. 1981. Language & Linguistics : An Introduction. Cambridge University Press.

Neweyer, F. J. (ed). 1980. Linguistics : The Cambridge Survey IV. Cambridge University Press.

Sapir, E. 1963. Language. London : Hart-Davis.

Trudgil, P. 1984. Sociolinguistics. An Introduction to language and Society. Harmondsworth : Benguin.

Whorf, B. L. 1956. Language, Thought and Reality. Cambridge MIT Press.

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5:2:5(1)

Syllabi for the courses in Computer Science at Degree level.

The syllabi for the courses in Computer Science at Degree level were considered and approved by the Expert Committee duly constituted for the purpose.

The syllabi as approved by the Committee are placed as under for consideration of the Council :

1. Computer Science for B.Com(Pass)-Annexure-'A'
2. Computer Science for B.Sc(Pass) - Annexure -'B'
3. Computer Science for B.Sc(Honours)-Annexure-'C'

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ANNEXURE-'A'

COMPUTER SCIENCE

(Pass Course at Degree Level - Commerce Stream)

1. **Objective**
The B.Com course with Computer Science envisages immediate employment oppurtunities as well as strong programming foundation to introduce a candidate into the field of computers. A candidate on completion of this course would be in a position to efficiently use the software packages and develop programs for Office and Business applications as well be eligible for any recognised MCA Course.

2. **Eligibility**
The candidate should be from Commerce stream and should have passed Computer Applications at PU level securing not less than 45% in Computer Applications.

3. **Duration**
The course is to be completed in three academic years along with the other subjects of the Degree Course, according to the following schedule.

Paper 1 In year 1 in lieu of English.
Paper 2 In year 2 in lieu of MIL.
Paper 3 In year 3 in lieu of GFC.

4. **Course Structure**

FIRST YEAR :

		MARKS
Paper I : Part A :	**dBASE IV and LOTUS 1-2-3 VER(3.2)**	**4Ø**
	15 : dBASE IV theory	
	15 : LOTUS 1-2-3 theory	
	1Ø : Basics of Data Base Management system	
Part B :	**dBASE IV and LOTUS 1-2-3 VER(3.2)**	**6Ø**
	2Ø : dBASE IV Practical	
	2Ø : LOTUS 1-2-3 Practical	
	1Ø : Internal Assessment	
	1Ø : Internal Assessment	

SECOND YEAR :

Paper II:	**Programming in COBOL**	**1ØØ**
	4Ø : Theory	
	5Ø : Practicals	
	1Ø : Internals	

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THIRD YEAR :

Paper IV: Part A : System Analysis and Design **4Ø**

3Ø : Theory
1Ø : Internal Assessment

Part B: Project Work **6Ø**

4Ø : Project
1Ø : Viva Voce
1Ø : Internal Assessment

5. **Detailed Syllabus**

PAPER I

dBASE IV

1(a) Understanding databases; Building, Searching, Sorting, Editing and Modifying databases.
1(b) Creating and printing formatted reports, Designing custom screen displays, Managing numbers and dates, Managing multiple data files, File maintenance and performance.

2. Understanding memory variables, Creating command files, Making commands user-friendly, Executing conditional commands, Designing Programs, Debugging Techniques.

BOOKS:

1. dBASE IV Manual
2. Alan Simpson, Understanding dBASE IV , BPB Publications, New Delhi

QUESTION PAPER PATTERN:

Unit 1 carries 9 marks and Unit 2 - 6 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

dBASE IV Practicals:

1. Create any database and add records to it.
2. Given a database try out the following commands.
   LIST, APPEND, BROWSE, EDIT, DELETE, RECALL, PACK, DISPLAY, LOCATE, CHANGE, REPLACE, ZAP, COUNT etc
3. Given two programs trace their output.
4. Solve any 2 numeric problems using TOTAL, SUM, AVERAGE.
5. Program on Sorting and Indexing database.
6. Program on maintenance of a database (Add, Delete, Edit, Print)
7. Updating of a database using another database (Use set relation to)
8. Program on selecting records from a given database based on Simple or Compound conditions. (use set filter to)
9. Program on Screen manipulation (Clear, Say, Read, Get, etc)
10. Program on calling procedure files from the Main Program.

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LOTUS 1-2-3

1. BASIC SKILLS: The worksheet screen, Moving around in the worksheet, Data entry and editing, Types of data, Numbers, Labels, Formulas, Ranges, Entering Formulas, Order of operations, Relative, absolute and mixed cell addresses, @Functions, Indicators, 1-2-3 keys, Help facility.

2. 1-2-3 COMMANDS: Worksheet, Range, Copy, Move, File, Print, System, Quit.

3. 1-2-3 ADVANCED COMMANDS: Data, Graph, Print Graph, Macros, Functions (@Function, Logical, Mathematical, Special, Date, Financial, Statistical, Database statistical).

BOOKS:

1. Lotus 1-2-3 Tutor and Reference Manual
2. Thomas H. Berliner & Reeves, Lotus 1-2-3, BPB Publications
3. Carolyn Jorgensen, Mastering 1-2-3, BPB Publications

QUESTION PAPER PATTERN:

Each unit carries 5 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

LOTUS PRACTICALS :

1. CREATION programs
   a. Students Marks List
   b. Payroll List
   c. Invoice File
   d. Fixed Deposit File - To make the students to become familiar in moving around the Worksheet and in using the Formulas, Ranges, @Functions etc.

2. a. Program to find mean, median, standard deviation of the annual rainfall of a place - using the various options like Scientific, Fixed, Date, Percent of the Format in the Range menu.
   b. Using the worksheet created in the unit 1 try all the options of the Range menu.

3. a. Combine the Payroll and Fixed deposit work sheet created earlier - using all the options of the File menu.
   b. Import the data from a Data base file in to the Students Marks list worksheet.

4. a. Print the Students Marks list by using the various options of Printer in the Print menu (including different fonts).
   b. Store the results in data file using the options of File in the Print menu.

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5. a. Draw various graphs by using the worksheet created in the unit 2.a.
   b. Create a database which has the annual rainfall of the six metropolitan cities of India and compare them by various graphs, using all the options of the Graph menu like Options, Type, Name etc.

6. a. Sort the Student Marks list by their marks and by their names and provide for queries as to grading of the various students by using the various options of the Sort and Query command in the Data menu.
   b. Do the matrix inversion and matrix transpose using the matrix of the various sizes.
   c. Prediction of sales with Regression analysis

BASICS OF DATA BASE MANAGEMENT SYSTEM

1. Introduction , Data Independence, Architecture of a Data Base, Distributed Data Bases, Storage structures, Physical Record Interface, Indexing techniques, Relational approach, Hierarchical approach, Network approach and High Level Operators.

BOOKS

1. Date, C J : An Introduction to Database Systems, Volume I and II, Addison Wisley, 1981, 1983.
2. Ullman, Jaffrey D: Principles of Database Systems,2nd Ed, Galgotia Pvt. Ltd.,
3. Whittington, R P : Data Base System Engineering, Clavendon Press.
4. Pratt P : Data Base Systems Management and Design, Boyd and Fraser Publ. Comp, 1987

QUESTION PAPER PATTERN

Unit 1 carries 1Ø marks.

There shall be four question from the unit 1 out of which three has to be answered.

PAPER II : PROGRAMMING IN COBOL :

1(a) Introduction, Cobol Divisions, Coding forms, Character set, Data names, literals: punctuations

1(b) Data Division: Input files, output files, working storage section, Move, Read, Goto, Write, Close, Stop, Run, Accept, Display, Add, Subtract, Multiply, Divide, Verb

2. Relational Condition: If sentence with non-numeric data, editing, control structure, Perform Logical operations, GOTO, Depending on Statement, Perform with varying clause, Redefines and Renames clause, compute

3. Sequential file organization, sorting, merging, indexed sequential file, report generator

BOOKS:

1. V. Rajaraman & H.V. Sahasrabuddhe, Computer Programming in

5.2.5(B)

Cobol, Prentice Hall of India, New Delhi
2. N.L. Sarda, Cobol Programming with Business Applications, 3rd Edition, Pitamber Publishing Co., New Delhi
3. A.S. Philippakis and L.J. Kazmier, Information System through Cobol, McGraw Hill Book Co., International Student Edition, Delhi
4. Worth T., Cobol Programming, John Wiley & Sons, New York

QUESTION PAPER PATTERN

UNIT 1 carries 20 Marks, UNIT 2 - 10 Marks,
UNIT 3 - 10 Marks.

There shall be two questions from each unit, and one from each unit has to be answered.

COBOL PRACTICALS :

1. Program to find LARGEST and SMALLEST of two & three unequal numbers.
2. Program to find LARGEST and SMALLEST of several unequal numbers.
3. Program to find THREE LARGEST & SMALLEST numbers out of several given numbers.
   (considering EQUALITY & INEQUALITY cases)
4. CREATION Programs:
   Program to CREATE the following files
   a. Students marks files
   b. Payroll files
   c. Inventory control files
   d. Invoice file
   e. Fixed deposit files
5. VALIDATION Programs :
   Program to VALIDATE the files created by previous programs.
6. EDIT Programs:
   Program to EDIT the files created by previous programs.
7. UPDATE Programs:
   Program to UPDATE the files created by the previous programs.
8. SORT Programs:
   Programs to SORT the files mentioned earlier using the following techniques.
   a. Using Giving
   b. Input - Output Procedure (Release/Return)
9. MERGE Programs:
   Program to MERGE the files as mentioned in step No.8
10. PROCESSING Programs:
    Programs to PROCESS the files mentioned in step 7 & print

the required files.

11. Program to build Two dimensional & three dimensional tables using Table Handling techniques.
12. Program to search Table using Table search techniques.
13. Program to Print Customer Report using Indexed Sequential files.
14. Program to print selective Product Details using RANDOM (Direct Access) file handling techniques.

PAPER IV; PART A : SYSTEM ANALYSIS AND DESIGN

1. Overview of system analysis and design, Business Systems concepts, systems development life cycle, project selection, feasibility analysis, design, implementation, testing and evaluation.

2. Project Selection: Sources of project requests, managing project review and selection, preliminary investigation.

3. Feasibility Study - Technical and economical feasibility, cost and benefit analysis.

4. System requirement specification and analysis : Fact finding techniques, Data flow diagrams, data dictionaries, process organization and interactions, Decision analysis decision trees and tables.

5. Detailed design - Modularisation, module specification, file design, systems development involving data base.

6. System Control and Quality Assurance - Design objectives, reliability and maintenance, software design and documentation tools, topdown, bottom up and variants. Units and integration testing practices and plans. System Controls, Audit trials.

7. System Administration and Training, conversion, and operation plans.

8. Hardware and Software Selection, Hardware acquisition, memory, processors, peripherals, benchmark, vendor selection, software selection - Operating systems languages, performance and acceptance criteria.

Books

1. James, A.S : Analysis and design of information Systems, McGraw Hill, 1986.
2. Ludeberg, M.Glkuhl, G,. and Hilson A: Information Systems Development A Systematic Approach, Prentice Hall International, 1981.
3. Leeson, M : Systems Analysis and Design, Science Research Association, 1985.
4. Semprive, P C : Systems Analysis - Definition, Process and Design, 1982.
5. Richard, D : System Analysis Design, Irwin Inc, 1979.
6. Award, E Homewood : System Analysis and Design, Award, Irwin, 1979.

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7. Lee, B S: Introducing System Analysis and Design, 2 Vol, Manchester United Kingdom, National Computer Centre, 1978.
8. Learn Yourself : Systems Analysis and Design, Reston Publishing Company, 1975.
9. Daniel : Practical System Design, Galgotia Publications Pvt. Ltd.,
10. Davis, W.S : Systems Analysis and Design, Addison-Wesley, 1983.

QUESTION PAPER PATTERN

Unit 1 carries 6 marks, Unit 2,3,5,7 - 9 marks,
Unit 4 - 5 marks, Unit 6 - 5 marks,
Unit 8 - 5 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

EVALUATION OF INTERNAL ASSESSMENT

100 % of the marks is based on three internal tests , out of which marks for the best two tests will be considered. In case of papers consisting of practicals, 50 % of the marks will be for laboratory records and the rest 50 % for the internal tests.

PAPER IV: PART B : PROJECT WORK

1. Duration of the Project Work is sixty days.
2. Project can be done in any Language or Package included in this course.
3. Two copies of the Project Report should be submitted (including the codes of the Project).
4. Subject for the Project Work should be approved by the institution.
5. A maximum of three students are allowed per Project. Each student will submit two copies of his part of the Project, while the group will submit one copy of the complete Project.
6. Project is to be guided by the staff of the institution or by the staff and by an expert from the Industry jointly.
7. Project Work will be evaluated by an External examiner together with the Internal examiner. The evaluation may be based on the following -
   a. Continuous assessment of the work done by the student.
   b. Project Report.
   c. Viva.

Schedule of the 60 days Project Work :

1. Within the first 10 days the student has to present the Overview of the Project - scope, limitations, considerations etc.
2. 40% of the Project should be completed within the next 20 days.
3. Each student will be required to present in a Seminar the content of and progress on his Project after the first month.
4. Project should be completed (including demonstration of the package and the submission of the report) within two months of its starting.

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ANNEXURE-'B'

COMPUTER SCIENCE

(Pass Course at Degree Level - Science Stream)

1. **Objective**

The BSc course for Computer Science envisages immediate employment opportunities as well as strong programming foundation to introduce a candidate into the field of computers. A candidate on completion of this course would be in a position to efficiently use the software packages and develop programs for Office and Business applications, as well as be eligible for any recognised MCA Course.

2. **Eligibility**

The candidate should be from the Science stream and should have passed Computer Applications at PU level securing not less than 45% in Computer Applications.

3. **Duration**

The course is to be completed in three academic years along with the other subjects of the Degree Course.

4. **Course Structure**

FIRST YEAR :

			MARKS
Paper I	**Part A**	**dBASE IV and LOTUS 1-2-3 VER(3.2)**	**40**
		15 : dBASE IV theory	
		15 : LOTUS 1-2-3 theory	
		10 : Basics of Data Base Management system	
	Part B	**dBASE IV and LOTUS 1-2-3 VER(3.2)**	**60**
		20 : dBASE IV Practical	
		20 : LOTUS 1-2-3 Practical	
		10 : Internal Assessment	
		10 : Internal Assessment	

SECOND YEAR :

Paper II:		**Programming in PASCAL/FORTRAN 77**	**100**
		40 : Theory	
		50 : Practicals	
		10 : Internal Assessment	
Paper III :		**Programming in COBOL**	**100**
		40 : Theory	
		50 : Practicals	
		10 : Internals	

THIRD YEAR :

Paper IV:	**Part A :**	**System Analysis and Design**	**40**
		30 : Theory	
		10 : Internal Assessment	
	Part B:	**Project Work**	**60**
		40 : Project	
		10 : Viva Voce	
		10 : Internal Assessment	

5:2:5(10)

5. **Detailed Syllabus**

PAPER I : PART A ::: dBASE IV

1(a) Understanding databases; Building, Searching, Sorting, Editing and Modifying databases.
1(b) Creating and printing formatted reports, Designing custom screen displays, Managing numbers and dates, Managing multiple data files, File maintenance and performance.

2. Understanding memory variables, Creating command files, Making commands user-friendly, Executing conditional commands, Designing Programs, Debugging Techniques.

BOOKS:

1. dBASE IV Manual
2. Alan Simpson, Understanding dBASE IV , BPB Publications, New Delhi

QUESTION PAPER PATTERN:

Unit 1 carries 9 marks and Unit 2 - 6 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

dBASE IV Practicals:

1. Create any database and add records to it.
2. Given a database try out the following commands. LIST, APPEND, BROWSE, EDIT, DELETE, RECALL, PACK, DISPLAY. LOCATE, CHANGE, REPLACE, ZAP, COUNT etc
3. Given two programs trace their output.
4. Solve any 2 numeric problems using TOTAL, SUM, AVERAGE.
5. Program on Sorting and Indexing database.
6. Program on maintenance of a database (Add, Delete, Edit, Print)
7. Updating of a database using another database (Use set relation to)
8. Program on selecting records from a given database based on Simple or Compound conditions. (use set filter to)
9. Program on Screen manipulation (Clear, Say, Read, Get, etc)
10. Program on calling procedure files from the Main Program.

LOTUS 1-2-3

1. BASIC SKILLS: The worksheet screen, Moving around in the worksheet, Data entry and editing, Types of data, Numbers, Labels, Formulas, Ranges, Entering Formulas, Order of operations, Relative, absolute and mixed cell addresses, @Functions, Indicators, 1-2-3 keys, Help facility.

2. 1-2-3 COMMANDS: Worksheet, Range, Copy, Move, File, Print, System, Quit.

3. 1-2-3 ADVANCED COMMANDS: Data, Graph, Print Graph, Macros, Functions (@Function, Logical, Mathematical, Special, Date, Financial, Statistical, Database statistical).

BOOKS

1. Lotus 1-2-3 Tutor and Reference Manual
2. Thomas H.Berliner & Reeves, Lotus 1-2-3 BPB Publication
3. Carolyn Jorgenson,Mastering 1-2-3,BPB Publications

QUESTION PAPER PATTERN

Each Unit carries 5 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

LOTUS PRACTICALS :

1. CREATION progress
   a. Students Marks List
   b. Payroll List
   c. Invoice File
   d. Fixed Deposit File - To make the students to become familiar in moving around the worksheet and in using the Formulas,Ranges, Functions etc.
2. a. Program to find mean,median,standard deviation of the annual rainfall of a place-using the various options like Scientific, Fixed,Date, Percent of the Format in the Range menu.
   b. Using the worksheet created in the unit 1 try a ll the options of the Range menu.
3. a. Combine the Payroll and Fixed deposit work sheet crated earlier using all the options of the File menu.
   b. Import the data from & Data base file in to the Students Marks list worksheet.
4. a. Print the Students Marks list by using the various options of Printer in the Print menu(including different fonts)
   b. Store the results in data file using the options of File in the Print menu.
5. a. Draw various graphs by using the worksheet created in the unit 2.a.
   b. Create a database which has the annual railfall of the metropolitian cities of India and compare them by various graphs, using all the options of the Graph menu like Options,Type, Name etc.
6. a. Sort the Student Marks list by their marks and by their names and provide for quaries as to grading of the variousssstudents by using the various options of the Sort and Query command in the Data menu.
   b. Do the matrix inversion and matrix transpose using the matrix of the various since.
   c. Production of sales with Regression analysis.

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BASICS OF DATA BASE MANAGEMENT SYSTEM

1. Introduction , Data Independence, Architecture of a Data Base, Distributed Data Bases, Storage structures, Physical Record Interface, Indexing techniques, Relational approach, Hierarchical approach, Network approach and High Level Operators.

BOOKS

1. Date, C J : An Introduction to Database Systems, Volume I and II, Addison Wisley, 1981, 1983.
2. Ullman, Jaffrey D: Principles of Database Systems,2nd Ed, Galgotia Pvt. Ltd.,
3. Whittington, R P : Data Base System Engineering, Clavendon Press.
4. Pratt P : Data Base Systems Management and Design, Boyd and Fraser Publ. Comp, 1987

QUESTION PAPER PATTERN

Unit 1 carries 10 marks.

There shall be four question from the unit 1 out of which three has to be answered.

PAPER II : :: PROGRAMMING IN PASCAL :

1(a) Introduction - Scalar Variables, Constants, Arithmetic Operators and modes for Expressions, Integer Expressions, Real Expressions, Hierarchy of operations in Expressions, Assignment statements, functions Defining variables.

1(b) INPUT-OUTPUT statements, Conditional statements, Relational operators, Compound statement, REPEAT loop, WHILE loop, FOR loop, Library Functions.

2. ARRAYS - one dimension, two dimension, multiple subscripts, Boolean constants, variables and expressions, precedence rules, CASE statement.

3. FUNCTIONS and PROCEDURES - Declarations, Syntax, Block structures, Recursion.

4(a) STRINGS - character data type, manipulating strings, searching, packing, unpacking.

4(b) Enumerated Scalar Data, Set Data structure, Records and their applications, Recursion.

BOOKS

1. V.Rajaraman, Computer programming in Pascal, Prentice Hall India.
2. Gottfried, Programming with Pascal, McGraw Hill

QUESTION PAPER PATTERN

Unit 1 carries 10 marks, Unit 2 - 10 marks,
Unit 3 - 10 marks, Unit 4 - 10 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

PASCAL PRACTICALS

1. Two problems on Arithmetic Expressions.
   (simple & compound interest, Fahrenheit to Celsius)
2. Two problems on Conditional statements (IF-THEN-ELSE)
   a. print 3 numbers in ascending order.
   b. roots of quadratic equation.
   c. interest calculation program.
3. Six problems on Loops (REPEAT-UNTIL, DO-WHILE, FOR)
   a. calculating average heights of a group of people
   b. converting decimal to octal etc.
   c. finding palindromes from a set of integers.
   d. finding the sum of a given trigonometrical series.
   e. processing of marks and assigning grades to the students of a class.
   f. calculation of net pay for a certain number of employees based on various allowances, taxes etc.
4. Five problems on Array manipulations (one dimension & two dimensional arrays)
   a. addition, multiplication, transpose of a matrix
   b. to find the sum of squares on the diagonal of a square matrix.
   c. to rearrange each row of a matrix in descending order.
   d. frequency distribution.
   e. simple inventory calculations.
5. One problem on Boolean expression and two problems on CASE statement.
   a. checking the validity of a date.
   b. calculating taxes for various income slabs.
   c. decision table for declaring marks in an examination.
6. Six problems on FUNCTIONS, PROCEDURES and RECURSION.
   a. writing a function subprogram for a function f(x).
   b. calculating the factorial of a number recursively.
   c. procedure to validate the elements of a matrix.
   d. generating a trigonometrical series by using functions and recursion.
   e. processing of marks and calculating grades for a class using procedures.
   f. sorting data into a frequency table.
7. Two problems on character string manipulation.
   a. deleting all vowels from a sentence.
   b. sorting a list of names by the first two characters of the last name.
8. Three problems on enumerated data types.
   a. tabulating a questionnaire
   b. calculating weekly wages
   c. to read a line and delete all vowels (using set)

5.2.5(15)

PAPER III : :: PROGRAMMING IN COBOL

1(a) Introduction, Cobol Divisions, Coding forms, Character set, Data names, literals: punctuations

1(b) Data Division: Input files, output files, working storage section, Move, Read, Goto, Write, Close, Stop, Run, Accept, Display, Add, Subtract, Multiply, Divide, Verb

2. Relational Condition: If sentence with non-numeric data, editing, control structure, Perform Logical operations, GO TO Depending on Statement, Perform with varying clause, Redefines and Renames clause, compute

3. Sequential file organization, sorting, merging, indexed sequential file, report generator

BOOKS:

1. V. Rajaraman & H.V. Sahasrabuddhe, Computer Programming in Cobol, Prentice Hall of India, New Delhi
2. N.L. Sarda, Cobol Programming with Business Applications, [illegible] Edition, Pitamber Publishing Co., New Delhi
3. A.S. Philippakis and L.J. Kazmier, Information System through Cobol, McGraw Hill Book Co., International Student Edition, Delhi
4. Worth T., Cobol Programming, John Wiley & Sons, New York

QUESTION PAPER PATTERN

UNIT 1 carries 20 Marks, UNIT 2 - 10 Marks.
UNIT 3 - 10 Marks.

There shall be two questions from each unit, and one from each unit has to be answered.

COBOL PRACTICALS :

1. Program to find LARGEST and SMALLEST of two & three unequal numbers.
2. Program to find LARGEST and SMALLEST of several unequal numbers.
3. Program to find THREE LARGEST & SMALLEST numbers out of several given numbers.
   (considering EQUALITY & INEQUALITY cases)
4. CREATION Programs:
   Program to CREATE the following files
   a. Students marks files
   b. Payroll files
   c. Inventory control files
   d. Invoice file
   e. Fixed deposit files

5. VALIDATION Programs :
   Program to VALIDATE the files created by previous programs.
6. EDIT Programs:
   Program to EDIT the files created by previous programs.
7. UPDATE Programs:
   Program to UPDATE the files created by the previous programs.
8. SORT Programs:
   Programs to SORT the files mentioned earlier using the following techniques.
   a. Using Giving
   b. Input - Output Procedure (Release/Return)
9. MERGE Programs:
   Program to MERGE the files as mentioned in step No.8
10. PROCESSING Programs:
   Programs to PROCESS the files mentioned in step 7 & print the required files.
11. Program to build Two dimensional & three dimensional tables using Table Handling techniques.
12. Program to search Table using Table search techniques.
13. Program to Print Customer Report using Indexed Sequential files.
14. Program to print selective Product Details using RANDOM (Direct Access) file handling techniques.

PAPER IV: PART A : SYSTEM ANALYSIS AND DESIGN

1. Overview of system analysis and design, Business Systems concepts, systems development life cycle, project selection, feasibility analysis, design, implementation, testing and evaluation.

2. Project Selection: Sources of project requests, managing project review and selection, preliminary investigation.

3. Feasibility Study - Technical and economical feasibility, cost and benefit analysis.

4. System requirement specification and analysis : Fact finding techniques, Data flow diagrams, data dictionaries, process organization and interactions, Decision analysis decision trees and tables.

5. Detailed design - Modularisation, module specification, file design, systems development involving data base.

6. System Control and Quality Assurance - Design objectives, reliability and maintenance, software design and documentation tools, topdown, bottom up and variants. Units and integration testing practices and plans. System Controls, Audit trials.

7. System Administration and Training, conversion, and operation plans.

8. Hardware and Software Selection, Hardware acquisition, memory, processors, peripherals, benchmark, vendor selection, software selection - Operating systems languages, performance and acceptance criteria.

5:2:5(1B)

Books

1. James, A.S : Analysis and design of information Systems, McGra Hill, 1986.
2. Ludeberg, M.Gikuhl, G,. and Hilson A: Information Systems Development A Systematic Approach, Prentice Hall International, 1981.
3. Leeson, M : Systems Analysis and Design, Science Research Association, 1985.
4. Semprive, P C : Systems Analysis - Definition, Process and Design, 1982.
5. Richard, D : System Analysis Design, Irwin Inc, 1979.
6. Award, E Homewood : System Analysis and Design, Award, Irwin, 1979.
7. Lee, B S: Introducing System Analysis and Design, 2 Vol, Manchester United Kingdom, National Computer Centre, 1978.
8. Learn Yourself : Systems Analysis and Design, Reston Publishing Company, 1975.
9. Daniel : Practical System Design, Galgotia Publications Pvt. Ltd.,
10. Davis, W.S : Systems Analysis and Design, Addison-Wesley, 1983.

QUESTION PAPER PATTERN

Unit 1 carries 6 marks, Unit 2,3,5,7 - 9 marks.
Unit 4 - 5 marks, Unit 6 - 5 marks,
Unit 8 - 5 marks.
There shall be two questions from each unit, and one from each unit has to be answered.

PAPER II: OPTION FORTRAN 77

1. Introduction - Constants and Variables - Type Declarations, Arithmetic Expressions, Integer expression, Real expression, Hierarchy , Mixed mode expression, Predefined Functions and I/O statements.

2. Control Statements - Relational , Logical, Labels, GOTO, Nested IF statement, DO statement, REPEAT WHILE structure, Formatted READ and PRINT statements, Logical expressions - OR AND, NOT.

3. Arrays - Subscripted Variables, Subscript expressions, DIMENSION statement,One dimensional and two dimensional arrays.

5. FUNCTIONS and SUBROUTINES - COMMON statement, character manipulations, DATA statement, Implicit and Equivalence declarations.

BOOKS

1. V.Rajaraman, Programming in Fortran 77, Prentice Hall of India Ltd.
2. Lipshutz, Programming with Fortran,McGraw Hill.

5:2:5((47)

QUESTION PAPER PATTERN

Unit 1 carries 1Ø marks. Unit 2 - 1Ø marks,
Unit 3 - 1Ø marks, Unit 5 - 1Ø marks.

There shall be two questions from each unit, and one from each unit has to be answered.

FORTRAN 77 PRACTICALS :

1. One problem for Simple Interest and Compound Interest.
2. One problem each on Fibonacci series and Quadratic Equation.
3. Generation of the series $1 - X + X^2/2! - X^3/3! \ldots X^{n-1}/n-1!$
4. Frequency Distribution.
5. Matrix Manipulations - Addition, Multiplication, Transpose, Printing the elements that are above the Diagonal.
6. Sorting elements of an array.
7. Payroll calculations for a company (using format specifications)
8. Solution of Linear Equations.
9. Function subprograms to
   a. evaluate a trigonometric series
   b. to calculate interest on a given balance and period
10. Subroutines to
    a. multiply two matrices
    b. trace of a matrix (sum of all diagonal elements)
    c. sort 1Ø numbers

EVALUATION OF INTERNAL ASSESSMENT

1ØØ % of the marks is based on three internal tests , out of which marks for the best two tests will be considered. In case of papers consisting of practicals, 5Ø % of the marks will be for laboratory records and the rest 5Ø % for the internal tests.

PAPER IV: PART B : PROJECT WORK

1. Duration of the Project Work is sixty days.
2. Project can be done in any Language or Package included in this course.
3. Two copies of the Project Report should be submitted (including the codes of the Project).
4. Subject for the Project Work should be approved by the institution.
5. A maximum of three students are allowed per Project. Each student will submit two copies of his part of the Project, while the group will submit one copy of the complete Project.
6. Project is to be guided by the staff of the institution or by the staff and by an expert from the Industry jointly.

5:2:5(18)

7. Project Work will be evaluated by an External examiner together with the Internal examiner. The evaluation may be based on the following -
   a. Continuous assessment of the work done by the student.
   b. Project Report.
   c. Viva.

Schedule of the 60 days Project Work :

1. Within the first 10 days the student has to present the Overview of the Project - scope, limitations, considerations etc.
2. 40% of the Project should be completed within the next 20 days.
3. Each student will be required to present in a Seminar the content of and progress on his Project after the first month.
4. Project should be completed (including demonstration of the package and the submission of the report) within two months of its starting.

ST.ANTHONY'S COLLEGE
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5:2:5 (19)

ANNEXURE-'C'

COMPUTER SCIENCE

(Honours Course at Degree Level - Science Stream)

1. Objective

The BSc Course for Computer Science at Honours level envisages both immediate employment opportunities as well as strong theoretical foundation to launch a candidate into an academic pursuit in Computer Science. It will enable students to obtain preferential admission to MCA or MSc in Computer Science course of any recognized University.

2. Eligibility

The candidate should be from the Science stream and should have passed Computer Applications and Maths at PU level securing not less than 45% in each.

3. Duration

The course is to be completed in three academic years along with the other subjects of the Degree Course.

4. Course Structure

FIRST YEAR :

		MARKS
Paper I : Part A :	**dBASE IV and LOTUS 1-2-3 VER(3.2)**	**40**
	15 : dBASE IV theory	
	15 : LOTUS 1-2-3 theory	
	10 : Data Structures and Manipulations	
Part B :	**dBASE IV and LOTUS 1-2-3 VER(3.2)**	**60**
	20 : dBASE IV Practical	
	20 : LOTUS 1-2-3 Practical	
	10 : Internal Assessment	
	10 : Internal Assessment	
Paper II:	**Data Base Management System**	**100**
	80 : Theory	
	20 : Internal Assessment	

SECOND YEAR :

Paper III :	**COBOL PROGRAMMING**	**100**
	40 : Theory	
	50 : Practical	
	10 : Internal Assessment	

5:2:5(20)

Paper IV : FORTRAN 77 /PASCAL PROGRAMMING 100

40 : Theory
50 : Practical
10 : Internal Assessment

Paper V : Computer Oriented Numerical Analysis 100

80 : Theory
20 : Internal Assessment

THIRD YEAR :

PAPER VI : System Analysis and Design 100

80 : Theory
20 : Internal Assessment

PAPER VII : C Programming and Introduction to UNIX 100

40 : Theory
50 : Practical
10 : Internal Assessment

PAPER VIII : Project Work 100

60 : Project
20 : Viva Voce
20 : Internal Assessment

5.Detailed Syllabus

FIRST YEAR:
PAPER I : PART A ::: dBASE IV

1(a) Understanding databases: Building, Searching, Sorting, Editing and Modifying databases.
1(b) Creating and printing formatted reports, Designing custom screen displays, Managing numbers and dates, Managing multiple data files, File maintenance and performance.

2. Understanding memory variables, Creating command files, Making commands user-friendly, Executing conditional commands, Designing Programs, Debugging Techniques.

BOOKS:

1. dBASE IV Manual
2. Alan Simpson, Understanding dBASE IV, BPB Publications, New Delhi

QUESTION PAPER PATTERN:

Unit 1 carries 9 marks and Unit 2 - 6 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

dBASE IV Practicals:

1. Create any database and add records to it.
2. Given a database try out the following commands.
   LIST, APPEND, BROWSE, EDIT, DELETE, RECALL, PACK, DISPLAY, LOCATE, CHANGE, REPLACE, ZAP, COUNT etc
3. Given two programs trace their output.

5:2:5: ;(21)

4. Solve any 2 numeric problems using TOTAL, SUM, AVERAGE.
5. Program on Sorting and Indexing database.
6. Program on maintenance of a database(Add, Delete, Edit, Print)
7. Updating of a database using another database (Use set relation to)
8. Program on selecting records from a given database based on Simple or Compound conditions. (use set filter to)
9. Program on Screen manipulation (Clear, Say, Read, Get, etc)
10. Program on calling procedure files from the Main Program.

LOTUS 1-2-3

1. BASIC SKILLS: The worksheet screen, Moving around in the worksheet. Data entry and editing, Types of data, Numbers, Labels, Formulas, Ranges, Entering Formulas, Order of operations, Relative, absolute and mixed cell addresses, @Functions, Indicators, 1-2-3 keys, Help facility.

2. 1-2-3 COMMANDS: Worksheet, Range, Copy, Move, File, Print, System, Quit.

3. 1-2-3 ADVANCED COMMANDS: Data, Graph, Print Graph, Macros, Functions (@Function, Logical, Mathematical, Special, Date, Financial, Statistical, Database statistical).

BOOKS:

1. Lotus 1-2-3 Tutor and Reference Manual
2. Thomas H. Berliner & Reeves, Lotus 1-2-3, BPB Publications
3. Carolyn Jorgensen, Mastering 1-2-3, BPB Publications

QUESTION PAPER PATTERN:

Each unit carries 5 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

LOTUS PRACTICALS :

1. CREATION programs
   a. Students Marks List
   b. Payroll List
   c. Invoice File
   d. Fixed Deposit File - To make the students to become familiar in moving around the Worksheet and in using the Formulas, Ranges, @Functions etc.
2. a. Program to find mean, median, standard deviation of the annual rainfall of a place - using the various options like Scientific, Fixed, Date, Percent of the Format in the Range menu.
   b. Using the worksheet created in the unit 1 try all the options of the Range menu.
3. a. Combine the Payroll and Fixed deposit work sheet created earlier - using all the options of the File menu.
   b. Import the data from a Data base file in to the Students Marks list worksheet.
4. a. Print the Students Marks list by using the various options of Printer in the Print menu (including different fonts).
   b. Store the results in data file using the options of File in the Print menu.

5:2:5(22)

5. a. Draw various graphs by using the worksheet created in the unit 2.a.
   b. Create a database which has the annual rainfall of the six metropolitan cities of India and compare them by various graphs, using all the options of the Graph menu like Options, Type, Name etc.
6. a. Sort the Student Marks list by their marks and by their names and provide for queries as to grading of the various students by using the various options of the Sort and Query command in the Data menu.
   b. Do the matrix inversion and matrix transpose using the matrix of the various sizes.
   c. Prediction of sales with Regression analysis

Data Structures and Manipulation

1. Basic concepts of data representation - cells, fields, pointers, sequential and linked representation, stacks, queues, sorting, and merging algorithms - Binary trees - Searching and tree traversal algorithms.

BOOKS

1. Kernigtran & Plugher; The Elements of Programming Style.
2. Thomas, A Standish : Data structure Techniques, Addision wesley, 1980.
3. Bhagat Singh and Thomas Naps : Introduction to Data structure (TMH, 1986).
4. Robert Kruse : Data structures and programming Design (PH I, 1987).

QUESTION PAPER PATTERN

UNIT 1 carries 10 marks.

There shall be four questions from the Unit 1 out of which three has to answered.

PAPER II :- DATA BASE MANAGEMENT SYSTEM

1. Introduction , Data Independence, Architecture of a Data Base, Distributed Data Bases, Storage structures, Physical Record Interface, Indexing techniques, Relational approach, Hierarchical approach, Network approach and High Level Operators.

2. The Relational Approach -- Relational Data structure, Architecture of System R, Query By Example (QBE), Relational Algebra, Relational Calculus and Further Normalization.

3. The Hierarchical Approach -- Architecture of an IMS system, IMS Data Structure, External level of IMS, IMS Data Manipulations, Internal level of IMS, IMS Logical Databases.

4. The Network Approach -- Architecture of a DBTG System, DBTG Data structure External level of DBTG, DBTG Data Manipulations.

5. Unified Data Base Language -- Approach, Declarative and Manipulative Language, Comparison of the Relational and Network Approaches.

5:2:5 (23)

Books

1. Date, C J : An Introduction to Database Systems, Volume I and II, Addison Wisley, 1981, 1983.
2. Ullman, Jaffrey D: Principles of Database Systems,2nd Ed, Galgotia Pvt. Ltd.,
3. Whittington, R P : Data Base System Engineering, Clavendon Press.
4. Pratt P : Data Base Systems Management and Design, Boyd and Fraser Publ. Comp, 1987

QUESTION PAPER PATTERN :

Unit 1 carries 10 marks — Unit 2 - 20
Unit 3 - 20 — Unit 4 - 20
Unit 5 - 10

There will be three questions from each unit, and two from each unit has to be answered.

SECOND YEAR:
PAPER III :: PROGRAMMING IN COBOL

1(a) Introduction. Cobol Divisions, Coding forms, Character set. Data names, literals: punctuations

1(b) Data Division: Input files, output files, working storage section, Move, Read, Goto, Write, Close, Stop, Run, Accept. Display, Add, Subtract, Multiply, Divide, Verb

2. Relational Condition: If sentence with non-numeric data, editing, control structure, Perform Logical operations, GOTO, Depending on Statement, Perform with varying clause, Redefines and Renames clause, compute

3. Sequential file organization, sorting, merging, indexed sequential file, report generator

Books

1. Computer Programming in Cobol, Prentice Hall of India, New Delhi
2. N.L. Sarda, Cobol Programming with Business Applications, 3rd Edition, Pitamber Publishing Co., New Delhi
3. A.S. Philippakis and L.J. Kazmier, Information System through Cobol, McGraw Hill Book Co., International Student Edition, Delhi
4. Worth T., Cobol Programming, John Wiley & Sons, New York

QUESTION PAPER PATTERN

Unit 1 carries 18 marks, — Unit 2 - 15 marks and
Unit 3 - 7 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

5:2:5: ; (24)

COBOL PRACTICALS :

1. Program to find LARGEST and SMALLEST of two & three unequal numbers.
2. Program to find LARGEST and SMALLEST of several unequal numbers.
3. Program to find THREE LARGEST & SMALLEST numbers out of several given numbers.
   (considering EQUALITY & INEQUALITY cases)
4. CREATION Programs:
   Program to CREATE the following files
   a. Students marks files
   b. Payroll files
   c. Inventory control files
   d. Invoice file
   e. Fixed deposit files
5. VALIDATION Programs :
6. EDIT Programs:
   Program to EDIT the files created by previous programs.
7. UPDATE Programs:
   Program to UPDATE the files created by the previous programs.
8. SORT Programs:
   Programs to SORT the files mentioned earlier using the following techniques.
   a. Using Giving
   b. Input - Output Procedure (Release/Return)
9. MERGE Programs:
   Program to MERGE the files as mentioned in step No.8
10. PROCESSING Programs:
    Programs to PROCESS the files mentioned in step 7 & print the required files.
11. Program to build Two dimensional & three dimensional tables using Table Handling techniques.
12. Program to search Table using Table search techniques.
13. Program to Print Customer Report using Indexed Sequential files.
14. Program to print selective Product Details using RANDOM (Direct Access) file handling techniques.

PAPER IV :: PROGRAMMING IN PASCAL :

1(a) Introduction - Scalar Variables, Constants, Arithmetic Operators and modes for Expressions, Integer Expressions, Real Expressions, Hierarchy of operations in Expressions, Assignment statements, functions Defining variables.

1(b) INPUT-OUTPUT statements, Conditional statements, Relational operators, Compound statement, REPEAT loop, WHILE loop, FOR loop, Library Functions.

2. ARRAYS - one dimension, two dimension, multiple subscripts, Boolean constants, variables and expressions, precedence rules, CASE statement.

3. FUNCTIONS and PROCEDURES - Declarations, Syntax, Block structures, Recursion.

(25)

4(a) STRINGS - character data type, manipulating strings, searching, packing, unpacking.

4(b) Enumerated Scalar Data, Set Data structure, Records and their applications. Recursion.

BOOKS

1. V.Rajaraman, Computer programming in Pascal, Prentice Hall India.
2. Gottfried, Programming with Pascal, McGraw Hill

QUESTION PAPER PATTERN

Unit 1 carries 10 marks, Unit 2 - 10 marks,
Unit 3 - 10 marks, Unit 4 - 10 marks.
There shall be two questions from each unit, and one from each unit has to be answered.

PASCAL PRACTICALS

1. Two problems on Arithmetic Expressions.
   (simple & compound interest, Fahrenheit to Celsius)
2. Two problems on Conditional statements (IF-THEN-ELSE)
   a. print 3 numbers in ascending order.
   b. roots of quadratic equation.
   c. interest calculation program.
3. Six problems on Loops (REPEAT-UNTIL, DO-WHILE, FOR)
   a. calculating average heights of a group of people
   b. converting decimal to octal etc.
   c. finding palindromes from a set of integers.
   d. finding the sum of a given trigonometrical series.
   e. processing of marks and assigning grades to the students of a class.
   f. calculation of net pay for a certain number of employees based on various allowances, taxes etc.
4. Five problems on Array manipulations (one dimension & two dimensional arrays)
   a. addition, multiplication, transpose of a matrix
   b. to find the sum of squares on the diagonal of a square matrix.
   c. to rearrange each row of a matrix in descending order.
   d. frequency distribution.
   e. simple inventory calculations.
5. One problem on Boolean expression and two problems on CASE statement.
   a. checking the validity of a date.
   b. calculating taxes for various income slabs.
   c. decision table for declaring marks in an examination.
6. Six problems on FUNCTIONS, PROCEDURES and RECURSION.
   a. writing a function subprogram for a function f(x).
   b. calculating the factorial of a number recursively.
   c. procedure to validate the elements of a matrix.
   d. generating a trigonometrical series by using functions and recursion.
   e. processing of marks and calculating grades for a class using procedures.
   f. sorting data into a frequency table.

5:2:5(2)

7. Two problems on character string manipulation.
   a. deleting all vowels from a sentence.
   b. sorting a list of names by the first two characters of the last name.
8. Three problems on enumerated data types.
   a. tabulating a questionnaire
   b. calculating weekly wages .
   c. to read a line and delete all vowels (using set)

PAPER IV : OPTIONAL - PROGRAMMING IN FORTRAN 77 :

1. Introduction - Constants and Variables - Type Declarations. Arithmetic Expressions, Integer expression, Real expression. Hierarchy , Mixed mode expression, Predefined Functions and I/O statements.

2. Control Statements - Relational , Logical, Labels, GOTO Nested IF statement, DO statement, REPEAT WHILE structure, Formatted READ and PRINT statements, Logical expressions - OR AND, NOT.

3. Arrays - Subscripted Variables, Subscript expressions, DIMENSION statement,One dimensional and two dimensional arrays.

5. FUNCTIONS and SUBROUTINES - COMMON statement, character manipulations, DATA statement, Implicit and Equivalence declarations.

BOOKS

1. V.Rajaraman, Programming in Fortran 77, Prentice Hall of India Ltd.
2. Lipshutz, Programming with Fortran,McGraw Hill.

QUESTION PAPER PATTERN

Unit 1 carries 10 marks, Unit 2 - 10 marks,
Unit 3 - 10 marks, Unit 5 - 10 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

FORTRAN 77 PRACTICALS :

1. One problem for Simple Interest and Compound Interest.
2. One problem each on Fibonacci series and Quadratic Equation.
3. Generation of the series $1 - X + X^2/2! - X^3/3! \ldots X^{n-1}/n-1!$
4. Frequency Distribution.
5. Matrix Manipulations - Addition, Multiplication, Transpose, Printing the elements that are above the Diagonal.
6. Sorting elements of an array.
7. Payroll calculations for a company (using format specifications)
8. Solution of Linear Equations.

5:2:5(27)

9. Function subprograms to
   a. evaluate a trigonometric series
   b. to calculate interest on a given balance and period
10. Subroutines to
   a. multiply two matrices
   b. trace of a matrix (sum of all diagonal elements)
   c. sort 10 numbers

PAPER V : COMPUTER ORIENTED NUMERICAL ANALYSIS

Emphasis : On Computational Algorithms.

(a) **Numeric Computation :**

1. Computer Arithmatic : Floating point numbers - Operations. normalizations and their consequences.

2. Iterative Methods : Zeros of a single transcendental equations and Zeros of Polynomials using bisection, false position, Newton - Rephson. etc., convergence of solution.

3. Simultaneous Linear Equations; Solutions of simultaneous Linear equations - Gauss elimination method and pivoting; III - Conditioned equations and refinement of solutions ; Gauss - seidal iterative method.

4. Numerical Differentiation and Integration, Solutions of Differential Equations : Runga-Kutta methods; Predictor - Corrector methods; Automatic error monitoring; stability of solutions.

5. Interpolation and Approximation : Polynomial interpolation - Newton and Lagrange, etc.,: Difference tables; Approximation of function by Taylor series and Chebyshev polynomials.

Books

1. Stoer, Bullrich : Computer Oriented Numerical Methods, Springer Verlag, 1980.
2. Krishnamurthy, E.V., Sen, S.K. : Computer Based Numerical Algorithms, East West Press, 1984.
3. Rajaraman, V.: Computer Oriented Numerical Methods, Prentice Hall India, 1980.

QUESTION PAPER PATTERN

Unit 1 carries 4 marks,
Unit 2 - 19 marks,
Unit 3 - 19 marks,
Unit 4 - 19 marks
Unit 5 - 19 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

5:2:5(28)

THIRD YEAR :

PAPER VI: SYSTEM ANALYSIS AND DESIGN

1. Overview of system analysis and design, Business Systems concepts, systems development life cycle, project selection, feasibility analysis, design, implementation, testing and evaluation.

2. Project Selection: Sources of project requests, managing project review and selection, preliminary investigation.

3. Feasibility Study - Technical and economical feasibility, cost and benefit analysis.

4. System requirement specification and analysis : Fact finding techniques, Data flow diagrams, data dictionaries, process organization and interactions. Decision analysis decision trees and tables.

5. Detailed design - Modularisation, module specification, file design, systems development involving data base.

6. System Control and Quality Assurance - Design objectives, reliability and maintenance, software design and documentation tools, topdown, bottom up and variants. Units and integration testing practices and plans. System Controls. Audit trials.

7. System Administration and Training, conversion, and operation plans.

8. Hardware and Software Selection, Hardware acquisition, memory, processors, peripherals, benchmark, vendor selection, software selection - Operating systems languages, performance and acceptance criteria.

Books

1. James, A.S : Analysis and design of information Systems, McGraw Hill, 1986.
2. Ludeberg, M.Glkuhl, G,. and Hilson A: Information Systems Development A Systematic Approach, Prentice Hall International, 1981.
3. Leeson, M : Systems Analysis and Design, Science Research Association, 1985.
4. Semprive, P C : Systems Analysis - Definition, Process and Design, 1982.
5. Richard, D : System Analysis Design, Irwin Inc, 1979.
6. Award, E Homewood : System Analysis and Design, Award, Irwin, 1979.
7. Lee, B S: Introducing System Analysis and Design, 2 Vol, Manchester United Kingdom, National Computer Centre, 1978.
8. Learn Yourself : Systems Analysis and Design, Reston Publishing Company, 1975.
9. Daniel : Practical System Design, Galgotia Publications Pvt. Ltd.,
10. Davis, W.S : Systems Analysis and Design, Addison-Wesley, 1983.

5:2:5 . 29

QUESTION PAPER PATTERN

Unit 1 carries 15 marks, Unit 2 - 5 marks,
Unit 3 - 5 marks , Unit 4 - 15 marks.
Unit 5 - 5 marks, Unit 6 - 15 marks.
Unit 7 - 5 marks Unit 8 - 15 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

PAPER VII :: "C" PROGRAMMING AND INTRODUCTION TO UNIX

1(a) Introduction Data Types, Variable names, Constants, Declarations, Arithmetic , Relational and Logical operators, Type conversions, Increment and Decrement operators, Assignment operators and expressions, Conditional expressions and precedence and order of evaluation.

1(b) Control Flow - Statements and Blocks, IF-ELSE, ELSE-IF, Switch, Loops - WHILE, FOR and DO-WHILE, Break and Continue, GOTO, LABELS.

2. FUNCTIONS - Basics of FUNCTIONS, FUNCTIONS, Returning Non-Integers, External Variables, Header Files, Static Variables, Block Structure, Initialization, Recursion, The "C" preprocessor.

3. Pointers and Arrays - Pointers and addresses, Pointers and Functions Arguments, Pointers and Arrays, Address Arithmetic, Character pointers and functions, pointer arrays, pointers to pointers, multi-dimensional arrays, initialization of pointer Arrays, Pointer vs Multi-dimensional Arrays, Command-line Arguments, Pointers to functions.

4. Structures - Basics of structures, structures and functions, Array of structures, Pointers to structures, Type def, Unions.

5. Standard Input and Output - Formatted, PRINTF, Variable length Argument lists, Formatted SCANF.

6. Introduction to UNIX operating system, overall view of UNIX OS, kernel, shells.

7(a) Using Single and Compound UNIX commands.

7(b) BOURNE SHELL, METACHARACTERS, SHELL variables, SHELL scripts, looping and making choices.

BOOKS

1. Kerninghan and Ritchie, The C Programming Language, Prentice Hall India.
2. Hannover, C Primer, Mcgraw Hill.
3. Kerningham and Robpike, The UNIX programming Environment, Prentice Hall of India Ltd.
4. Stephen Prata, A Programming Guide, BPB Publications.
5. Maurice Bach, The Design of UNIX OS., PHI.

5:2:5(39

QUESTION PAPER PATTERN

Unit 1 carries 7 marks, Unit 2 - 4 marks,
Unit 3 - 10 marks, Unit 4 - 4 marks,
Unit 5 - 4 marks, Unit 6 - 4 marks,
Unit 7 - 7 marks.

There shall be two questions from each unit, and one from each unit has to be answered.

C - Practicals

1. Conversion program
   (converting Celsius to Fahrenheit)
2. At least 2 programs on various control statement like IF ELSE, WHILE, DO WHILE, FOR, SWITCH CASE using formatted Input/Output.
3. 2 programs using functions for string manipulations.
4. 2 programs using functions for numerical algorithms.
5. 2 programs using one dim and two dim arrays each.
6. Solving array problems using pointers
7. 1 program on data-type structure
8. 2 programs on low-level I-O functions (OPEN, WRITE, READ, CLOSE, CREATE, SEEK, LSEEK)

EVALUATION OF INTERNAL ASSESSMENT

100 % of the marks is based on three internal tests , out of which marks for the best two tests will be considered. In case of papers consisting of practicals, 50 % of the marks will be for laboratory records and the rest 50 % for the internal tests.

PAPER VIII : PROJECT WORK

1. Duration of the Project Work is sixty days.
2. Project can be done in any Language or Package included in this course.
3. Two copies of the Project Report should be submitted (including the codes of the Project).
4. Subject for the Project Work should be approved by the institution.
5. A maximum of three students are allowed per Project. Each student will submit two copies of his part of the Project, while the group will submit one copy of the complete Project.
6. Project is to be guided by the staff of the institution or by the staff and by an expert from the Industry jointly.

5:2:5. (31)

7. Project Work will be evaluated by an External examiner together with the Internal examiner. The evaluation may be based on the following -
   a. Continuous assessment of the work done by the student.
   b. Project Report.
   c. Viva.

Schedule of the 60 days Project Work :

1. Within the first 10 days the student has to present the Overview of the Project - scope, limitations, considerations etc.
2. 40% of the Project should be completed within the next 20 days.
3. Each student will be required to present in a Seminar the content of and progress on his Project after the first month.
4. Project should be completed (including demonstration of the package and the submission of the report) within two months of its starting.

ST.ANTHONY'S COLLEGE
SHILLONG 793 001

(ii) Proposal to abolish the existing principle of giving 25% weightage for sessional work in the Post-Graduate programme.

Clause 4(ii) of Regulation 1 of the University Ordinance CC-7 provides that "75% of the total weightage of marks will be given to end semester examination whereas 25% of it will be given to continuous sessional work done during the semester".

Prof. H.W.Sten, Head, Department of Khasi and member of the Academic Council has suggested that this principle of sessional weightage of 25% of the total marks be done away with from the next session in order to avoid some of the undesirable implications of the current procedure.

The matter is placed before the Council for considerati

Structure for the Three Year Integrated Degree Course for distribution of marks for different sets of questions.

In the 44th meeting of the Academic Council held on 7/8.8.92, the Council had approved with certain modifications, the recommendation of the Committee on the structure for the Three Year Integrated Degree Course. As recommended by the Committee and approved by the Council, the group of questions was divided as under :-

(a) Question of multiple choice etc .....20 marks.
(b) Short questions to be answered in --- 20 marks
one or two sentences
(c) Descriptive type questions .... 60 marks.

Later during the process of revising the syllabus for Physics B.Sc(General) and B.Sc (Major), the members of the Board of Under-Graduate Studies in Physics also discussed the question setting and felt it not desirable to have multiple choice and short answer type questions in B.Sc(Major). The difficulty visualised was the problem of setting large number of this type of questions of required standard and availabity of suitable paper setters to do the same.

The matter is placed before the Council for consideration.

(iii) Introduction of correspondence course leading to B.A degree-Report of the Committee -

In its 43rd meeting held on 3/4.3.92, the Academic Council while considering the proposal for introduction of correspondence course leading to b.A degree, resolved that a committee may be constituted to examine the feasibility of the course, the quality of reading materials and to find out the extent of demand for such a course.

The Report of the Committee constituted for the purpose, is placed at Annexure-'A' for consideration of the Council.

ANNEXURE-'A'

REPORT OF THE COMMITTEE ON DISTANCE EDUCATION TO EXAMINE THE FEASIBILITY AND EXTENT OF DEMAND FOR THE CORRESPONDENCE COURSE LEADING TO B.A. DEGREE.

Before going into the question of feasibility of and demand for Correspondence Education in the region under NEHU's jurisdiction, it is necessary to go, in brief into the background of the setting up of the Centre for Distance Education in the University.

1. The Centre For Distance Educatio, NEHU, Shillong came into being in 1986, after the proposal for it was duly approved by the Academic and Executive Councils of the University. The first Director of the Centre was appointed in August 1986.

2. The first Director left the University before any of the planned programmes of the Centre could be implemented.

3. After the present Director took over charge of the Centre, the basic work of preparing course materials for the undergraduate programme was completed in the following subjects : i) English, ii) Education, iii) Political Science, iv) History and v) Foundation Course.

4. The material was prepared by a panel of subject experts drawn from the University, and it was duly vetted and edited by another set of experts.

5. In April, 1990 the University announced, mainly through the press and AIR its intention to begin the programme from the session beginning in July, 1990 and invited applications for admission to the programme.

6. The Centre meanwhile sought permission of the Academic Council to extend its area of operation also to Assam. However, the Academic Council, in its wisdom, decided that the Centre be asked not to begin the programme as announced until a Committee set up by the Council reviewed and re-edited the course material.

contd.../-

7. The reviewed and re-edited course material was placed before the Academic at its meeting held on 43rd Academic Council for the Council's clearance. The Council however, decided, instead, to appoint a Committee to go into the feasibility of and demand for Distance Education in the region under NEHU's jurisdiction.

The present Committee assumes that the question of feasibility and demand must have been gone into in detail by the Academic & Executive Councils of the University before they gave their approval for the setting up of the Centre. Nevertheless the Committee would like to make the following points :

a) There is no doubt at all that there exists a growing demand for Correspondence Education in the region under NEHU's jurisdiction: the great rush for admission in Colleges every year and thenumber of people who do not get admission, increasing enrollment in Indira Gandhi National Open University and also the response to NEHU's announcement of the programme make this abundantly clear.

b) There is perhaps a feeling among some of us that the operation of IGNOU and that of NEHU Centre For Distance Education will largely overlap and that therefore there may not be a great need for the NEHU Centre at all. In the Committee's opinion this feeling is not justified for the following reasons:

(i) IGNOU's area of operation is extremely limited, (ii) The courses given by the two will be vastly different - IGNOU's being conceived under a unified national programme while the Centre's courses will be the same as NEHU courses, and therefore, largely geared

contd.../-

towards the need of the regions students.

(iii) The modes of operation of the two will also be vastly different. NEHU's main emphesis will be on Correspondence, while IGNOU with its vast technological resources will naturally use a diversity of methods.

(c) The Centre's area of operation should be the entire region under NEHU's jurisdiction and its groups will be : (i) people in government or private employment, (ii) those who cannot attend college because of economic and other constraints; (iii) those who fail to get admission in Colleges; and (iv) women who are engaged primarily in household work. It is clear that the number of people wanting distance education is not only substantial but is likely to increase steadily.

(d) The NEHU Centre has at present no infrastructural facilities to adequately run any Correspondence programme. Such facilities must therefore be immediately created if the University decides that the Centre should not be abolished.

5:7:5(1)

Permission to start B.Sc Honours in Pisciculture in St. Anthony's College w.e.f. 1992 session and approval of the proposed syllabus.

The Academic Council in its meeting held on 26th and 27th November, 1992 vide resolution No:AC:15:92:05:5(4) had RESOLVED that non-traditional Courses should be started in some of the Colleges. Accordingly, St. Anthony's College, Shillong, was asked to start a non-traditional Course in Pisciculture. The Course of Pisciculture was started in the college with effect from 1994 Academic Session. Lately, the college felt that is was well equipped to start honours course in the subject at the Degree level. Accordingly, an Inspection Team was deputed to inspect the college for introduction of the honours course in Pisciculture with effect from the 1992 Session and the Team reported that the college has the infrastructure to start the same. The report of the Inspection Team is placed Annexure-'A' for consideration of the Council.

The matter is placed before the Council for approval of the starting of the Course at the honours level with effect from 1992 Academic Session and also to approve the Course structure/syllabus placed at Annexure-'B', for the present Three Year Degree Course and also the Integrated Three Year Degree Course.

5 B 3(2) Annexure-A.

NORTH-EASTERN HILL UNIVERSITY

S H I L L O N G

FOR NEW COURSE/UPGRADATION.

INSPECTION REPORT.

1. Name of the College : St.Anthony's College;

2(a) Year of affiliation and corresponding University Notification No. 1933, University of Calcutta.

(b) Level to which affiliation : P.U/BA/B.Sc/B.Com Honours in BA,B.Sc.,B.Com.

3. Affiliation/Permission sought to upgrade to or BA/B.Sc Pass Course In Introduce (a new Subject)

B.Sc. Hons in Pisciculture

B.Com. in _____

4. Admission (for the last three years)

Year	P.U.	B.Sc. I	B.Com. I	B.A.III	B.Sc. III	B.Com III
1991	570	105	102	78	72	21
1990	594	1[illegible]	98	103	88	24
1989	592	9[illegible]	92	87	75	22

5. Result of University examination during the last three years :

Examination	Year	Percentage of Pass
P.U.	1991	74.00
Degree	199[illegible]	72.00
P.U.	199[illegible]	71.00
Degree	199[illegible]	78.00
P.U.	198[illegible]	73.00
Degree	198[illegible]	68.00

5:7:5(3)

6. In case the college is seeking Honours in a subject (a) for which it has already a Post Course please give below the No. of students admitted in the last three years and their results for these years in the SUBJECT in which College has applied for Honours.

YEAR	NO.OF STUDENTS APPEARS	% SUCCESS.
1991	6	100.00 %
1990	9	88.88 %
1989	8	87.50 %

7. FUNDS :

(a) Whether the College is having a Reserve Fund in long term Fixed Deposit : Yes
FDR/U/B-119403 dated 16-4-92 for Rs.9,00,000.00 pn Central Bank.

If yes, the details thereof : (Bank No. of Term Deposit Receipt, etc.

(b) Present working Fund : Rs.12,00,000.00

B.Qualification/Specialization of the Teaching Staff (Of the relevent subjects only)

Name and Designation	Qualification(with grade and subject in Post-Graduate.
1.	
2.	
3.	
4.	
5.	
6.	Already furnished with the application)
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	

~~3.3(4)~~
5.7.5(4)

NOTE: THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT

Level/Class	Minimum No. of Teachers in each subject
a) P.U. Non-Laboratory	One
b) P.U. Laboratory	Two
c) Degree Non-Laboratory(Pass)	Two in all subjects and 3 in English
d) Degree Laboratory(Pass)	Six of whom four should be Lecturer.
e) Degree Non-Laboratory(Pass)	Four in all subjects other than English & other Elective Languages in which there should be at least five.
f) Degree Laboratory(Pass) + Hons. + P.U. Laboratory.	Seven of whom six shall be Lects.

9. LAND AND SITE

a) Whether the college is having permanent building on its own land	Yes
b) Area of the College Campus	11.4 acres
c) Accommodation (give size):-	3 story building 550' x 30' and 100' x 40'
1. One room for the Principal	Yes
2. One room for the Vice-Principal	Yes
3. One room for the college office	Yes
4. For staff common room Adequate	Adequate/~~Inadequate~~.
5. Common room for Boys and Girls	Yes
6. Library with reading room	Yes
7. Class room Adequate	Adequate/~~Inadequate~~

10. Workload of Teachers : As per UGC norms.

11. Library Books :-

Total Volumes

Subjectwise break-up (of relevant subjects only):

Already furnished with the application.

Contd/.../-

5:7:5(5)

Whether the College has a trained Librarian :

12. Laboratory facilities

a) Whether accommodation is adequate or not : Adequate

b) No. of shifts the students do their practicals : 3

13. When was the last Governing Body meeting :on 20th March 1992

14. Any other relevant information(s)/point(s)

RECOMMENDATIONS

Please make your recommendation without any ambibuity.In case you suggest provisional affiliation for a particular period, please mention the academic year specifically. Please also mention the conditions, if any, to be fulfilled if extension of affiliation is to be considered.

The Committee visited the College and personally inspected the available facilities for the introduction of the Honours Course in Pisciculture. The College fulfills the requirements laid down by the University in terms of infrastructure, library facilities and the Faculty strength. In view of the above, the Committee recommends that the Upgradation of the present Pass Course in Pisciculture be done to introduce the Honours Course.

Sd/-R.George Michael) Sd/-K.Chatterjee Sd/-L.Roy

(Signatures of the Members of the Inspection Team)

5:7:5(6) Annexure-B

SYLLABUS FOR PISCICULTURE

Existing Pass Course

Paper : I — Existing Pass Course syllabus in
Paper : II — Pisciculture (se. attached Photocopy)
Paper : III — The papers are of 100 marks each.

Proposed Honours Course.

Paper IV,VI (100 Marks) Time 3 hrs.

Not less than Eight Questions are to be set and the candidates have to answer only five questions.

Paper V (100 marks) Time 3 hrs.

Not less than seven questions are to set and the candidates have to answer only four questions.

Paper - IV

Kimnology :

Nature of inland water environments :-

Lotic and Lentic environments. Physico-chemical conditions and related phenomena.

Physico-chemical and Biological relationships

Influence of Physical and Chemical conditions on productivity of a water body. Organism in inland waters, Planktons Periphyton and weed fauna

Benthos

Biological Productivity (Planktonic,benthic and macrophytic) in an aquatic ecosystem.

Embryology and Biochemistry

The Life-cycle.

Growth of the germ cells and development of eggs & fry, Aging.

Biochemical constitutents of fist-

Water,Proten,Amino acids, Carbohydrates and Vitamins.

Studies on enzymes

Haematology (Basic concept & definition)

5:7:5(7)

Paper - V

Advanced fish farming

Cold water fisheries

History of cold water fisheries in India. Definition of cold water fisheries. Important cold water species of fish and key to their identification. Futureof cold water fisheries in India.

Seed resources of indigenous cold water fishes and their exploitation.

Fisheries of upland waters.

Ecology : Physico-Chemical factors and biological characteristics of streams, lakes and reservoirs.

Fishery : Trout, snow trout, Mahseer and common carp Fishery.

Fish culture in upland waters

Cultivated species of upland waters. Design of a troutfarm. Trout culture and diseases. Common carp culture. Fish culture in reservoirs.

Integrated fish farming.

Poulery cum fish culture

Piggery cum fish culture

Duckery cum fish culture

Paddy cum fish culture

Paper - VI

Fish Technology

Types of fishing craft and gears in India Tagging. Fish preservation and spoilage. Age and growth.

Aquaria - setting ad maintanance.

Ornamental fishes. Packing and transportation of fish seed and brood fish.

Aquatic pollution and biological indicators. Statistical indices.

Fish diseases and prophylatic technology. Fish migration technique and trend.

Paper VII. (PRACTICAL)

Primary productivity, colorimetric estimation of Nitrate, Phosphate and Sulphate, Qualitative and Quantitative estimation of Phytoplankton and Zooplanktons, Haematology, Detection of Fats, Proteins and Carbohydrates.

Paper- VIII (PRACTICAL)

Study of different types of crafts and gears, Gonadal development, Gonadosmatic, gastro-somatic index of fullness and ponderal index, Nursery, Rearing and stocking and management, Induced breeding, Determination of age and growth, Chinese-egg-hatchery.

All practicals in Pisciculture will be 80% field work experiment based and 20% laboratory study based.

5:7:5(8)

PISCICULTURE

PAPER I FISH BIOLOGY

Max Marks 100 Time 3 hours

1. Introduction :

Definition of a fish, Differences between fish and other vertebrates, status in the animal kingdom, Superiority over other vertebrate Scope of Ichthylogy.

2. Form :

Shape of a typical fish, Departure from and compensation factors, Fishes with various forms of body.

3. Fins, Skim and Scales:

Kinds of fins, their origin and evolution Structure and modifications, of fins, Types of tail and their development, Structure of skin, Scales and their derivatives, Arrangements of scales, Scale counts, Scale reading and age determination, Uses of scale in classification

4. PoisonGlands, Light Organs and Electric Organs :

Poison Glands and the effect of venom, Uses and nature of discharge of electric organs, Luminous fishes and photophores production of light.

5. Coloration:

Coloration for concealment, disguise warning and advertisement. Sources of colour and mechanism of colour changes, Uses in classification.

6. A Survey of Internal Organs:

Skull and vertebral column, Muscles, Gills and gas bladder Digestive tract, Heart and blood vessels, Kidneys, Nervous System Endocrine organs, Gonads.

7. Movement :

Methods of locomotion, Muscular movement, Locomotion by fins, Speed; Swimming postures, Leaping Skipping and burrowing.

8. Food Digestion and Growth

Naturalfood of fishes, Feeding habit and adaptations, Digestion and absorption of food, Nutrition and growth.

9. Respiration:

Structure and function of gills, Mechanism of respiration Accesory breathing apparatus, Air bladder and its function.

10. Excretion and Osmoregulation:

Osmoregulatory and excretory organs, Endocrine organs, Endocrine control of excretion and osmoregulatio

11. Intigration:

Role of nervous and endocrine system, Endocrine organs, Organs of senses; cutanious sense (touch taste and temparature), sense of small sense of hearing and equilibrium lateral line sense organs.

12. Reproduction :

Types of reproduction Gametes Secondary and breeding habits Courtship among fishes, Care of eggs and young.

13. Classification :

Characters use for the classifications of fishes. Break up upto order level, Fresh water and marine fish fauna of India.

14. Conditions of Life :

Structure modifications of deep sea cave, dwelling and hill stream fishes. Effects of temperature, light salinity and dissolved gases on fishes. Hibernation and aestivation, Commensal, symbiotic and parasitic fishes. Size and longivity.

15. Fishes and Mankind :

Fish as food, Medicinal uses of fish. Fish diseases. Byproduct of fishes, oils, fertilizers, glue, isingless and leather etc. Ecology and Ichthygeography.

5:7:5(9)

Paper-II Fish Culture

Max Marks 100 Time 3 hrs.

1. Basic Ideas on Capture and Culture Fisheries:
   (a) Culturable species of fish in India
   (b) Culturable species of fish in North Eastern India.
2. Production of Fish Seed :
   (a) Natural collection of fish seed from reverine system
   (b) Techniques of spawn collection.
   (c) Wet and dry bundh techniques of crap seed production
   (d) Hypophysation techniques and factors affecting induced breeding
   (e) Natural and artificial substrates for common carp seed production.
   (f) Transport of fish seed
3. Nursery, Rearing and Stocking:
   (a) Construction of different types of ponds.
   (b) Soil and water chemistry and fertilisation (both organic and inorganic) of different types of ponds.
   (c) Culture micro-food organism and supplementary feeding
   (d) Biotic factors.
   (e) Control of algal bloom aquatic marephytes and aquatic insects.
   (f) Composite fish culture
   (g) Paddy cum fish culture.
4. Air Breathing Fish Culture:
   (a) Procurement of seed (b) Rearing and Stocking (c) Scope
5. Brakish Water Farming (including Prawn)
   (a) Fundamental ideas (b) Procurement of seed.
   (c) Construction of fish pond
6. Sewage Fishery:
7. Specialised Fish Rearing:
   (a) Trout Seed Production/Hatchery unit.
   (b) Running water chemistry (c) Rearing.
8. Fish
   (a) Selective feeding (b) Hybridization
9. Tools for semi scale fish industry

Paper III Practicals

Max Marks 50

1. Morphomem Analysis and Meristic Studies.
2. Indentificaum
   (a) Seed (b) Fungerlings (c) Adul
3. Dissection Almentary canal, Urinogeital system-Accessory respiratory organs, Air Bladd. Weberian ossicles.
4. Histology (immune, Stomach & gonads, Liver, Kidney).
5. Gonadal cyme; fecundity & determination of age.
6. CommonCyme seed production
7. Induced Breeding
8. Technique of preservation & ampouling of extract.
9. Important chemical parameter (Oxygen, carbondioxide alminit PH conductivity).
10. Growth & production studies.
11. Nutrient
12. Food and feeding habits.

Suggested Readings

1. Laglen ; Ichthyology the study Bardah & fishes, Wiley John & Son R, L, Miller New York, Longon. 1952
2. Lagler F. ; Fresh water Fishery Biology, C. Boran Co., Dubuque, 1978;
3. Khanna S. ; An Introduction of Sish Central book Dept. Allahabad, 1971.
4. Jhingan V. : Fish and Fisherites in India Hinduster Publishing Corporation 2nd Ed. 1975.
5. Love, M. A. Reading in Ichthyology, G. M. Bailim goodyear Publishing Co., Santa Monica, U.S.A. 1975.
6. Licker V.F. Methods for assessment of Fish Production in fresh water, Blackwel. Scientific pub. Oxford, Edinburgh, 1971;

5:7:5:(10)

Tools for Fish Culture

Fishing nets,

Scoop nets, open at both ends
Hammocks with removable burlap or cot cover
Sachtels made of half sec.
Containers to hold broad fish(100-500 1 capacity)
Containers with continuous oxygen sypply facility
Scales for weighing
Towels
Hypodermic syringe(5 10 ml)
Porcelain morter and postle
Hand centrifuge
Absolute alcohol
Threads of different colour for marking fish
Cotton
Graduated measuring cylinder
Rubber foam mat 60x40 mm(for holding fist for injection
Laboratory balance with wights
Plastic bowls 2.5 1 capacity.
Plastic buckets graduated 10.12 1
Milt collectors (aspirator type)
table and chairs for the field
knives, forceps and needles
nets
Petri dishes
Kitchen funnels
Thermeters
Simple Compound microscope
Hand lens
Drill Electric with hole saw with 2
Plastic bag
Oxygen cylinder
Stroes twines
Hapa(different types)
Serves(different sizes)
Fist God (rice bran husk oil cakes)

Other necessary appliances :

PH meter
Conductivity bridge
Deep freez

Calorimeter
Aquaria
Centrifuge Electrical
Glass homogeniser
Single pan electrical bal n
Incubator
Murotome
Dissecting binocular microscope
Indoor temperature controlled tank
Sinde cabinet
Research microscope(elymp
Photomicrographic (Enlarger Gazing machi trimmer)
Soil testing kit
Dissecting sets.
Burrettes and Pipettes
Electric heater
Test tubes and beakers
Dissecting trays
Chemicals

First Year | PISCICULTURE | Full marks : 70
B.Sc.Pass Course | Paper I (Theory) | Time : 3 hours

Unit : 1

Introduction

Definition of a fish. Difference between fish and other vertebrates. Status in the animal kingdom. Superiority over other vertebrates, Science of Ichthyology in India.

Unit : 2

Form

Shape of a typical fish. Departures from the ideal form and compensation factors. Fishes with various body forms.

Unit : 3

Fins, Skin and Scales

Kinds of Fins, their origin and evolution. Structure and modification of fins. Types of tail and their development. Structure of skin, scales and their derivatives. Arrangement of scales. Scales counts, scale reading and determination of age. Uses of scale in classification.

Unit : 4

Poison glands, Light and Electric Organs

Poison glands and the effects of venom. Uses and nature of discharge of electric organs. Luminous fishes and photophores. Production of light.

Unit : 5

Coloration

Coloration for concealment, disguise, warning and advertisement. Sources of colour and mechanism of colour changes, uses in classification.

Unit : 6

A survey of Internal Organs

Skull and vertebral column. Muscles, Gills and Digestive tract. Heart and blood vessels.

Unit : 7

Classification

Characters used for fish classification. Break up upto orders. Freshwater and marine fish fauna of India.

Time : 4 hours | **Paper I (Practical** | **Full marks: 30**

1. Morphometric and Meristic analysis.
2. Dissection (Alimentary canal, Urinogenital system & Weberian ossicle).
3. Identification : (a) Fry (b) Fingerling (c) Adult.
4. Laboratory Note Book.
5. Viva - Voce.

Second Year B.Sc.Pass Course — Paper II (Theory) — Full marks : 70, Time : 3 hrs.

Unit : 1

Movement

Methods of locomotion. Muscular movement, Locomotion by fins. Leaping, skipping, burrowing and swimming postures.

Unit : 2

Food, Digestion and Growth

Natural food of fishes, feeding habits and adaptation, Digestion and absorption of food. Nutrition and growth.

Unit : 3

Respiration

Structure and function of gills. Mechanism of respiration. Accessory respiratory organs. Air-bladder and its function.

Unit : 4

Excretion and Osmoregulation

Osmoregulatory and Excretory organs. Endocrine organs. Endocrine control of excretion and osmoregulation.

Unit : 5

Integration

Rule of nervous and endocrine system. Organ of senses, Cutaneous sense (touch, taste and temperature), sense of smell, sense of hearing and equilibrium lateral line sense organs.

Unit : 6

Reproduction

Types of reproduction, Gametes. Secondary sexual characters and intromittent organs. Spawning and breeding habits. Courtship among fishes. Parental care.

Time : 4 hrs. — Paper II (Practical) — Full mark: 30

1. Qualitative estimation of phyto and Zooplanktons.
2. Analysis of gut contents.
3. Histology (Identification of different organs of fishes).
4. Dissection (Accessory respiratory orgnas, Air-bladder, Brain and Nerves).
5. Laboratory Note Book.
6. Viva - Voce.

Second Year B.Sc.Pass Course — Paper : III (Theory) — Full marks : 70, Time : 3 hrs.

Unit : 1

Conditions of Life

Structure and modifications of deep-sea, cave dwelling and hill-stream fishes. Effects of temperature, light, salinity and dissolved gases on fishes. Hibernation and aestivation, commensal, symbiotic and parasitic fishes.

Unit : 2

Fishes and Mankind

Fish as food, Medicinal uses of fish. By products of fishes (oils, fertilizers, glue. isinglas & leather etc.), Ecology and Ichthyogeography.

Unit : 3

Basic ideas on Capture and Culture fisheries

Culturable species of fish in India.
Culturable species of fish in North-Eastern India.

Unit : 4

Production of fish-seed

Natural collection of fish seed from riverine system, Techniques of spawn collection, wet and dry bundh techniques of carp seed production. Hypophysation techniques and factors affecting induced breeding.

Unit : 5

Nursery, Rearing and Stocking ponds

Construction of different types of ponds, soil and water chemistry and fertilization of different types of ponds. Culture of planktons and supplementary feeding. Biotic factors. Culture of algal bloom, aquatic macrophytes and aquatic insects. Composite fish culture. Paddy-cum-fish culture.

Time : 4 hrs. — Paper III (Practical) — Full marks: 30

1. Hypophysation techniques.
2. Preparation of laboratory reagents (stain, fixatives and other chemicals).
3. Analysis of some physico-chemical parameters (Dissolved oxygen, carbon di-oxide, pH, conductivity & Alkalinity)
4. Laboratory note book.
5. Viva - Voce.

Third Year B.Sc.Pass Course — Paper IV (Theory) — Full marks: 70, Time : 3 hrs

Unit : 1

Packing and transport of fish seed and brood fish

Effect of carbon dioxide and oxygen consumption. Oxygen consumption in relation to oxygen content. Effect of ammonia on oxygen consumption. Effect of temperature on metabotic rates.

Unit : 2

Air - breathing fish culture

Introduction.
Culturable air-breathing fishes.

Unit : 3

Brackish water farming

Ecology of brackishwater ponds, cultivated species, Procurement of stocking material of brackishwater fishes & prawns.

Unit : 4

Sewage - fed fisheries

Introduction, Treatment of sewage for fish culture, sewage-fed fisheries in India.

Unit : 5

Hybridization

Introduction, Interspecific and Intergeneric hybridization.

Unit : 6

Immunology of fishes

Methods of immunology, Antibodies, Immunoglobulins of fish, specificity of fish antibodies, Blood groups in fishes, cellular basis of immunological response, Earlier concept of lymphoid system, Transplanatation in fishes, Comparative immunology of fish complement.

Unit : 7

Economics of fish farming

Fisheries education in India. Production, imput and output in Indian fisheries.

Time : 4 hrs. — Paper IV (Practical) — Full marks : 30

1. Histology (Microtomical preparation of skin, gill, stomach, intestine, gonads, liver and kidney).
2. Analysis of some physico - chemical parameters (Chloride, Total hardness, alkalinity, calcium and magnesium hardness).
3. Identification of common fishing gears of Meghalaya.
4. Physico - chemical analysis and plankton studies in and around the water bodies of Shilong.
5. Laboratory note book.
6. Viva-voce.

Paper : V (Theory) Full marks : 70
Time : 3 hrs.

First Year (B.Sc-Major)

Unit : 1 : Limnology:

Nature of Inland water environments

Lotic and lentic environments. Physico-chemical conditions and related phenomena.

Physico-chemical and Biological relationships

Influence of physical and chemical conditions on productivity of a water body.
Organisms in inland waters, planktons, periphyton and weed fauna.
Benthos.
Biological productivity (Planktonic,benthic and macrophytic) in an aquatic ecosystem.

Unit : 2: Embryology and Biochemistry:

The Life Cycle

Growth of the germ cells and development of eggs & fry Aging

Biochemical constituents of fish

Water, Protein, Amino acids, Lipids, Carbohydrates and Vitamins.
Studies on Enzymes.
Haaematology (Basic concept and definition)

First Year Paper : V (Practical) Full marks : 30
Time : 4 hrs.

1. Primary productivity
2. Haematology in fishes.
3. Qualitative and Quantitative estimation of Phyto and Zooplankton.
4. Qualitative and Quantitative estimation of Fats, Proteins and Carbohydrates.
5. Field studies.
6. Laboratory note book.
7. Viva - Voce.

Second Year Paper : VI (Theory) Full marks : 70
Time : 3 hrs.

Unit : 1: Advanced Fish farming :

Cold water fisheries.

History of cold water fisheries of India. Definition of cold water fisheries.
Important cold water species of fish and key to their identification.
Future of cold water fisheries in India.
Seed resources of indigenous cold water fishes and their exploitation.

Unit : 2: Fisheries of upland waters:

Ecology

Physico-chemical factors and biological characteristics of streams, lakes and reservoirs.

Fisheries

Trout fisheris , Snow-trout fisheries, Mahseer fisheries Exotic carp fisheries.

Unit : 3

Fish culture in upland waters

Cultivated species of upland waters. Design of a trout farm. Trout culture and diseases. Common carp culture. Fish culture in reservoirs.

Second Year Paper : VI (Practical) Full marks : 30
Time : 4 hrs

1. Colorimetric estimation of nitrate, phosphate, Sulphate and Total iron.
2. Consumption of dissolved oxygen in fishes.
3. Detection of fats, proteins and carbohydrates among the hill - stream fishes of Meghalaya.
4. Field studies.
5. Laboratory note - book
6. Viva - Voce.

Third Year (B.Sc - Major) | Paper : VII (Theory) | Full marks : 70 Time : 3 hrs.

Unit : 1

Integrated fish farming

Fish culture - cum - poultry rearing.
Fish culture - cum - Duckery.
Culture in rice Rice fields - practices developed and advocated by CIFRI.
Fish culture - cum - pig farming.
- Management of pond.
- Stocking
- Use of pig excreta as manure
- Periodical netting.
- Health care
- Construction of pig house.
- Selection of pigs
- Harvesting
- Economics of benefits.

Unit : 2

The Indian cultivated fish

Applied genetics of cultivated fishes
Sex determination and gonadal differentiation.
Selective breeding.
Gynogenesis
Polyploidy
Genetic engineering and Biotechnology.

Unit : 3

Fish in relation to public health

Unit : 4

Developments and advances in freshwater aquaculture in India.

Farmers' Development Agencies and their role in aquaculture.

Third Year | Paper : VII (Practical) | Full marks : 30 Time : 4 hrs.

1. Study of different types of crafts and gears.
2. Gonadal development.
3. Gonadosomatic and Gastrozomatic index of fullness.
4. Field studies.
5. Laboratory note book.
6. Viva - Voce.

Third Year (B.Sc - Major) Paper : VIII (Theory) Full marks: 70
Time : 3 hrs.

Unit : 1

Fish Technology

Types of fishing crafts and gears in India.
Tagging.
Fish preservation and spoilage. Age and growth.
Aquaria - setting and maintanance.
Ornamental fishes.
Aquatic pollution and biological indicators.
Statistical indices.

Unit : 2 Fish Pathology

Parasitic infections

- Fungus infections.
- Bacterial diseases.
- Protozoan diseases.
- Worm diseases.
- Crustacean diseases.

Non - parasitic infections

- Asphyxiations.
- Miscellaneous diseases.

Quarantine Measures

- Fish quarantine procedures in Asia.
- Quarantine measures for the farmers when introducing New fish.

Third Year Paper : VIII (Practical) Full marks : 30
Time : 4 hrs.

1. Nursery, Rearing and Stocking pond management.
2. Induced breeding.
3. Age and Growth determination if fishes.
4. Chinese - eco hatchery.
5. Field studies.
6. Laboratory note book.
7. Viva - Voce.

N.B. : All the practicals in paper V to VIII will be 80% field work and experiment based and 20% laboratory study based.

SUGGESTED READINGS (Text books)

B.Sc. (Pass)

1. Ichthyology - K.F. Lagler, Bardach & Miller.
2. Fish & Fisheries of India - V.G. Jhingran.
3. Tropical fish farming - D.K.Belsare.
4. A text book of fishery science and Indian fisheries - C.B.L. Srivastava.
5. An Introduction to fishes - S.S.Khanna.
6. Fresh water fish biology - K.F.Lagler
7. Reading in Ichthyology - M.A.Love & G.M.Caillict.
8. Methods for assesment of fish production in fresh water - V.F.Ricker.
9. An Introduction to Indian Fisheries - U Sharma & S.P.Grover.
10. A text book of Indian Fisheries & fish biology - Parihar
11. A manual of freshwater ecology - Santhanam & Jegathesan
12. Encyclopedia of fishes & Fisheries of India (Vol. 1 to 7) - Pandey & Sandhu.
13. Fishes - Mary Chandy.
14. Fishery Science - Rounsefell.

SUGGESTED READING (Text books)

B.Sc. (Honours)

1. Fish and Fisheries of India - V.G.Jhingran
2. Biological & hydrological factor of local movement of fish - Kuzin
3. Inland Fisheries (Vol. 1 & 2) - P.K.Talwar & A.G.Jhingran
4. Handbook of Limnology - J Schwoerbel
5. Game Fishes of India & Angling - Tilak & Sharma
6. Studies on Carbohydrate metabolism in fish - S.Shimeno
7. Coldwater fisheries of India - Jhingran & Sehgal.
8. The freshwater fishes of India - K.C.Jayaram
9. Text book of Fish culture - Marcel Huet
10. Conservation and management of Inland capture fisheries resources of India - Jhingran & Sunugan
11. An approach to coastal zone management and planning in West-Bengal - Jhingran & Chakraborti
12. Contributions to the fisheries of Inland open water systems of India - Jhingran , Unnithan & Ghosh
13. Limnology - P.S.Welsh
14. Plankton Ecology - U.Sommer
15. Fish Physiology - (Vol. 1 to 10) - Hoar & Randall
16. Fish processing in India - M.N. Moorjani
17. The Chemical biology of fishes - R Malcolm Love
18. Herper's Biochemistry - Murray
19. Fish Locomotion - R.W.Blake.

JOURNALS

1. **Hydrobiologia**
   Dr. W. Junk Publishers, P.O. Box. 3713.
   The Hague, The Netherlands.

2. **Geobios**
   Executive editor, P.B. No. 14, Botany Department,
   University of Jodhpur, Jodhpur : 342 001 (Rajasthan)

3. **Pollution Research**
   Environmental publications
   P.O. Box. 60, Karad : 415 110

4. **Archiv fur Hydrobiologie**
   E. Schweizerbart
   Schverlagsbuch - Handlung
   Nagele, 4 Obermitter - Johnnesotrabe,
   3A, D-7000 ; Stuttgart : 1 (Germany)

5. **Journal of the Fisheries Research Board of Canada**
   Fisheries Research Board of Canada
   116, Lisgar street, Ottawa : 4
   Canada.

5:7:6(1)

Affiliation cases-Upgradation to Degree level/ Introduction of new Courses/Permanent affiliation.

The following colleges were inspected by the respective Inspection Teams for consideration of upgradation to Degree level/ Introduction of new courses/Permanent Affiliation, The Inspection Reports are placed before the Council for perusal and consideration:

1. Sohra College - The Inspection Report of Sohra College regarding upgradation to Degree level is placed at Annexure-'A'.The Inspection Team recommended for provisional affiliation.

2. Ri-Bhoi College - Inspection Report of Ri-Bhoi College for Upgradation to Degree level is placed at Annexure-'B'.The Inspection Team recommended Provisional Permission to upgrade the College upto the B.A.level may be granted only for the ongoing batch of students. An Inspection Team may be sent to the College before the 1993 - admissions are made. In the mean time the college should fulfill all the conditions pointed out by the Inspection Team.

3. Public College of Commerce - Inspection Report of Public College of Commerce for upgradation to B.Com.class is placed at Annexure-'C' The Inspection Team recommended 3 year Provisional affiliation for B.Com(Pass)course to the College.

4. Synod College - The Inspection Report Report of Synod College for the introduction of Sociology at degree level is placed at Annexure 'D'.The Inspection Team recommended that the permission to introduce the course may be given subject to fulfilment of the conditions pointed out by the Inspection Team.

5. Tura Govt. College - The Inspection Report of Tura Govt. College for grant of Permanent Affiliation is placed at Annexure-'E'.The team recommends grant of permanent affiliation to the college.

6. Aizawl West College- The college was granted provisional affiliation at the 43rd meeting of the Academic Council with the stipulation that the College may be inspected again the June-July,1992 to see whether the college has fulfilled the conditions laid down by the Inspection Team. As such a second inspection was made in October,1992 and the Report is placed at Annexure-'F'. The Inspection Team recommends provisional affiliation for 3 years and during this period, the college should look into the points raised in the Inspection Report and should take steps to rectify them. The number of students should be restricted to 250 per years.

5:7:6(2)

ANNEXURE-'A'

NORTH EASTERN HILL UNIVERSITY

SHILLONG.

FOR NEW COURSE/UPGRADATION

INSPECTION REPORT.

1. Name of the College: SDHRA COLLEGE

2(a) Year of affiliation and corresponding University Notification No. 1986 P.U.level.

(b) Level to which affiliation:

3. Affiliation/Permanent sought to upgrade to or B.A.Pass courses as

Introduce (an new subject) in the P.U.courses.

B.Sc.Hons. in.

B.Com.in.

4. Admission(for the last three years)

Year	P.U.	B.Sc. I.	B.Com.I.	B.A.III.	B.Sc.III.	B.Com. III.
1990	24			19		
	IIyr. 52			36		
1991	Iyr. 14.			38		
	IIyr.46.			16		
1992.	38			13.		

5. Result of University examination during the last three years.

EXAMINATION	YEAR	PERCENTAGE OF PASS.
P.U.	1990	77%
	1991	90%
	1992	54%

B.A.candidates appread Private.

contd.2/-

5:7:6(3)

6. In case the college is seeking Honours in a subject(a) for which it has already a Pass course please give below the No.of students admitted in the last three years and their results for these years in the subject in which college has applied for Honours.

Year	No.of students appears	% Success.

7. FUNDS:

(a)Whether the college is having a reserce fund in long term fixed deposit: See Anh I

If yes,the details thereof :(Bank No.of Term Deposit Receipt etc.

(b)Present working fund: Rs.1,87,054.00.

8.Qualification/specilization of the teacning staff(of the relevant subjects only).

Name and Desigantion	Qualification(with grade & subject in P.G.
1.	
2.	
3.	
4.	
5.	
6.	Please see the list of college
7.	Prof.enclosed herewith.
8.	
9.	
10.	
11.	
12.	
13.	

contd.3/-

5 7:6(4)

NOTE: THE UNIVERSITY REGAULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT.

LEVEL/CLASS.	MINIMUM NO. OF TEACHING IN EACH SUBJECT.
a) P.U. Non-laboratory.	one : one in each subject.
b) P.U. laboratory	two
c) Degree Non-Laboratory (Pass)	Two in all subjects and 3 in Eng. except in Po.Sc. and Education-400 in other subj. The no. of minimum requirement fulfilled.
a) Degree-Non:laboratory (Pass)	Foun in all subjects other then English & other Elect. languages in which there should be at least five.
f) Degree laboratory (Pass)	-Seven of which six shall be lects.

* Hons. + P.U. laboratory.

9. LAND AND SITE.

a) Whether the college is having permanent building on its own land: YES.

b) Are of the college campus: 9445.12m^2

c) Accommodation (give size):-4 clas rooms-one permanent building under construction 1140ft^2

d) One room for Principal

d) One room for the Vice-Principal:

e) One room for the college Office. Yes.

f) For staff common room adequate/inadequate.

g) Common room for Boys and girls.

h) Library with reading room.

i) Class room adequate/inadequate.

10. Workload of teachers : 10 hrs./week.

11. Library books: 1400 volumes.

Total Volums.

Subjectwise break-up (of relevant subjects only) See the enclosure.

contd.4/1

Whether the college has a trained Librarian : No.

12. Laboratory facilities.

a) Whether accommodation is adewuate or not: Does not arise.

b) No.of shifts the students do their practicals:

13. When was the last Governing Body meeting: 26th Sept. 1992.

14. Any other relevant information(s)/point(s) College has 4722m^2 s/are for outdoor games, also a new building with estimate list about Rs.400,000.00/- is under construction, already plynth & and some wall are raised.

RECOOMENDATIONS:

Please make your recommendation without any ambibuity. In case your suggest provisional affiliation for a particular period please mention the academic year specifically. Please also mention the conditions, if any, to go fulfilled if extension of affiliation is to be considered.

Signature of the members of the Inspection Team.

There are about 8 feeder nigh schools in and around Sohra College, which are recognised by the Govt. Since ther is no other college nearby excepting colleges in Shillong about 56 K.m. from Sohra therefore, the aspiration of the local people to start Sohra College surely to be appreciated by all academinions. The college has permanent building also specious with ample levelled land nearly with sound working capital and reserve fund which has been raised by public is a commendable last.

Therefore, we recommend for Provisional Affiliation.

Sd/-A.G.Momin.

Sd/-R.Bhattacherjee.
30/9/92.

Sd/-K.Bez.
30/9

5:7:6(8)

NOTE: THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT

Level/Class.	Minimum No.of Teaching in each subj.
a)P.U.non-laboratory.	one.
b)P.U-laboratory	two.
c)Degreenon-laboratory(Pass)	Two in all subjects & 3 in English.
d)Degree laboratory(Pass)	-Six of whom four should be lecturers.
e)Degree-non-laboratory(Pass)	-Four in all subjects other than English & other Elect.Languages in which there should be at least five
f)Degree laboratory(Pass) + Hons. + P.U.laboratory.	-Seven of which six shall be lects.

9. LAND AND SITE.

a)Whether the college is having permanent building on its own land : YES.

b)Area of the college campus. 3.5.hectares.

c)Accommodation(give size):-

1.One room for the Principal : 12 x 10ft.

2.One room for the Vice-Principal -

3.One room for the college office- 10x12ft.

4. For staff common room Adequate.

5.Common room for Boys and Firls - 10 x 12 ft.

6.Library with reading room. Class rooms used when not engaged for class.

7.Class room.Adequate.

10.Workload of teachers; -18 period each a week.

11. Library books:

Total Volums. about 450

Subjectwise bread-up)of the relevant subjects only)-

English-86

Economics-70

Pol.Sc-60

Khasi-90

Education-55

History-40

Dictionary-10

Other-30.

contd.4/-

5.7.6(9)

Whether the college has a trained librarian: Steps being taken to send the present incumbent for train; not applicable.

12. Laboratory facilities. No applicable.

a) Whether accommodation is adewuate or not:

b) No. of shifts the students doe their practicals.

13. When was the last Governing Body meeting: December 1991.

14. Any other relevant information(s)/point(s): The State Govt. has granted permission to start B.A. Arts classes. Hence, the college may receive Govt. grant for the purpose. The new building Comples is coming up woth a total plinth area of 528 sq. mts. six rooms of 6 x 8 mts. each are likely to be completed by Dec. 1992.

ACCOMMODATION.

Please make your recommendation without any ambibuity. In case your suggest provisional affiliation for a perticular period please mention the academic year specifi cally. Please also mention the conditions, if any, to be fulfilled if extension of affiliation is to be considered.

The request of the College for upgradation upto the B.A. level may be formarably considered.
because the college has the basix minimum infr[illegible] required for the purpose: it is the only college in the newly created Bhoi district and will provide the higher education facilities to the P.U. passed students of the college as well as to other interested to do their B.A. degree courses. However, the college needs to appoint at least one more teacher each in English and Education at the earliest. The library collection needs to be enriched and more text books in different subjects must be procured. The new building construction needs to be speeded up and the ground floor rooms must be completed before the new admissions are made in 1993. Provisional permission to upgrade the college upto the B.A. level may be granted for the ongoing batch of students. An Inspection team may be sent to the college before the 1992 admissions are made.

Signature of the members of inspection Team.

Sd/-D.S. Passah

Sd/-P.P. Gokolanathan.

5:7:6(6)

ANNEXURE-'B'

NORTH EASTERN HILL UNIVERSITY

SHILLONG.

FOR NEW COURSE/UPGRADATION.

INSPECTION REPORT

1. Name of the College: Ri Bhoi College, Nongpoh.

2(a) Year of affiliation and corresponding University Notification No. 1986. No.CDC/A/85-86/11780 dt. 1 12/86.

(b) Level to which affiliation: P.U.

3. Affiliation/Permanent sought to upgrade to or

B.A/ Pass course in English, MIL, Economics, Pol.Science, Education, History, Khasi.S.L.

Introduce(a new subject)

B.Sc.Hons.In.

B.Com.In.

4. Admission(for the last three years)

Year.	P.U.	B.Sc.I.	B.Com.I.	B.A.III.	B.Sc.III.	B.Com.III
1990	56					
1991	92					
1992	87.					

5. Result of University examination during the last three years.

EXAMINATION.	YEARS	PERCENTAGE OF PASS
P.U. ARTS.	1990	56.7.
P.U.ARTS	1991	61.54.
-do-	1992	52.17.

contd.2/-

5:7:6(7)

6. In case the college is seeking Honours in a subject(a)for which it has already a Pass course., please give below the No.of students admitted in the last three years and their results for these years in the SUBJECT in which College has applied for Honours. No.applicable.

YEAR	NO.OF STUDENTS APPEARS	% SUCCESS

7. FUNDS.

(a)Whether the college is having a reserve fund in long term fixed deposit : YES

If yeas,the details thereof: (Bank No.of term deposit receipt, etc. i)State Bank of India Rs.2,00,000/-
ii)Apex Bank - Rs. 72,000/-

(b)Present working fund: i)Public donation Rs.50000/-
ii)Fees Rs.25000/-
iii)contribution G.B.Members Rs.10000/-
iv)Govt.rrant is availed.

8. Qualification/specilization of the teaching staff(of the relevant subjects only).

NAME AND DESIGANTION	QUALIFICATION(WITH GRADE & SUBJECT IN P.G.
1. Sri.R.I.Masharing(Principal)	M.A.Ord.class-Economics.
2. " S.Rynrem.	M.A.II -Khasi.
3. " K.H.Sten.	M.A .II - Pol.Sc.
4. "H.C.Bathew	M.A.Pass - English.
5.Smt.L.Kharmawlong	M.A. - Khasi.
6. " R.Gatphoh	M.A.II - History.
7. Sri.B.Shylla.	M.A.II - English.
8. " L.Pathaw.	M.A.I. - Economics.
9. Smt.R.M.Shylla	M.A.II.B.Ed- Education.
10.Sri.P.Skhar.	M.A.II.,B.Ed.- History.
11. " S.Rarmon	M.A.II.N.E.T. -Pol.Sc.

contd.3/-

5.7.6(10)

RI BHOI COLLEGE : NONGPOH-793102.
MEGHALAYA.

ENROLMENT OF STUDENTS : 1992-93.

P.U.1st year(day section)-27Nos.
P.U.end year(day section)-28Nos.
P.U.1st year(Night section-32Nos.
P.U.2nd year(Night section)-40Nos.
B.A.1st year(Night section)-33Nos.
B.A.2nd year(Night section)-26Nos.

Total Nos.(Day and Night)-166 Nos.
Section.

Numbers of Teacher staff.

1.	Sri.R.I.Masharing	(Principal)	Economics Deptt.
2.	Sri.S.Synrem.	(Lecturer)	Khasi Deptt.
3.	Sri.K.H.Shen.	(-do)	Pol.Science Deptt.
4.	Sri.H.C.Bathew	(-do)	English deptt.
5.	Smt.L.Kharmawlong	(-do)	Khasi Deptt.
6.	" R.Gatphoh.	(-do)	History deptt.
7.	Sri.B.Shylla.	- do -	English deptt.
8.	Sri.L.Pathaw	(-do)	Economics deptt.
9.	Sri.R.M.Shylla	(-do-)	Education deptt.
10.	Sri.P.Dkhar	- do -	History deptt.
11.	Sri.S.Bamon	- do - - -	Pol.Sc. deptt.

Number of office staff.

1. Sri.L.Thangkhiew -Upper Division Asstt.
2. Smt.R.B.Masharing-Asstt.Librarian.
3. Sri.B.Matong -Peon.
4. Smt.M.Maiong -Cleaner.

Result of P.U(A) : 1992.

Nos.appeared - 46 nos.
Nos. of passed - 24 Nos.
Percentage of passed- 52.17%

5:7 6(11)

RI BHOI COLLEGE : NONGPOH.

MEGHALAYA.

GOVERNING BODY MEMBERS.

1.	President	-Mr.D.D.Lapang,M.L.A.
2.	Secretary	-Mr.R.I.Masharing,Principal
3.	Mrs.K.Ranee	
4.	Mr.F.S.Lapang.	
5.	Mr.D.D.W.Lapang.	PERANT REPRESENTATIVES.
6.	Mr.G.R.Chyna	
7.	Mr.J.D.Rymbai.	
8.	Mr.S.Synrem.	
9.	Mr.K.H.Shen.	STAFF REPRESENTATIVES.
10.	Mr.H.C.Bathew.	
11.		
12.		N.E.H.U.REPRESENTATIVES.
13.		
14.		GOVERNMENT REPRESENTATIVES.

5:7:6(12) ANNEXURE-'G'

NORTH EASTERN HILL UNIVERSITY
SHILLONG.
FOR UPGRADATION

INSPECTION REPORT.

1. Name of the college: PUBLIC COLLEGE OF COMMERCE.POST BOX : NO.85,DIMAPUR : NAGALAND.

2. (a)Year of affiliation & corresponding University Notification NO : PROVISIONAL AFFILIATION GRANTED VIDE LETTER NO.CDC/A.75/84-85 dt.6.4.90 ISSUED BY CDC/NEHU.
(b)Level to which affillation: P.U.COM.LEVEL.

3. Affiliation/Permanent sought to upgrade to or B.A/B.Sc. Pass course in Upgradation to B.Com.Class.

Introduction(a new subject):

B.Sc.Hons.In.:

B.Com.in. :

4. Admission(for the last three years)

Year :.	P.U.1st yr.	P.U.II yr.	B.Com.I.	B.A.III.	B.Sc.III.	B.Com. III.
1990-91	157.	128				
1991-92	177.	117				
1992-93	164.	178.				

5. Result of university examination during the last three years.

EXAMINATION	YEAR	PERCENTAGE OF PASS
P.U.COMMERCE	1990-91	60%
P.U.COMMERCE	1991-92	46%

6. In case the college is seeking Honours in a subject(a) for which it has already a Pass course please give below the No. of students admitted in the last three years and their results for these years in the SUBJECT in which College has applied for Honours.

YEAR	NO. OF STUDENTS APPEARS.	% SUCCESS.

Contd.3/-

5.7.6(13)

7. FUNDS:

(a) Whether the college is having a Reserve Fund in long term Fixed Deposit: YES.

If yes, the details thereof: (Bank No.of Term Deposit : Depos

Long term Fixed Deposit in i.e, the Nagaland State Co-operative Bank Dimapur.

1. Fixed deposit receipt No.16142 dated.28.3.91 Rs.75,000/-
2. - do - No.12757 dated.11.8.90 Rs. 1,25,000/-

B. Present Working fund:- Rs. 1,92,860,50p.(rupees one lakh ninety two thousand,eighth hundred fifty)only.

8. Qualification/Specialization of the Teaching Staff(of the relevant subjects only).

Name & Designation.	Qualification(with grade & subject in P.G.
1. Sri.H.R.Ghosh Roy,Principal,	M.Com.LL.B.II. P.C. of Maths. Exp.22yrs. G.U.Versity .specialisation, Accountanty G.U.Versity.
2. Sri.Chandan Debnath,Lec.	M.COM.1st.-1month-68%-S.S.I." 11 year learning.
3. Sri-Dulal Mazundar,Lect.	M.Com.1st-2yrs-67.25%
4. " Gautam Patkar,	M.Com.1st-3months-64%, NEHU, Management.
5. " Depak Roy,Lecturer.	M.Com.II-7 yrs-54.5%- do -
6. " Abdul Khasique Talukdar	M.Com.II 1yr. 57.% - do -
7. " T.L.Veda Chandra Kumar	M.A.M.Phil.I-4months,63.75%, MIL,Eco.
8. Mrs.Manisa Sen.	M.A.II-7years 52.5% G.U.University.
9. Miss.Sentimenla Longkumar	M.A.I-1months-60.45%,Delhi Uni. English.
10. Sri.Prabin Das.	M.A.II-19years-49%.G.B.Univ.I/T

CONTD.-3/-

5.7;6(14)

NOTE:THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT.

Level/Class	MINIMUM NO.OF TEACHING IN EACH SUBJECT.
a) P.U.Non-Laboratory.	One.
b) P.U.Laboratory	Two.
c) Degree Non-Laboratory(Pass)	Two in all subjects and 3 in English.
d) Degree Laboratory(Pass)	Six of whom four should be lecturers.
e) Degree-Non-Laboratory(Pass)	Four in all subjects other than Eng. & other Elect.languages in which there should be at least five.
f) Degree laboratory(Pass)-Seven of which six shall be Lects. + Hons. + P.U.Laboratory.	

9. LAND AND SITE.

a)Whether the college is having permanent building on its own land: YES.

b)Area of the College Campus : 1(One Bigha 16 to losses.

c)Accommodation(give size):-

1)One room for the Principal : 20' x 20'
2)One room for the Vice-Principal= 10' x 20'
3)One room for the college office= 20' x 20'
4)For staff common room one 30'x20' adequate.
5)Common room for boyas & girls. : two room 30'x15' = 15'x20'
6)Library with reading room :: one 25' x 25'
7)Class room 6(six) adequate.
(1)50'x20' (2)45'x20' (3)20'x20' (4)25'x20' (5)30'x20' (6)20' x 20'

10. Workload of Teachers : 16 (eighteen classes for each teacher)

11. Library books:
Total volums.

Subjectwise break-up(of relevant subjects only):

SUBJECT:	NO.OF BOOKS	JOURNALS & PAPERS
a)English	120	2 + 3
b)Economics	125	1
c)Accountancy & B.K.	150	2
d) Com.Arithmatics.	50	
e) B.Orgn.	50	
f) Statistics	60	
g) Com.Land.	30	
h) Com.Geo	50	
i) Auditing.	45	
j) See pratics/S/S	50.	

5.7.6(15)

Whether the college has a trained librarian: Experienced Librarian appointed.

12. Laboratory facilities.
    a) Whether accommodation is adequate: YES.
    b) No. of shifts the students do their practicals.

13. When was the last G.B. meeting. 23.10.92.

14. Any other relevant information(s)/point(s)

RECOMMENDATIONS:

Please make your recommendation without any ambibuity. In case your suggest provisional affiliation for a particular period please mention the academic year specifically. Please also mention the conditions, if any, to go fulfilled if extension of affiliation is to be considered.

Signature of the members of Inspection Team.

The Inspection Team comprising the following members visited the Public College of Commerce, Dimapur on November 20, 1992. The Team is satisfied with the following:-

1) Adequate no. books have been purchased for the college library.
2) Qualified till time have been recruited. Faculty Members.

The Team, therefore, recommends 3 year provisional affiliation for B.Com(Pass) course to the Public College of Commerce.

Sd/-
Officer on spl. Duty.
H.T.E.(MEMBER.

Sd/-Prof. K.K. Sharma.
Chairman. 10/11/92.

Sd/-Prof. V.K. Kumar(Member)

5.7.8(16)

ANNEXURE-'D'

NORTH EASTERN HILL UNIVERSITY

SHILLONG.

FOR NEW COURSE/UPGRADATION

INSPECTION REPORT.

1. Name of the College : SYNOD COLLEGE : SHILLONG.

2(a) Year of affiliation & corresponding University Notification No. :

(b) Level to which affiliation: UG/B.Sc.

3. Affiliation/Permanent sought to upgrade to or B.A/B.Sc.Pass course in.

Introduce(a new subject) B.A. B.Sc. Sociology.

B.S.CHONS.IN. :

B.COM.IN :

4. Admission(for the last three years)

Year.	P.U.	B.Sc.I.	B.Com.I	B.A.III.	B.Sc.III.	B. Com.III.
1.						
2.						
3.						
4.						
5.						

5. Result of University examination during the last three years.

EXAMINATION.	YEAR.	PERCENTAGE OF PASS
1.		
2.		
3.		
4.		
5.		
6.		

contd.2/=

5:7:6(17)

6. In case the college is seeking Honours in a subject(a) for which it has already a pass course, please give below the No.of students admitted in the last three years and their results for these years in the SUBJECT in which College has applied for Honours.

YEAR.	NO.OF STUDENTS APPEARS	% SUCCESS.
1.		
2.		
3.		
4.		

7. FUNDS:

a)Whether the College is having a Reserve Fund in long term Fixed Deposit:

If yes,the details thereof: (Bank No.of term Deposit Receipt,etc.

b)Present working fund:

8. Qualification/specilization of the Teaching staff(of the relevant subjects only).

NAME	DESIGNATION.	QUALIFICATION(WITH GRADE & SUBJECT IN P.G.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

cont'd. 3/=

NOTE: THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT.

Level/Class.	Minimum No.of Teaching in each subject
1) P.U.Non-Laboratory.	One.
2) P.U.Laboratory	Two.
c) Degree Non-laboratory(Pass)	Two in all subjects & 3 in English
e) Degree-non-laboratory(Pass)-	Four in all subjects other than English & other Elect.languages in which there should be at least five
f) Degree laboratory(Pass)-Seven of which six shall be lects. + Hons. + P.U.laboratory.	

9. LAND AND SITE.

a) Whether the college is having permanent building on its own land.

b) Area of the College Campus.

d) Accommodation(give size):-

2) One room for the Principal

2) One room for the Vice-Principal

3) One room for the college office.

4) For staff common room adequate/Inadequate.

6) Common room for boys & girls.

6) Library with reading room.

7) Class room adequate/inadequate.

10. Workload of teachers:

11. Library books.

Total Volums.

Subjectwise break-up(or rekevant subjects only):

Contd.4/-

5.7.6(19)

Whether the college has a trained librarian: YES.

12. Laboratory facilities.
    a) Whether accommodation is adequate or not:
    b) No. of shifts the students do their practicals.

13. When was the last G.B. meeting:

14. Any other relevant information(s)/point(s).

RECOMMENDATIONS:

Please make your recommendation without any ambibuity. In case your suggest provisional affiliation for a particular period please mention the academic year specifically. Please also mention the conditions, if any, to go fulfilled if extension of affiliation is to be considered.

Signature of the members of the Inspection Team.

Report of Inspection of the Synod college for Introduction of Sociology. B.A. Pass Course.

Recommend to the Academic Council of NEHU to permit the above college to introduce B.A. Pass Course in Sociology subject to the following conditions:-

a. They shall be able to recruit two qualified teachers as per the rules:

b) The college shall be in a position to have Rs. 10,000 (ten thousand) only for buying text books in Sociology.

c) The college will admit a limited number of 25 students to began with.

The Principal of the College and the representative of the Govt. of Meghalaya Deptt. of Education, informed the undersigned that the above stipulations will be completed before july, 1993. when the college intends to introduce the above course. The perindpal has gave a letter to the undersigned with that effect (letter enclosed) In view of the above, I recommend that the permission to introduce the course may be given subject to fulfilment of above conditions.

Sd/A.C.Sinha

5:7:6(20)

SYNOD COLLEGE.

PRINCIPAL

'TEGFAN'
JAIAW SHILLONG- 793 00 2

Ref.No.SC/AFF(GEN)/92/693 dated.the 30-11-92.

To

Prof.A.C.Sinha,
Head of Department
Sociology, NEHU,

Subj:- Introduction of Sociology in the Course of Study at the Degree Pass Level in Synod College.

Sir,

In drawing your kind attention to the subject cited above, I would like to state as follows in connection with our application for the introduction of Sociology in the course of study in Synod College:-

In the first place, we had already approached the State Government Department concerned for immediate sanction of 2(two) posts of Lecturers in Sociology, we have received verbal assurances that the posts would be sanctioned shortly.

Secondly, every effort would be made by our college to allocate not less than Rs.10,000/=(rupees ten thousand)only in our Buegat, for the purchase of the required text books & refere to enable us to render the best service to our students.

I shall be very much thankful to you, sir, if you will kindly take up our application for the introduction of Sociology in the course of study in our college, at your very earliest.

Thanking you.

Yours faithfully,

Sd/ E.M.Sohkhlet
Principal..20/11/92

Memo.No.SC/AFF(GEN/92/ dated.Shillong, the 20th Nov.1992.

Copy to the Joint Director of Public Instruction, Meghalaya, Shillong for favour of his information & necessary action.

Sd/-E.M.Sohkhlet
Principal.

5.7.6(21)
1

ANNEXURE-'E'

INSPECTION REPORT

1. Name of the College : Tura Govt. College, Tura

2.(a) Year of affiliation and corresponding 1963-64
University notification No. Could not supply but subsequent
Affiliation latter Nos. are in Annexure-'2'

(b) Level to which affiliation:upto Degree(Pass Course)Arts;
Honours in Eco.and Pol.Science in 1968-69 and in 1972-73
for Phi. Eng. and History.

3. Affiliation/Permanent sought to
upgrade to or B.A/B.Sc Pass Course in This is for
Introduce (a new subject) Permanent Affiliation of The College

B.Sc.Hons.in (Annexure-12)

B.Com.in

4. Admission(for the last three years)-Annexure-I

Year	P.U.	B.Sc.I.	B.Com.I B.A.I	B.A.III	B.Sc.III	B.Com III
1990	506(Arts) 84(Sc)	45	79	25	x	x
1991	515(A) 79(Sc)	71	145	46	x	x
1992	502(A) 47(Sc) 23(Com)	35	79	40	9	x

5. Result of University examination during the last three years.

Examination	Year	Percentage of Pass-Hons	
P.U(Science)	1990	23.31%	Phil-83.33%
P.U.(Arts)		9.66%	Eco -33.33%
B.A		7.72%	P.Sc-0%
B.Sc		15.7%	Edu.60%
B.A(Hons) P.U.Sc)		31.47%	Phil-100%
P.U(A)	1991	15.66%	Hist. 50%
B.A.		15.23%	Edu 50%
B.Sc.		56.67%	Pol.Sc. 16.67%
Hons.			Eco. 0%
			Eng. 50%
P.U(Sc.)		15.43%	Eco- 20%
P.U(A)	1992	5.5%	Pol.Sc. 13.33%
B.A.		10.8%	Phil. 71.43%
B.Sc.		41.67%	Hist. 63.64%
			Edu. 36.36%
			Eng. 0%

Contd/.../-

5;7;6(22)

6. In case the college is seeking Honours in a subject(a) for which it has already a Pass Course please give below the No. of students admitted in the last three years and their results for these years in the SUBJECT in which College has applied for Honours.

YEAR	NO. OF STUDENTS APPEARS	% SUCCESS
x	x	

7. FUNDS

(a) Whether the College is having a Reserve Fund in long term Fixed Deposit : Since it is a Govt. College the question does not arise

If yes, the details thereof :

(Bank No. of Term Deposit Receipt, etc

(b) Present working fund : It does not arise.

B. Qualification/Specialization of the Teaching Staff(of the relevant subjects only)

	Name and Designation	Qualification(with grade and subject in P.G.
1		
2		
3	Annexure-IX	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Contd/.../-

NOTE : THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING

TEACHING REQUIREMENT

Level/Class	Minimum No. of Teaching in each subject.
a) P.U.Non.Laboratory	One
b) P.U.Laboratory	Two
c) Degree Non-Laboratory(Pass)	Two in all subjects and 3 in English
d) Degree Laboratory(Pass)-Six	of whom four should be Lecturers
e) Degree-Non-Laboratory(Pass)-Four	in all subjects other than English & other elective Languages in which there should be at least five
f) Degree Laboratory(Pass)-Seven	of which six shall be Lecturers + Hons. + P.U.Laboratory.

9. LAND AND SITE

a) Whether the college is having permanent suilding on its own land : YES

b) Area of the College Campus : 51 Bighas, 2 kattas and 10 lessa (Annexure- X)

c) Accomodation (give size) :-

1. One room for the Principal - 24 ft by 16 ft
2. One room for the Vice-Principal : Nil
3. One room for the College office - Two rooms (One big and one small)
4. For staff common room 24ft by 20 ft Adequate/Inadequate
5. Common room for boys and Girls - Two- 24ft by 16ft
6. Library with reading room : One big hall - two Consisted-40x25ft
7. Class room 4 halls as 14 class rooms Inadequate.

10. Workload of Teachers : Average 20 Lecturers per week in both morning and Day Sections.

11. Library books :

Total Volums - 51986 volumes.

Subject wise break-up (of relevant subjects only): Annexure-VIII.

contd..../....

5:7:6(24)

Whether the college has a trained Librarian : No

12.Laboratory facilities.

a) Whether accommodation is adequate or not : Adequate in some and not adequate in some others.

b) No. of shifts the students do their practicals. Two

13. When was the last Governing Body Meeting : 30th Oct,1985.

14. Any other relevent information(s) /point(s)

RECOMMENDATIONS :

Please make your recommendation without any ambibuity. In case your suggest provisional affiliation for a particular period please mention the academic year specifically. Please also mention the conditions, if any, to getfulfilled if extemsion of affiliation is to be considered.

RECOMMENDATION

Since the college has fulfilled almost all the major requirements for Permanent Affiliation, the Inspection Team recommends that the college be granted Permanent Affiliation.

Signature of the members of the Inspection Team.

1. Sd/ Prof Milton S.Sangma
2. Sd/ E.N.Lall
3. Sd/ Shri A.G.Momin

5:7:6(25)

ANNEXURE-'F'

NORTH EASTERN HILL UNIVERSITY

SHILLONG.

INITIAL AFFILIATION:

1. Inspection Committee Report(to be submitted to the University in duplicate)

2. Name of the College : AIZAWL WEST COLLEGE:

3. Its sponsoring authority : GOVERNING BODY OF THE COLLEGES

3. The Leval Status of the college(whether college is a registered body under Societies Registration Act).

Registered Body.

4. Whether the College is having a Governing Body duly constituted for the purpose.

Yes,(All these details have attached with the report of the first Inspection Team.
(attach a copy of the constitution)

5. Any special featurers of the G.B.constitution which deserve special attention for the grant of Affiliation.

N.A.

Physical and financial resources.

6. Whether the college is already located at its own site:
YES.

(a) If not, whether the college has already acquired land
(b) Give below a brief report on the suitability of the site and plan after inspection.

The site is a fairly good one if developed properly it has immense possibilities of becoming a good campus There is scope for immense expension in the future

7. The college is seeking affiliation for offering the following courses in:

P.U.LEVEL	**	DEGREE LEVEL.
Mizo(MIL & Elect)		
Pol.Science.		
Economics,Education		
History and English.		

8. Students seeking admission:

P.U.Arts I	449	B.A.
P.U.Arts II	297	B.Sc.
P.U.Sc.		B. Com.
P.U.Com.		

9. Whether the college has adewuate number of title of books and journals for the courses of study mentioned at para 7 above:

The library has acquired quite a large number of books since the last inspection.It seems to be barely adequate for the time bring.However,some reference boooks,dictionary may ba acquired.

5:7:2(26)

(a) If no, do your recommend that the college should be affili... pending acquisition for books/journals.

There are 1100 books in the library, it may be affiliated Provisionally.

10. (a) Reading room facilities.

size 12' x 10' 1 No. in Adequate.

(b) Classrooms.

size 30' x 21' x 5 Nos Adequate.

(c) Students' common room

size 24' x 18' 1 No. In adequate.

(d) Teachers' common-room.

size 24' x 18' 1 No. Adequate.

1. Whether the college has adequate equipment/laboratory facilities for practical classes.

N.A. as the colleges does not offer any subjects requiring practical classes.

12. Name of the teachers with Post-graduate/specialisation.

	NAME.	LECTURER IN	P.G.DEGREE WITH GRADE OF SPECIALIZATION.
1.	Rev.L.N.Ralte	)rincipal	Anthropology B +
2.	Mr.P.Lalramliana	Vice-Principal	History 55.87
3.	Ms.Lianhlupuii	Pol.Science	Pol.Science 54.
4.	Ms.Vanchhingpuii	English	English. 52.18.
5.	Mrs. Albiakdiki Hnamte	Education	Education 64.3.
6.	Mr.Tawliana	History	History 52.56.
7.	Mr.R.Biakhluna	Mizo	M.A.Education.57.69 from NEHU.
8.	Mr.S.R.Zonunthara	Economics.	Economics. 50.19.
9.	Mr.C.Chawiliana	Mizo	M.A.Pol.Science from NEHU.GPA 3.65
10.	Mrs.Rosangliana	Education	Education 58.19.
11.	Mr.C.Lalthlengliana	History	History 60
12.	Ms.K.Lalrinzuali	Pol.Science	Pol.Science.
13.	Mr.Lalhriata	English.	M.Phil 52.18.
14.	Mr.K.Laldialova	Economics.	Economics 60.63. 56.13.
15.	Mr.H.Lalvulliana	Mizo	
16.	Mr.Vanlalsawma	Education	Education 59
17	Mr.M.C.Hnunirha	History	History 56.50.
18.	Ms.Lalthlamuanpuii	Pol.Sc.	Pol.Sc. 56.
19.	Ms.Zosangpuii Ralte	Mizo	M.A.Sociology from Bombay Univ. 58.3.
20.	Mr.Lalnghenga Tochhawng	English.	English. 56.56.
21.	Mr.P.L.Ramliana	Economics.	Economics. 55.06.

contd. 3/-

5.7.2(27)

NOTE: THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING :-

	Level/Class.	Minimum No.of teachers each subjects.
a)	P.U.Non-lab.	One.
b)	P.U.Laboratory	two.
c)	Degree non-laboratory(Pass)	Two in all subjects&three in English.
d)	Degree laboratory(Pass) + P.U.Laboratory.	: Six of whom four should be lectures.
e)	Degree non-laboratory(Pass) + Hons. + P.U.	Four in all subjects other than English & other Elct.language in which there should be at least five.
f)	Degree laboratory(Pass) + Hons. + P.U.	Seven of whom six shall be lecturers.

13. Whether the college has adequate No.of qualified teachers in the subjects for which affiliation is sought:

The college has adequate number of lecturers, however, 2 lect. in English, 1 lect.in History, 1 lect.in Economics and 1 lect. in Pol.Science do nit fulfill the education qualification laid down by the University.

Yes, there is at least one qualified teacher for each subject as per university norms.

14. Whether the college is maintaining a fixed termx deposit of Rs.1,00,000/= in any bank:
Yes, submitted with the perevious inspection report.

If yes, the fixed deposit certificate:

No. dated.

for ;. in the

(mention the name of the Bank and Branch)

15. Any other observation(s):

Since the last inspection, the college has improved to a great extent. 5 classrooms have been built, benches and desks have been acquired and the library has improved. The number of students admitted is very large. Accordingly to the Principal's report, there are 986 students in its rolls.

NOTE: A) If conditional recommendation is made, kindly specify the condition and the period by which the same are expected to be be fulfilled by the college for the provisional/extension of affiliation.

(b) If provisional affiliation is recommended upto a centre period only, this may be mentioned.

contd.4/=

5:7:6(28)

Provisional affialition is recommended for 3 years it is hoped that the college would in this period look into the points raised in the report and take adequate steps to rectify them.The number of students may be restricted to about 250 per year.

Signature of the members of the Inspection Team.

Sd/-R.Lalthantluanga,
Pro-Vice-Chancellor,
NEHU,Mizoram Campus
Aizawl.

Sd/-Dr.R.S.Wangu,
Head Dept.of Education,
NEHU,Mizoram Campus,Aizawl.

Sd/Dr.S.Ganguli,
Head,Dept.of English,
NEHU,Mizoram Campus,
Aizawl.

Sd/-Mrs.B.Sangkhumi,
Deputy Director,Higher &
Technical Education,
Govt.of Mizoram.
Aizawl.

Dared.Aizawl 22nd Oct.1992.

5:7:7 (1)

Provisional affiliation to Jaintia-Eastern College, Khliehriat upto P.U(A) level with effect from 1992 and upto Degree (A) level with effect from 1993 -

An Inspection Team inspected the Jaintia Eastern College, Khliehriat on 6.11.92 for the purpose of considering grant of provisional affiliation to the college.

The Inspection Report is placed at Annexure - A for perusal and consideration of the Council.

.....

5:7:7 (2) Annexure -

NORTH-EASTERN HILL UNIVERSITY
SHILLONG.

INITIAL A

Inspection Committee Report(to be submitt
the University in duplicate)

1. Name of the College : JAINTIA EASTERN COLLEGE:KHLI

2. Its sponsoring authority : The Society for Highe
Khliehriat.

3. The Legal Status of the College(whether is a regist
under Societies Registration Act).

Yes vide Registration No.SR/TSPHE-235/92 of 1992.

4. Whether the College is having a Governing Body duly
constituted for the purpose :

Yes, constituted on 20.6.92 for twoyears term(att
copy of the constitution).

5. Any special features of the G.B.Constitution which
special attention for the grant of affiliation :

1)Financial contributions by the members of the G.B

2)Initiative for the acquisition of land for the c

Physical and financial resources.

6. Whether the college is already located at its own s

(a)If not,whether the college has already acquired
the land has been acquired and the land holding cer
from J.H.A.D.C. is being applied copy of Nostabit(s
enclosed)

(b)Give below a brief report on the suitability of
and plan after inspection:

The site and location of the land is quite suitable
College Complex.The Plan for the college building
prepared.

7. The college is seeking affiliation for offering th
courses in :-

P.U.LEVEL. DEGREE LEVE

P.U.(ARTS)to be delinked in future. - 1st year Degre
Ist Year. Arts Cobes- intr
from 1993.

8. Students seeking Admission:

P.U.Arts 1st year -51(fifty one).	B.A.
P.U.Sc.	B.Sc.
P.U.Com.	B.Com.

9. Whether the college has adequate number of title of books and journals for the courses of study mentioned, para 7 above:

Yes, Reference books - more than 500 volumes journals - A few more books are being acquired for the college Library.

(a) If no, do you recommend that the college should be affiliated pending acquisition of books/journals.: Does not arise.

10(a) Reading room facilities.

Size(30 x 15)sq.fit.	:	Adequate.
(b)Class rooms.		
size(40 x 25)sq.ft.	:	Adequate
(c)Students' Common Room		
Size(15 x 10)sq.ft.	:	Adequate.
(d)Teachers'Common Room		
Size(20 x 20)sq.ft.	:	Adequate.

11. Whether the college has adequate equipment/laboratory facilities for practical classes:

Does not arise.

12. Name of the teachers with Post-Graduate Degree/ Specialisation.:

	NAME.	LECTURER IN	P.G.DEGREE WITH GRADE & SPECIALISATION.
1.	Sri.Phervission Nongtdu.	Actg.Principal-	M.Sc. in Chemistry.
2.	Mr.Emmanuel Shangplaing	Economics	-1st class in M (Economics)
3.	Mr.Davidson Diengdoh.	Khasi	2nd class M.A(
4.	Mr.Sowat Lalou	Pol.Science	- do - Pol.Sc
5.	Mr.Nambhen Shylla.	Education	- do - Educa
6.	Miss.Mamoni Khersniing.	History.	- do - History.
7.	Mrs.Sukla Roy(B)	English	- d o - English.

NOTE: The University Regulation stipulates the following :

	Level/Class	Minimum No.of Teacher in each subject.
a)	P.U.Non-Lab.	One.
b)	P.U.Laboratory	Two
c)	Degree Non-Laboratory(Pass) + P.U. Non Laboratory.	Two in all subjects and three English.
d)	Degree laboratory(Pass) + P.U.Laboratory.	Six of whom four should be lecturers.
e)	Degree Non-Laboratory(Pass) + Hon. + P.U.	-Four in all subjects other than English & other than English & Elct.language in which there should be at least five.
f)	Degre Laboratory(Pass) + Hons. + P.U.	Seven of whome six shall be lecturers.

13. Whether the college has adequate No.of qualified teachers in the subjects for which affiliation is sought :

Yes, one teacher for each subject.

14. Whether the college is maintaining a fixed term deposit of Rs.1,00,000/= in any bank :

Yes for Rs.2 lakhs deposit with the Meghalaya Apex Bank,Jowai.

If yes,the Fixed Deposit Certificate #

No. Date .

for Rs.2,00,000/= (Rupees two lakhs only)
in the Meghalaya Co-operative Apex Bank,Jowai.

(mention the name of the Bank and Branch).

15. Any other observation(s): At present P.U.Arts course has been stated. With the starting of the + 2 Course in the Higher Secondary School in the Area,P.U.Course will be delinked from the college in due course. 1st year Degree course will be started from 1993 at the same time more teachers, required by the University Ordinance,will be appointed.

16. RECOMMENDATIONS :

NOTE: a) If conditional recommendation is made kindly specify the conditions and the period by which the same are expected to be fulfilled by the college for the Provisional/Extension of Affiliation.

b) If provisional affiliation is recommended upto a certain period only,this may be mentioned.

Recommended for Provisional Affiliation for 2 years on conditions :-

1) That the College should appoint a full time qualified Principal.
2) That the College should have its own permanent buildings.
3) That the library and reading room facilities should be improved.
4) That more books in different subjects be acquired
5) That more teachers and classrooms should be provided for the introduction of the Degree course in Arts by 1993.

Signature of the members of the Inspection Team.

Sd/-K.S.Lyngdoh.
convener. 6/11/92

Sd/-Illegible.
Member.

Sd/-Illegible.
Member.

5:8 - **Others** -

(i) Cancellation of nomination of NEHU Representatives in the Governing Body of Upper Shillong College

Upper Shillong College had applied for a New College. The list of Governing Body of Upper Shillong College had been received in this office. Two NEHU Representatives were nominated duly approved by the Vice-Chancellor Viz.Prof.M.Mili, Department of Philosophy and Dr.K.M.Warjri, Centre for Adult & Continuing Education which has approved by the 44th A.C.Meeti which was held on 7th & 8th August,1992 vide A.C.44:92:03(VI) vide EC resolution No:76:92:03:(vii).

On scrutiny it has been found that since the said College had not been affiliated, the nomination of Representatives to the College was wrongly proposed and notified vide our Notification No.B.73/CDC/91-92/1506-1513 dated.16.6.92 nominating Prof.M.Mili and Dr.K.M.Warjri to the Governing Body of Upper Shillong College for the period of 3(three)tears w.e.f. the date of the above said Notification.

The matter is therefore, put up to the Council for cancellation of the nomination and for necessary [illegible] to be issued.

5:8:2(1)

Scaling of marks between Major/non Major for the purpose of admission in the P.G. programmes -

As per decision taken in the Deans' Committee meeting held on 19th October, 1992 a Notification (copy enclosed at Annexure - A) has been issued regarding the eligibility of the students migrating to NEHU from Universities recognised by the Association of Indian Universities with three year degree course (with or without major). In the notification the eligibility for admission to P.G. classes has been made conditional to the fulfilment of other prescribed qualifications on the part of the students.

In the absence of clear guidelines, it is felt that further guidance of the Academic Council is needed to lay down the modalities of admission of students, particularly of those without majors. It has been observed that students migrating from other Universities e.g. Bangalore University offers only 4 papers in their elective subjects without major. In order to establish parity of such students with those majors with 8 - 9 papers. It may be necessary to devise some scaling of the two categories of students for the purpose of admission to P.G. programmes of this University.

A Committee was appointed by the Vice-Chancellor to make recommendation to the Academic Council. The report of the Committee is enclosed at Annexure - B for consideration of the Council.

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5.8.2(2)

Annexure - A

NORTH-EASTERN HILL UNIVERSITY
HEADQUARTERS:SHILLONG

No.F.16-1/89/EX/ 26th October,1992.

NOTIFICATION

It is hereby notified that students migrating to NEHU from Universities recognised by the Association of Indian Universities with Three Year Degree Course (with or without major) are eligible for admission to P.G.Classes, provided they fulfil the other prescribed requirements.

The above decision has been taken in the Deans' Committee meeting held on 10th October,1992.

Sd/-
A.PATTON
CONTROLLER OF EXAMINATIONS

Copy to :-

1. All Deans of Schools,NEHU and Dean of Students Welfare.
2. All Heads of Departments,NEHU Shillong/Kohima/Aizawl.
3. Pro-Vice-Chancellor,Nagaland/Mizoram.
4. P.S. to V.C. for V.C's kind information.

Sd/-
(K.Nenghong)
Assistant Registrar (II)
Examinations

....

5.8.2(3) Annexure - B

Minutes of the Committee appointed to look into scaling of marks between Major/non-Major for purpose of admission into PG Programmes.

In order to facilitate discussion by the A.C. the Vice-Chancellor had appointed a Committee to work out some principle of scaling of marks obtained by candidates with or without major for purpose of admission into the PG Programmes.

The Committee had a threadbare discussion on the following facts:-

1) That there are Universities which follow integrated course without majors.

2) That the number of papers in the major or without major vary from University to University.

3) That these Universities are recognized by this University at the instance of the AIU on reciprocal basis.

4) That in case of NEHU distinction between major/without major is made from the 1st year with no provision for non-major candidates to go for major at subsequent stage.

5) That marking becomes progressively rigorous as one goes to the higher percentage.

In consideration of the above facts the Committee after long deliberations made the following recommendations:-

1) To equalise the students with Major and those without Major the following scalings were recommended for purpose of admission to PG Programmes.

   (a) For non major students with 3 papers in the elective subject in which they want to seek admission, the marks obtained in these 3 papers may be scaled down by 15% marks from the total percentage of marks obtained in the subject concerned.

   (b) Those with 4,5,6,7 papers in the subject concerned proportionate scaling down recommended were 11%, 9%, 7%, 6% respectively.

6) Those with major consisting of more than 8 papers the average of all the major paper may be considered for comparision.

7) In working out the percentages if a candidate gets a fractional percentage it may be rounded up to the next integral value.

Sd/-
(Prof. S.S. Khare)
Chairman

Sd/-
(Shri A. Patton)
Member

Sd/-
(Dr S.K. Srivastava)
Member