

(v) Affiliation cases approved by the Vice-Chancellor.

The Inspection Reports in respect of the following Colleges for the purpose mentioned against each are placed at Annexure 'A', 'B', 'C' and 'D' before the Council for ratification.

1. Union Christian College, Barapani - For granting permanent Affiliation.
2. Unshyrpi College, Laban, Shillong - For granting provisional Affiliation for B.A. (General courses).
3. Nongtalang College, Nongtalang. - Provisional Affiliation for Degree Level in English, Khasi (MIL), Khasi (Elective), History, Education, Political Science, Economics, Philosophy and Foundation Course.
- ~~4. New College, Shillong. - Governing Body, Shillong College.~~

Report on Inspection of Union Christian College, Barapani, for the purpose of granting permanent affiliation.

.....

We had inspected the college on 4th August, 1995 and report follows:

The college was established as long ago in 1952 and was affiliated to the Gauhati University upto Intermediate level. It was upgraded to a BA college in 1966 and affiliated for honours in English and History in 1969. The affiliation was transferred to the North-Eastern Hill University in 1977. The college is under the Meghalaya Government's deficit system of grant-in-aid w.e.f. 1st April 1993. (See Appendix 'A' for list of departments and levels of affiliation).

The college is situated amidst 700 acrs of excellent hill land leased from the Syiem of Myllem. The lease however expires on 26 June 2002 AD but we assured this will be renewed. There are permanent buildings, for the library, academic complex, and teachers residential quarters. They are all in good maintenance order.

ENROLMENT : PERFORMANCE OF STUDENTS

The total number of students enrolled in the College is at present 524 (Men 299 and 225 women). The performance can be seen in the Annual Report of College ending 31 March (Appendix as B & C) Achievements in the Arts stream is so far satisfactory, and the "disappointing performance" during 1994-95 in Sciences is explained in the Annual Report appended.

The College has undertaken projects of a practical nature such as introduction of Computer Application as a subject at the Pre-University or + 2 level and short term courses designed to promote computer awareness among staff members.

The conducts of academic programmes and teacher - student response is satisfactory.

LIBRARY

We made it a point to inspect the library. We are satisfied with the size of its holding and with construction of the building and its maintenance. The staff of the library appeared to us as competent.

Contd.....2/-

STAFF

A list of the teaching staff is enclosed (Appendix -D) All have the requisite qualifications and a few with very good academic records. We met some of the teachers and they struck us as a dedicated lot. There is a good combination of experienced staff and youthful teachers.

FINANCE

The college has adequate resources of its own. There is a term deposit, which constitutes the Reserve Fund of Rs.6,45,500.73 and a working Fund of Rs.20,00,000/-. The College is therefore on a sound financial footing.

GENERAL IMPRESSION

We have gathered a favourable impression of the Union Christian College: discipline, organisation and the academic atmosphere appeared to us very conducive to its functioning and future growth. There is no reason to apprehend that any of the course and the levels at which these are being offered and for which affiliation has been so far granted, would be withdrawn. The resources of the College, the adequacy of its teaching staff and the response of the students is an insurance against this. Nor do we have any reason to suppose that the College could breakdown on financial and other grounds. We are satisfied that the college is on very firm foundation and has been permanently established.

RECOMMENDATIONS:

We would therefore strongly recommend that the Union Christian College, Barapany be admitted permanently to the privileges of the North-Eastern Hill University. In this recommending permanent affiliation we would like to refer to Academic Council Resolution: AC:23:83:05 (viii) which was brought to our notice to the effect that permanent affiliation be granted to colleges which were already ten years under NEHU and the Vice-Chancellor was authorised to take action in this regard.

Imdad Hussain

UNION CHRISTIAN COLLEGE : BARAPANI

INFORMATION S

1. Name of the College: UNION CHRISTIAN COLLEGE : BARAPANI

LEVEL to which Affiliation : Up to Degree Level.

P.U. ARTS

1. English
2. MIL :Khasi, Mizo, Assamese, Alt, English
3. Political Science
4. History
5. Geography
6. Logic
7. Economics
8. Education

DEGREE ARTS

1. English
2. Khasi, Mizo, Assamese, CFC
3. Political Science
4. History
5. Geography
6. Economics
7. Philosophy, Elective English
8. Major :English, History, Geography, Pol. Science

P.U. SCIENCE

1. English
2. MIL:Khasi, Mizo, Assamese Alt. English
3. Physics
4. Chemistry
5. Biology
6. Mathematics
7. Home Science
8. Computer Application

B.Sc.

1. English
2. Khasi, Mizo, Assamese, FC
3. Physics
4. Chemistry
5. Biology
6. Zoology
7. Mathematics
Major Subject:
Chemistry

Admission for last three years

Year P.U., B.Sc., B.A.

List enclosed

FUNDS

A) College reserve Fund in long term deposit

If yes, the details thereof (Bank No. of fixed Deposit receipts)

1. TA/A/10 683156 for Rs. 2,38,800.00
2. SD/A/10 525503 for Rs. 2,39,614.73
3. SD/A/10 525508 for Rs. 86,366.00
4. 2663512 for Rs. 81,45,500.00

Total Rs. 5,45,500.73

Present Working Fund : 20,00,000/- (Rupees twenty lakhs)

5. List of staff enclosed herewith:

ANNUAL REPORT OF UNION CHRISTIAN COLLEGE

Revd. President and friends,
When the last Annual Report of Union Christian College was presented at the Annual Conference of NEICC held at Chandmari, Aizawl, the report covered the period ending 30th April, 1994. The present Annual Report covers the period from 1st May, 1994 to 31st March, 1995. During the interregnum, some interesting things have taken place as the Calendar of Important Events will show. In preparing and presenting this Report, we must be grateful to God who has so marvellously blessed this Institution in various ways. It has truly been by His abounding love and providence that Union Christian College has been able to achieve the academic credibility it is now. I must assure the NEICC that it will be my continued effort and the effort of every one associates with the College to maintain and preserve its christian background and identity.

The present report Sir seeks to highlight the officials and delegates meeting here at Lunclai the following areas :-

I-Admission

II-University Examinations results

III-Resignation

IV-Appointment

V-Confirmation

VI-Retirement

VII-Academic Programmes

VIII-Innovative Projects

IX-Calendar of important events

X-Concluding remarks

I.-Admission- the pressure of getting admission into the various classes in the Arts and Science streams is mounting. Due to limited hostel accomodation, it has not been possible to entertain all applications. The number of students admitted for the academic session 1994-95 is as shown below:-

State	PU.IA	PUIIA	PUI Sc.	PUII Sc.	BAI	BAlI	BSc.I	B.ScII	HONS
Mechalaya	26	46	13	4	16	12	1	x	3
Mizoram	22	25	9	14	19	13	5	x	1
Manipur	16	21	10	23	20	15	2	2	x
Assam	10	18	6	9	3	23	1	x	2
Nagaland	12	27	6	7	22	10	2	1	2
Tripura	4	3	1	3	4	3	x	x	x
Arunachal	x	2	2	x	2	x	2	x	x
Total	90	142	47	60	86	76	13	3	8

Boys - 299

Girls - 225

Christians 464

Non Christians 60

Total 524

II-University Examinations Results - as the following figures will show, the performance of UCC students in the Science stream has not been uniformly satisfactory:

EXAMINATIONS	Appeared	Passed	College %	University %
Geography Hons.	5	5	100	91.09
English Hons.	2	2	100	82.50
History Hons.	8	8	100	60.39
B.A. Old Course	55	41	75	30.38
<u>Integrated 3 years Degree Course</u>				
General 1st Year	40	20	50	16.00
<u>Major Course</u>				
English	16	8	50	Overall % in Major University % 72.07 40.09
Geography	10	9	90	
History	22	18	82	

Continued next page

Examination	Appeared	Passed	College%	University %
.Sc.Old Course	7	x	nil	40.09
.Sc.1st Yr.	5	2	40	37.69
.U.Arts	89	68	70	47.92
.U.Sc.1st Yr.	62	4	06.94	39.30
.U.Arts 1st Yr.	150	52	36.66	18.95
.U.Sc.Final	54	32	58	69.50

Three reasons can be explained for this disappointing performance in some areas of the Science stream:

One, Most of the students admitted into the Science stream have a poor academic background. The majority of students seeking admission to the science stream are third Divisioners coming from rural schools.

Two, Absence of screening test for ending to the University Examinations. This, combined with the automatic promotion to a higher class has been accountable in making students develop a lukewarm attachment to their academic programme.

Three. Late publication of Board/University results leaving very limited time for teachers to cover the prescribed courses in an effective manner.

II-Resignation:

1. Mr. Paban Ch. Mosahari, LDA cum typist.
2. Mr. Wansuk Buhphang, Lab.Asstt.
3. Miss S. Bhattacharjee, Lecturer in Mathematics.
4. Miss D. Bhowmick, Lecturer in English.

V-Appointment:

1. Mr. Ezekiel Rymmai, LDA cum Typist.
2. Mr. Pliningstar K. Lynser, Lab. Asstt.,
3. Miss E.P.Sawian as Matron for girls and Mr. R.K. Tongwah as Chief Warden for boys. They have been instrumental in making the disciplinary arm of the College more effective.

-Confirmation : Dr. B.G.Mathew, Lecturer in Chemistry

I-retirement :

1. Miss T. I. Das, Lecturer in History w.e.f.1.8.1994
2. Mr. Padam Lama, Office Peon w.e.f. 1.12.1994

II-Academic Programme: Necessary administrative steps have been initiated to start major courses in Botany and Zoology. A final report of the inspection team appointed by NEHU is awaited.

III-Innovative Projects: Innovative project is, in a most practical terminology, an academic exercise to making education responsive to the emerging ground realities and develop in students a perceptible degree of competitiveness. As mentioned in the Report for 1993-94 (vide Page ii, Sl.No.VIII) Computer Application has been introduced as 4th subject at the Pre-University level. Provisional affiliation from NEHU has been obtained. The number of students admitted was 16. Hardware and software have been installed. Short term course has been introduced with a view to generating computer awareness among staff members.

X-Calendar of important events:

3th May, 1994-staff and students of UCC did voluntary works to repair school building at Nongkyndong village the roof of which was blown by a storm.

3th May, 1994 -received a Notification from the Government of Meghalaya ringing Union Christian College under the deficit system of grant-in-aid w.e.f. 1.4.1993.

1st June -21st June, 1994- the College remain closed for the Summer vacation.

2nd June, 1994-the College reopened after the Summer Vacation.

4th June, 1994-Rev. Lalnehvura of the Mizo Presbyterian Synod took charge as College Chaplain.

4th August, 1994-the College Foundation Day was observed. Rev.H.M. Apthap, Chairman of the Board of Directors was the Chief Guest.

3th September, 1994-Rev.Fr.Rosario, Rector of St.Xavier College, Calcutta visited the computer centre. He was deputed by the UBCHEA India Programme.

19th October, 1994-Tripti and Mercy both of Geography Department were married. The ceremony was solemnised by Rt. Rev. E.W. Talibuddin and assisted by Rev. P. Lyngdoh of the CNI, Shillong.

27th October, 1994-(i) Rev. Thomas Mar Thimotheus Episcopa, Bishop of Madras-Calcutta Diocese, Marthoma Church visited the College and presented a message at the evening worship service.

(ii) Mr. Standley D.D. Nichols-Roy died in California 30th October, 1994- a condolence meeting in respectful memory of late S.D.D. Nichols-Roy was held in the chapel. The Principal spoke about the immense contribution made by him since the inception of UCC.

20th November, 1994-Rev. Dr. L. Pansngap, President of NEICC visited the College and delivered an inspiring message at the evening worship service.

11th December, 1994- the College Choir visited Pynthorumkhrah Presbyterian Church and joined in the worship service at 1 P.M.

16th December, 1994-the College remain closed for the Winter Vacation.

27th January, 1995-the Principal attended the 150 Jubilee Celebration of Guwahati Baptist Church held at the CBCNEI compound.

30th January, 1995- the Governor of Meghalaya, Shri Madhukar Dighe inaugurated the National Integration Camp at UCC. Nine Universities from different parts of India sent their NSS volunteers to attend the Camp.

8th February, 1995-Prof B. Pakem, Vice Chancellor of North Eastern Hill University came as Chief Guest for the Closing function of the National Integration Camp. He planted a UNITY TREE in front of the chapel. The Tree was manured by soils brought from West Bengal, Himachal Pradesh, Punjab, Andhra Pradesh, Maharashtra, Bihar and Meghalaya.

15th February, 1995- the College reopened after the Winter vacation.

24th February, 1995- University Examination commenced.

X-Concluding remarks

In the face of new emerging trends at the educational front created by the introduction of the new pattern of collegiate education, UCC has now entered into a crucial phase in its academic existence. Since most of the Departments in the Arts and Science streams are currently understaffed, the workload of teachers is such that a daily schedule with the semblance of a human perspective has become, to say the least, a head scratching exercise. Efforts are being made to move the Government of Meghalaya to sanction additional posts of grant-in-aid, creation of additional posts is not going to be a burden for the College.

There are now meaningful exercises for a permanent settlement of the land problem. The attitude of the Syiem of Myllem and his Dorbar has been very positive and assuring.

With God's continued guidance, we hope to march from strength to strength.

Respectfully submitted

Sd/-

Principal

Union Christian College

Dated UCC, Barapani
The 17th April, 1995

ENROLMENT OF UNIVERSITY RESULT (SUBJECTWISE)
FOR THE LAST 3 YEARS

SUBJECTS	YEAR	ENROLMENT		UNIVERSITY RESULTS	
		P.U. Level	Degree Level	PU Level	Degree Level
1) English	1991	232	255	92%	97%
	1992	255	187	87%	90%
	1993	123	76	93%	100%
2) Language G.F.C.	1991	128	123		98.5%
	1992	130	187		100%
	1993		76		100%
3) Alt.Eng. El.Eng.	1991	95	12	100%	
	1992	129	14	100%	
	1993	123	7	100%	100%
4) Political Science	1991	156	99	90%	97%
	1992	188	155	90%	84%
	1993	89	73	96%	79%
5) History	1991	136	81	100%	64%
	1992	166	128	89%	95.6%
	1993	80	66	98%	92%
6) Economics	1991	99	41	94%	72%
	1992	140	56	61%	81%
	1993	66	31	89%	85%
7) Logic/ Philosophy	1991	58	73	83%	93.8%
	1992	69	98	83%	100%
	1993	23	38	100%	94%
8) Education	1991	Nil			
	1992	nil			
	1993	92			
9) Chemistry	1991	80		77.7%	
	1992	65	10	96%	
	1993	30	5	83%	
10) Physics	1991	81		66.6%	
	1992	66	10	73%	
	1993	30	5	43%	
11) Maths	1991	45		30%	
	1992	24		73%	
	1993	12	5	33%	
12) Home Sc.	1991	nil			
	1992	3			
	1993	29			
13) Hiology	1991	46		100%	
	1992	52		85%	
	1993	20		93%	
14) Geography	1991	77	24	99%	100%
	1992	76	43	100%	100%
	1993	31	21	93%	100%
15) Honours/ Major	a) English	1991	100%		
		1992	33%		
		1993	66.6%		
	b) History	1991	100%		
		1992	100%		
		1993	87.5%		

Contd.....

SUBJECTS	YEARS	DEGREE LEVEL
----------	-------	--------------

a) Geography	1991	100%
	1992	100%
	1993	100%

b) History	1991	
	1992	
	1993	

c) Physics	1991	
	1992	
	1993	

1	2	3	4	5	6	7	8	9	10	11	12	13
12.	MR. D. K. SAHA LECTURER	ECONOMICS	1-3-61	10.4.87	10.4.88	II 57.3	I 60.3	IIH. 51.3	II 55%	-	7 Yrs.	
13.	MR. T. C. DAIMARI LECTURER	Geography	25.7.64	2.2.89	2.2.89	II 45%	III 42%	II 52%	II 59%	-	6 Yrs.	
14.	MR. B. K. DAIMARI LECTURER	History	23.3.56	15.2.88	15.2.89	II 46%	II 48%	Pass	II 56.25	M.Phil	6 Yrs.	
15.	MR. SUNIL PIO LECTURER	Geography	1-2-64	5.9.90	5.9.91	III 46%	III 43%	II 42.8	II 59.9	M.Phil	4 Yrs.	
16.	MR. I. W. LYNESKOR LECTURER	Economics	15.3.65	21.4.92	21.4.93	I 62.6	II 48.6	II 48.6	II 59.3	-	2 Yrs.	
17.	MR. GEORGE JOSEPH LECTURER	English	5.4.66	3.8.92	3.8.93	I 64%	I 61%	II 58%	I 62.3	-	2 Yrs.	
18.	MISS MERCY SINGH LECTURER	Geography	7.2.68	1.9.92	1.9.93	Spl. 40.6	I 52%	II 58%	I 62.3	M.Phil	2 Yrs.	
19.	MISS VENARICA SYIEM LECTURER	Khasi	2.2.63	1.9.93	1.9.94	Spl. 47.8	II 47.1	Pass 40.6	I 63.25	-	8 months	
20.	MR. BAIKUNTHA RAJBONGSHI LECTURER	Assamese	1.3.68	1.9.93	1.9.94					-	8 months	
21.	MISS ESTHER LIANOHHAWNI LECTURER	Education	4.5.67	15.9.93	15.9.94	I 53.67	II 59.11	II 59%	I 60.81	B.Ed. 74.86	8 months	
22.	MISS BANTEILANG SYIEMLIEH LECTURER	English	13.7.95								1 month	New appointee
23.	MR. PAOLACIUS DKHAR LECTURER	History	1.7.95									New appointee

UNION CHRISTIAN COLLEGE : BARRAPANI
BIO-DATA AND EDUCATIONAL QUALIFICATIONS OF TEACHING STAFF (SCIENCE STREAM)

Sl. NO.	NAME OF TEACHER DESIGNATION	SUBJECT TAUGHT	DATE OF BIRTH	DATE OF APPOINTMENT	DATE OF CONFIRMATION	EDUCATIONAL QUALIFICATIONS	Teaching Experience	Remarks				
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	MRS. ANITA G. PAUL LECTURER	Zoology	8.11.64	2.8.89	2.8.90	I 61.8%	II 55%	II 51%	I 60.9%	-	5 Yrs.	
2.	MR. JOSEPH MATHEW LECTURER	Mathematics	5.3.62	14.8.89	14.8.90	I 64.3%	I 60%	I 60%	I 70.1%	-	5 Yrs.	
3.	MR. V. ESWAR LECTURER	Physics	2-1-56	18.10.89	18.10.89	III 42.75%	I 61.3%	II 47%	B 58%	-	5 Yrs.	
4.	MISS D. ELIZABETH PHEBE-LECTURER	Chemistry	19.9.68	19.9.92	19.9.92	I 85.8%	I 85.8%	I 78.9%	I 73.7%	-	3 Yrs.	
5.	MRS MERLINE SEBASTIAN LECTURER	Physics	5.5.67	1.11.91	1.11.92	I 74.8%	I 77.9%	I 60.4%	-	-	4 Yrs (1 Year appointment)	
6.	MISS V. KALITA LECTURER	Botany	13.12.66	7.11.91	7.11.92	II 45.6%	II 55.6%	I 61.3%	I 66.7%	-	4 Yrs. -do-	
7.	MRS. SARI R. HRANNGUL LECTURER	English	22.11.67	21.4.92	21.4.93	II 55%	II 55%	II 55%	II 55%	-	2 Yrs.	
8.	MRS M. HOHN LECTURER	Home Science	15.5.37	1.9.92	1.9.93	I 69%	III 48%	III 48%	II 59%	-	2 Yrs.	
9.	MISS REBECCA LALRINTLUANGI LECTURER	English	1-3-66	1-9-92	1-9-93	II 54%	II 58%	II 58%	II M. Phil 55.18	-	2 Yrs.	
10.	MR. ASHISH MALHOTRA LECTURER	Chemistry	17.8.67	14.9.92	14.9.93	A 56.6%	II 56%	II 55.3%	I 62.66	-	2 Yrs.	
11.	D. B. G. MATHEW LECTURER	Chemistry	1.8.61	1.7.93	1.7.94	I 61%	I 64.75%	I 78.83%	I 66.89%	M. Phil	1 Yr.	

	1	2	3	4	5	6	7	8	9	10	11	12	13
12. DR(MISS)PRATHIMA RAO LECTURER			Botany	8.5.65	10.9.93	10.9.94	II I	I I	I I	M.Phil		8 months	
							57.6	67.8	65%	68.2	Ph.D		
13. MR.A.D.SHANGDIAR LECTURER			Zoology	29.3.69	13.9.93	13.9.94	II II	II II	II II			8. Months	
							47.33	47.55	52.36	57.89			
14. DR(MISS)LIPIKA SANTHA LECTURER			Physics	27.7.61	1.10.93	1.10.94	I I	II II	I I	Ph.D		7 Months	
							69%	60.3%	57%	65%			
15. MISS SUTAPA BHATTACHARJEE LECTURER			Mathematics	1-5-68	6-4-94	6-4-95	I II	II II	I I			1 Month left	
							69.76	54%	48%	73%			
16. DR(MRS)M.IBEMBAL DEVI MATHMATICS			Mathematics	1.11.94									New appointee
17.													
18.													
19.													
20.													

PRINCIPAL/SECRETARY
UNION CHRISTIAN COLLEGE : BARAPANI

NEHU NOTES.

PROF. M.A. SUDHIR
DEPTT. OF EDUCATION
NEHU : SHILLONG.

19.10.95.

SUB : INSPECTION REPORT OF UMSHYRPI COLLEGE,
LABDN, SHILLONG.

REF : LETTER NO.CDC/A 136/94-456-60 dt.3.7.95.

Madam,

Kindly find enclosed the inspection report of Umshyrpi College (in duplicate). The Inspection was conducted on 31.8.95 and the report duly signed by all members are submitted for necessary action at your end. Please acknowledge the receipt.

With regards.

Yours sincerely.

Sd/-Dr. M.A. Sudhir)

19/10/95

RO

DR. HELEN GIRI
PROFESSOR AND DIRECTOR,
COLLEGE DEVELOPMENT COUNCIL
NEHU : SHILLONG.

NORTH EASTERN HILL UNIVERSITY
SHILLONG.

INITIAL AFFILIATION
INITIAL AFFILIATION

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

1. Name of the college: UMSHYRPI COLLEGE, LABAN, SHILLONG.
2. Its sponsoring authority : SHILLONG MUSLIM UNION,
Shillong-793004 Annexure '1'
3. The Legal Status of the College (whether college is a registered body under Societies Registration Act).
College is registered - Reg.No.793004
4. Whether the College is having a Governing Body duly constituted for the purpose: College has a duly constituted
Governing Body, Annexure '2'
5. Any special features of the Governing Body constitution which deserve special attention for the grant of affiliation :

Physical and Financial Resources.

6. Whether the College is already located at its own site:

Yes. The college is housed in the existing buildings of the Shillong Muslim Union situated Fio-Gah Premises at Laban, Shillong. The building has been handed over to the college as per the Resolution No.1 of the Union Meeting held on 3 April 1994 (copy of the Minutes attached).

- (b) Give below a brief report on the suitability of the site and plan after inspection: Annexure 3-6

The site is ideal, the building is adequate for conducting classes, and steps have been taken to construct a new building for the college as assisted by the Principal/President of Governing Body.

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

P:U:LEVEL.

DEGREE LEVEL

Initial Affiliation for B.A
(Gener.1) Courses.

Annexure '7'

8. Students seeking Admission :

P.U.Arts : 36 B.A: 3

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

Books 521 Annexure '8'
Magazines 04 and New Papers 02

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

Not adequate.

10(a) Reading room facilities.

Annexure (9'

Size 30 x 15 ft. One Adequate.

(b) Classroom

Size: 20' x 12' 28" x 20 ft Adequate.
seven

(c) Students' Common Room

Size: 17½' x 15' ft. one. Adequate.

(d) Teachers' Common Room

Size: 20' x 10' ft. one. Adequate.

(e) Principal's Room 20' x 12½'
one. &c

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 SPECILIZATION
1.	Dr.Rina Dhar(Principal)	Pol.Science.	Ph.D, M.A(Pol.Sc) 100%
2.	Mrs.Sunita Lane Jyoma	Pol.Science	M.A(Pol.Sc) 55%
3.	Dr.K.Bhattacharjee	History(P/time)	Ph.D, M.A.(History)
4.	Mrs.N.Lanare	History	M.A(History)64.4%
5.	Mrs.Swapna Naida	Education	MpPhil.M.a(Edu)64.4%
5.	Mrs.Moursumi Choudhury	Education(P/time)	M.A(Education)56%
7.	Mrs.Soma Bhattacharjee	Economics	M.A(Economics)56%
8.	Ms.Neena Das	Philosophy(P/time)	M.A(Philosophy)56.81%
9.	Ms.S.B.Bhattacharjee	English	M.A(English) 52%
10.	Mr.C.Bose	English(Part time)	M.S(English) 57%
11.	Ms.N.Biswas	Bengali	M.A. 46%
12.	Ms.H.Lalriliani	Mizo(Part time)	M.S(Education)58.8%

(List attached)

NOTES: The University Regulation stipulates the following :-

<u>Level/Class</u>	<u>Minimum No.of Teachers in each subject.</u>
a) P.U. Non-Lab	One
b) P.U. Laboratory	Two
c) Degree Non-laboratory (Pass) P.U. Non-Laboratory	Two in all subjects & 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 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.

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

The teaching strength is adequate with the present enrolment but need to be strengthened.

14. Whether the college is maintaining a fixed term deposit of Rs.1,00,000/- in any bank : YES.
If yes, the fixed Deposit Certified - Annexure (11-13)
No. D 1019 dated 24.08.94.
For Rs. Two lakhs in the Meghalaya Co-operative Apex Bank Ltd. Shillong (mentioned the name of the Bank and Branch).

15. Any other observation(s) :-

16. RECOMMENDATIONS :

NOTES: 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.

The Inspection was conducted on 31st.8.95 and the observations of the Inspection team are stated below :

- i) College has got adequate infrastructural facilities such as buildings, class rooms etc.
- ii) Library needs to be strengthened with additional books in the disciplines offered.
- iii) The financial position appears adequate as the college has enough working funds to begin with.
- iv) The number of teachers in each discipline need to be strengthened by appointing regular teachers.
- v) The enrolment of students in Degree class is very low and this factor may be considered while granting affiliation to the college.

The affiliation question may be considered in the light of the above observations and Provisional Affiliation is recommended initially for a period of one year provided that there is an actual increase in the enrolment of students in the Degree course of the college.

Sd/-R.Kharpor.

Sd/-illegible.
31/8/95.

Sd/-illegible.

Sd/-Dr.M.A.Sudhir.
31/8/95.

3:5(19)

(SEAL)

ANNEXURE I

CERTIFICATE OF REGISTRATION OF SOCIETIES
ACT 7 OF 1990.

NO SR/UC-283/94 OF 1994

No. _____ of 19 19

I hereby certify that UMSHYRPI COLLEGE LABAN
SHILLONG 793004, MEGHALAYA, has this day been registered
under the Meghalaya Societies Registration Act, 7 of 1990.

Given under my hand at SHILLONG, this TWENTY NINTH day of
THE MONTH OF JUNE One thousand nine hundred and
NINTY FOUR Registration fee of Rs. 250/- PAID.

(Sd/- A.K.R.JY)

REGISTRAR OF SOCIETIES, MEGHALAYA
SHILLONG.

Sd/-illegible.

MLA

Member Meghalaya Legislative
Assembly. (SEAL)

LIST OF THE MEMBERS OF THE GOVERNING BODY OF
UMSHYRPI COLLEGE, LABAN, SHILLONG - 4.

ANNEXURE-II.

Sl.No.	Name.	Address.
1.	Shri.C.Z.Ghafoor, IPS(Retd), President.	Lawn House, 14-Cantt, Shillong.
2.	Shri.Sayedullah Nongrum, MLA	Lumparing, Opp. Rynjah House Shillong-4
3.	Shri.Anthony Lyngdoh, MLA	Laban, Shillong-4
4.	Shri.Ramen Das, Professor, Lady Keane College.	Lady Keane College, Shillong.
5.	Shri.A.M.Kharbitnai, Deputy Secretary to the Govt. of Meghalaya	Sankardew college road, Shillong.
6.	Shri.S. M.Ali	Green Field cottage, Lachumire, Shillong.
7.	Shri.G.Hannan	Lachumire, Shillong.
8.	Shri.S.A.Ali, Advocate	Lower Lumparing, Shillong.
9.	Shri.A.Hussain.	'Rock Wood' cottage, Shillong.
10.	Shri.Aga Ahmed, Professor, St. Edmunds College	Sayed Villa compound Bishnupur, Shillong.
11.	Shri.Atual Haque	Laban, Shillong-4.
12.	Prof.Imdad Hussain	Deptt. of History, NEHU, Complex:
13.	Sri.S.N.Lanare, Representative from staff.	Laban, Shillong-4.
14.	Dr (Mrs)Rina Dhar, Principal cum Secretary.	C/O Dr.H.Dhar, Arbutnot Road, Shillong-793 071.

CONSTITUTION FOR THE GOVERNANCE
OF UMSHYRPI COLLEGE.

(APPENDIX 2)

PREAMBLE

Whereas it was resolved at a public meeting held in Shillong on 13th December 1993 that it is expedient to establish a new college to meet the growing needs of collegiate education in the city and in particular in lower Laban and whereas in pursuance of resolution of the Shillong Muslim Union adopted at its meeting held in Shillong on 26th March/94 to sponsor and establish the proposed college by the name and style of 'UMSHYRPI COLLEGE' with its registered office in Shillong, in the district of East Khasi Hills of Meghalaya offering such courses and programmes as it may deem fit to give effect to these resolutions we do hereby adopt this CONSTITUTION on this 19th June/1994.

1. SHORT TITLE AND COMMENCEMENT

This constitution shall be called 'CONSTITUTION FOR THE GOVERNANCE OF UMSHYRPI COLLEGE' in short, 'CONSTITUTION OF UMSHYRPI COLLEGE', and shall be deemed to have come into force from the date of its adoption.

2. DEFINITIONS.

In this Constitution and in the Rules and Regulations and Byelaws made thereunder unless the context otherwise requires:-

a) 'Objectives' means the objectives specified in Section 3 of the Constitution.

'College' means the Unshyrpi College.

'Constitution' means the Constitution of Unshyrpi College

'Employees' means any employee of Unshyrpi College

'Governing Body' Government means the Govt. of Meghalaya the Governing Body of Unshyrpi College.

'Member' means a member of the Governing Body.

'President' means the President of the Governing Body of Unshyrpi College.

'Ordinances' means the ordinances of the North Eastern Hill University.

'Secretary' means the Secretary of Governing Body.

'Status' means the status of the North Eastern Hill University

'Teachers' means teachers of the college.

'Vice President' means the Vice President of the Governing Body.
 'Shillong Muslim Union' means the Shillong Muslim Union established in 1903 H.W. in Shillong.

3. OBJECTIVES

The objectives of the college shall be to provide opportunities to students to pursue a liberal collegiate education with the fullest scope through appropriate programmes curriculars as well as co-curricular, for their intellectual, academic and cultural development, in particular their moral values and productive skills with a view to the formation of men and women of integrity, broad in their views and outlook, concerned with and responsive to the aspirations of the state and the nation capable of leadership towards enlightenment and progress.

4. GOVERNING BODY

The management and control of the college shall vest in the Governing Body and to this end shall have the following powers and functions namely :-

a) To review from time to time the broad policies and programmes of the college and take measures for its improvement and development.

b) To create teaching positions, establish academic department and appoint needs thereof in accordance with the statutes ordinances and Regulations framed there under.

c) To frame Bylaws, Regulations and Rules and lay down the procedure for the selection and appointment of teachers conditions of their service including the emoluments, provident fund etc, Principal Governing their seniority, the manner of termination service and disciplinary action.

d) To exercise general supervision over the funds of the College and lay down the financial policy.

e) To consider and pass resolution on the annual report and accounts of the college, and the audit report on such accounts.

f) To regulate admission of students and determine the fees and other charges payable by them.

g) To regulate and enforce discipline among employees and teachers of the College and take such disciplinary measures in this regard as it may deem necessary.

- 3 -

h) To take such other steps as it may deem necessary for the attainment of the objectives of the College.

5:1 The Governing Body shall be composed of the following :-

President : 1 (one)

Secretary: 1 (One)

Members: 2 (two) representatives of the teachers of the college elected from among themselves.

2 (two) members representing the sponsoring authority the Shillong Muslim Union to be nominated by the President of the said Union.

2 (two) members representing the University.

6 (six) other members nominated by the Governing Body.

5:2 The term of the Governing Body shall be for a period of three years from the date of its assuming office.

Provided that in emergent or extra ordinary situations the term may be extended for a period of six months at a time, but not exceeding one year or two extended terms.

5:3 The term of office of the President Vice President, member Secretary and Members shall be coterminous with the term of the Governing Body but they shall be eligible for appointment in the re-constituted Governing Body.

Notwithstanding that is contained in the above, the term of the first Governing Body shall be one year or when the college is admitted to the provelages of the University which ever is earlier.

5:4 Any vacancy in the Governing Body caused by death resignation or other wise shall be filled in by nomination election or appointment as the Governing Body may decided and shall hold office for the residual period of the term.

5:5 The Presiden , Vice-President, Secretary and members shall have the right to resign their office without assigning any reason thereof.

Provided that such resignation shall become effective from the date of its acceptance by the Governing Body.

5:6 Any member who fails to attend three consecutive meeting of the Governing Body without sufficient and valid reasons may be removed by a resolution adopted by 2/3 of the members present and voting at a meeting of the Governing Body.

5:7 Notwithstanding what is contained above the President, Vice-President, Secretary and members shall be, if so, fact deemed to have vacated office of :

a) he/she is found to be of the sound mind by a court of competent Jurisdiction, or

b) he/she is adjudged as insolvent, or

c) he/she is convicted by a Court of Law of any offence involving moral turpitude and sentenced in respect thereof to imprisonment or in the opinion of the Governing Body the continuance in office of such members may for this and other reasons expose the College to dispute or cause embarrassment in the eyes of the public.

5:8 The Governing Body shall meet as often as it may be necessary and not less than twice in an academic year the quorum for all meetings shall 1/3 of the members.

5:9 The rules of conduct of meeting shall be as laid down by the Governing Body.

6:0 PRESIDENT.

The President shall be the Executive head of the Governing Body and shall be responsible for the General Supervision of the affairs of the College.

6:1 The powers functions and of the President shall be as follows namely :-

f) To take disciplinary action on any of all teachers of the College and to suspend them pending enquiry to administer warning to them or impose on them the penalty of censure or the withholding of increment.

Provided that no such penalty shall be imposed unless the person concerned has been given a reasonable opportunity of showing cause against the action proposed to be taken in regard to him.

a) To convene and preside over all meetings of the Governing Body and take such action as he may deem necessary in this regard.

b) To see that this Constitution and the Bye-Laws Rules and Regulations framed there under are duly observed.

c) To keep a constant watch on the State of the cash and Bank balance and on the state of investment.

d) To call for explanation for unauthorised expenditure and for other financial irregularities and suggest disciplinary action against persons at fault.

-5-

e) To call for any information or return that he may consider necessary for the performance of his duties.

6:2 VICE-PRESIDENT

The Governing Body may if it deemed necessary appoint a Vice President from among the members to assist the President in such matters as may be specified by the President in this behalf and shall exercise such powers and perform such functions as may be assigned or delegated to him.

6:3 SECRETARY

The duties of the Secretary shall be as follows :-

a) To issue all notices concerning meetings of the Governing Body or of any Committee/Sub Committee appointed by it and keep minutes of such meetings.

b) To conduct the official correspondence of the Governing Body.

c) To perform such other duties as may be specified by the Governing Body.

7. PRINCIPAL

Subject to the general supervision and control of the Governing Body the Principal shall be responsible for the administration of the College.

7:1

a) It shall be the duty of the Principal to maintain the records, the common seal and such other property of the College as the Governing Body shall commit to his charge.

b) Conduct the official correspondence of the College.

c) Organise and regulates the teaching and arrange for and superintend examination.

d) Take such steps as he may deem necessary for maintenance of the standards of teaching and the conduct of co-curricular and other activities.

e) Prepare the Annual Financial statement maintain cash-Book, record/entries of receipt and expenditure.

f) Maintain discipline and order in the college.

7:2 The Principal shall be ex-officio Secretary of the Governing Body and perform all duties as specified in this behalf.

Provided that when the Principal is not ex-officio Secretary he shall be ex-officio Joint Secretary of the Governing Body and perform all duties as specified in this behalf.

- 6 -

7:3 The Principal shall the following powers namely:-

a) To take disciplinary action in relation to students including imposition of fine, debarring from appearing in any examination from any cultural/Sports or any events/functions organised by the college and the removal from the rolls of the college the name of any students.

b) To take disciplinary action against all employees and to suspend, administer warning or to impose on them the penalty of censure or withholding of pay or increment.

c) Provided, that no such penalty shall be imposed unless the person concerned has been given a reasonable opportunity of showing cause against the action proposed to be taken in regard to him.

d) To administer warning to any teacher of the College and recommend to the Governing Body such disciplinary action as it may deem fit.

e) To take such action as necessary for the due discharge of his duties.

8:1 COLLEGE FUND

The College shall constitute and maintain a college fund the minimum corpus of which shall be such sums as may be decided upon by the Governing Body.

8:2 The minimum corpus as decided shall not be reduced except in unavoidable circumstances, and in such a case the reasons to that effect shall be recorded and passed by the Governing Body.

8:3 These shall be credited to the college fund:

a) Any grants or grants-in-aid from the Shillong Muslim Union/Government or any other agency/organisation.

b) Income according to the College by way of fees, charges etc.

c) Any other sum by way of contribution, subscriptions, donations, endowments, gifts etc made to the college.

8:4 The Governing Body shall lay down the rules for the application, operation and maintenance of the College fund, including the preparation of estimates, consideration of the accounts and their audit.

9: Protection of Action taken in good faith

No suit or other legal proceedings shall be against the President, the Secretary or member of the Governing Body & the Principal for anything which is done or intended to be done in pursuance of any of the provisions of its Constitution or the By-Laws framed thereunder.

contd. #/-

10: POWERS TO REMOVE DIFFICULTIES

If any difficulties arises in giving effect to the provisions of this Constitution the Governing Body may, by a resolution adopted at a meeting by 2/3 of the members present and voting take such action not inconsistent with the provisions of the Constitution, as appear to it to be necessary or expedient for removing the difficulties.

11: The College and the Governing Body shall have a common seal which shall be kept under the custody of the Secretary. The Seal shall be affixed to such instruments, deeds and documents as may be required from time to time.

12: WINDING UP OR DISSOLUTION OF THE COLLEGE

Winding up or dissolution of the College not functioning or whose its functioning has been abandoned or caused to be abandoned the Governing Body shall by a resolution adopted by 3/4 of the members at a specially convened meeting declare the college wound up and dissolved.

Provided that all necessary steps shall be taken for the disposal and settlement of the assets and liabilities in accordance with the decision of the Governing Body.

If upon the dissolution or winding up of the college there shall remain after due satisfaction of liabilities and claims against the college, any properties or assets whatever, the same shall be paid or handed over to the Shillong Muslim Union.

Provided that such disposal shall ordinarily be carried out by transfer to the said Muslim Union or the assets and properties including the Bank and cash balances.

Provided further that disposal so carried in accordance with these provisions shall be duly recorded and proceedings kept in safe custody by such person or persons as may be assigned by the Governing Body.

13: INTERPRETATION :

Where any doubt arises as to the interpretation of any provisions of this constitution, it shall be referred to the Governing Body for decision which interpretation shall be final.

Sd/-IMDAD HUSSAIN

Sd/-illegible.

Sd/-Illegible

Sd/-illegible.

President
Governing Body
Umshyrpi College,
Shillong.

The property of the land and buildings at Eid-Gah complex belongs to the Shillong Muslim Union since 1963 patta copy is enclosed. The buildings has been handedover to Umshyrpi College for running the classes w.e.f. 1993, by the Shillong Muslim Union who are the sponsors of the college. In all seven class rooms are with the college plus library, office toilets etc.

A plan is in the offing to build a four storey building. Two storey will be entirely for the college, one storey for a hall with a library one storey will be used according to the need in future.

SEAL

President
Governing Body
Umshyrpi College
Shillong

.....

PROCEEDINGS OF THE EXECUTIVE COMMITTEE OF THE SHILLONG MUSLIM UNION SPECIAL MEETING HELD ON 10TH. APRIL, 1994 AT 3-00 P.M. IN THE OFFICE ROOM OF THE SMU AT EID-GAH, LABAN, SHILLONG-4. TO DISCUSS ABOUT THE AGENDA ITEM NO 1 OF THE SMU EXECUTIVE COMMITTEE EMERGENT MEETING WAS HELD ON 3RD APRIL, 1994:

.....

The following members were present in the meeting:

- | | |
|-------------------------------------|-------------------------------|
| 1. Janab. C.Z. Ghafoor, IPS (Retd.) | President, SMU |
| 2. " A.M. Kharbathai | Vice President |
| 3. " Farid Ahmed | Treasurer |
| 4. " Ahmed Hossain | Mutawalli Police Bazar Mosque |
| 5. " A.W. Nongrum | Executive Member |
| 6. " Nazimuddin Ahmed | Secretary, Laitumkhrah Mosque |
| 7. " Sayeedullah Nongrum, MLA | General Secretary, SMU |

The following members were absent :

- | | |
|----------------------------|---------------------------------|
| 1. Janab. Md. Zakaria | Asst. Genl. Secy. SMU |
| 2. " Farid Ahmed | Executive Member |
| 3. " Khurshed Thabah | Co-Opted Asstt. Genl. Secretary |
| 4. " Zamir Hussain Nongbri | Secy., Laban Mosque |
| 5. " Md. Shakir | Mutawalli, Garikhana Mosque |

The Meeting started as soon as the qurrom was formed and discussed the following :-

Agenda Item No.1 Minutes of the meeting of the Executive Committee Shillong Muslim Union held on 3-4-94, Agenda Item No. 1., : Regarding starting of College:

The General Secretary, Shillong Muslim Union read out the proceedings of the Executive Committee of SMU meeting held on 3-4-95 and confirmed in the meeting.

Janab. C.Z. Ghafoor, pointed out that as the resolution was not very clear regarding the buildings where the College has established, he pointed out that clear resolution should be adopted, regarding handing over the building to the UMSHYRPI COLLEGE. The meeting after threadbare discussion resolved the following :-

"The existing buildings of the Shillong Muslim Union situated at Eid-Gah premises at Laban, Shillong-4, be handed over formally to the Governing Body of the Umshyrpi College, to run classes uninterrupted.

Thereafter the meeting ended with a vote of thanks by the General Secretary, Shillong Muslim Union to the Chair and the members present.

S E A L

C.Z. Ghafoor, IPS (Retd.)
President,
Shillong Muslim Union
Shillong - 793004
Cont.....2..

Memo. No. SMU/SN/92/114/1009-1022, Dated the 16th April, 1994

Copy forwarded for information and necessary action to :-

1. The Vice President of SMU (by name)
2. The General Secretary of SMU
3. The Treasurer, SMU
4. The Asstt. General Secretaries SMU (By name)
5. All Executive Members, SMU (By Name)
6. The Secretaries/Mutawallies of Laban, Laitumkhrah,
Police Bazar and Garikhana Mosque.

S E A L

(C.Z. Ghafoor, IPS (Retd.)
President,
Shillong Muslim Union
Shillong.

.....

PROCEEDING OF THE EMERGENT MEETING OF THE EXECUTIVE COMMITTEE OF THE SHILLONG MUSLIM UNION HELD ON 3RD. APRIL, 1994 AT 3 P.M. IN THE OFFICE ROOM OF THE UNION AT EID-GAH, LABAN, SHILLONG-4:

The following members were present in the meeting :

1. Janab. C.Z. Ghafoor, IPS (Retd.)	President
2. " A.M. Kharbathai	Vice President
3. " Farid Ahmed	Treasurer
4. " Khurshad Thabah	Co-Opted Asstt. Genl. Secy.
5. " A.W. Nongrum	Executive Member
6. " Farid Ahmed	Executive Member
7. " Sayeedullah Nongrum, MIA	General Secretary

The following members were absent in the meeting :

1. Janab. Md. Zakaria	Asstt. Genl. Secy.
2. " Ahmed Hossain	Mutawalli, Police Bazar Mosque
3. " Nazimuddin Ahmed	Secretary, Laitumkhrah Mosque
4. " Zamir Hussain Nongbri	Secretary, Laban Mosque
5. " Md. Shakir	Mutawalli, Garikhana Mosque

The meeting started as soon as the qorrom was formed and discussed the following :-

Agenda Item No.1 Minutes of the meeting of the invitees held on 26-3-94 in the residence of the Jb. C.Z. Ghafoor, President, Shillong Muslim Union : Regarding starting of the College :

The General Secretary, read out minutes of the meeting held on 26-3-94. After threadbare discussion the following decision were made :

(a) The Executive Committee approved the establishment of the proposed College in the S.T.O. Building at Eid-Gah Premises, Laban, Shillong-4 complex from ensuing academic year 1994 and to name it as 'UMSHYRPI COLLEGE'.

(b) The meeting also authorised the General Secretary, Shillong Muslim Union to take immediate steps to get the rooms/houses in Eid-Gah complex vacated by the tenants concerned.

(c) The name of the following members proposed for constitution of the first Governing Body of the 'Umshyrpi College' for a term of 1(one) year was approved in the meeting.

Jb. C.Z. Ghafoor, IPS (Retd.).	President
Jb. S.A. Ali	Member
Jb. Sajjad Ali	Member
Jb. A.M. Kharbathai	Member
Jb. G. Hannan	Member
Jb. Ahmed Hossain	Member
Jb. Sayeedullah Nongrum, MLA	Member
Jb. Prof. Aga Ahmed	Member
Jb. Prof. Imdad Hussain	Member

(d) The offer extended to Begum Fatima Imdad Hussain Senior Lecturer in English Women's College Shillong by the President and the General Secretary, Shillong Muslim Union was approved in the meeting.

(e) The meeting authorised the Governing Body of the College to induct additional co-opted members if and when required and to appoint lecturer office staff and fix their kinds etc. The meeting also agreed to allow Dr. Imdad Hussain to discharge the duties of the Secretary of the Governing Body till the appointment of the Principal as assumption of charges.

(f) The Executive Committee of the Shillong Muslim Union agreed to pay an Adhoc grant of Rs.10,000/- (Ten Thousand) only per month to the Governing Body till the College is affiliated by Govt. so as to meet the salaries of Principal, Lecturer, Staff and other expenses of the College and to pay an advance of Rs.20,000/- (Twenty Thousand) only to meet the urgent requirement for purchase of furniture/books, stationery etc. for the time being and authorised the Governing Body to open a new separate Bank A/C, for joint operation and to maintain all accounts books etc of the College separately.

Thereafter the meeting ended with a vote of thanks to the Chair.

S E A L

(C.Z. Ghafoor, IPS (Retd.)
President
Shillong Muslim Union
Shillong.

Memo.No.SMU/SN/92/114/801-813,

Dtd. 5th April, 1994.

Copy forwarded for information to :-

1. The Vice President, SMU (By Name)
2. The General Secretary, SMU (By Name)
3. The Treasurer, SMU (By Name)
4. The Asstt. General Secretary, SMU (By Name)
5. All Executive Members of the SMU (By Name)
6. The Secretaries/Mutawallies of the Laban, Laitumkhras, Police Bazar and Garikhana Mosque.

S E A L

(C.Z. Ghafoor, IPS (Retd.)
President, SMU.

.....

UMSHYRPI COLLEGE LIBRARYNo. of Books

1. English.....	112
2. Political Science.....	72
3. History.....	88
4. Economics.....	70
5. Logic.....	33
6. Education.....	41
7. Sociology.....	27
8. Geography.....	10
9. Bengali.....	28
10. Mizo, Khasi and Garo.....	20
11. Misceleneous.....	20

 Total : :::::::::::::::::::: 521

News Papers..... The Shillong Times and
The Telegraph

Magazines.....

1. India Today...5 Nos.
2. Sunday.....11 Nos
3. Panorama.....1 No.
4. Sun.....3 Nos.

Principal
Umshyrpi College
Shillong

.....

LIST OF ROOMS OF UMSHYRPI COLLEGE
AND THEIR SIZES

Sl. No.	Rooms for use	Number of Rooms	Size	
			Length	Breadth
1	Principal	1(One)	20 ft	12 1/2 ft
2	Library	1(One)	30 ft	15 ft
3	Teachers Common Room	1(One)	20 ft	10 ft
4	Student's Common Room	1(One)	17 $\frac{1}{2}$ ft	15 ft
5	CLASS ROOMS :-			
	(i) XI Class	1(One)	42ft	17 $\frac{1}{2}$ ft
	(ii) P.U. IInd Year	1(One)	33ft	15 ft
	(iii) B.A. Ist Year	1(One)	28 ft	20 ft
	(iv) B.A. IInd Year	1(One)	28 ft	20 ft
	(v) M.I.L/Alt	3(Three)	20 ft	12 ft (i)
			20 ft	12 ft (ii)
			18 ft	10 ft (iii)
6	<u>BATH ROOMS</u> :-	3(Three)	10 ft	8 ft (each)

President
Governing Body
Umshyrpi College
Shillong.

.....

LIST OF THE TEACHERS OF THE UMSHYRPI COLLEGE.

ANNEXURE '10'

Sl. No.	NAME OF THE TEACHERS	DESIGNATION	DEPARTMENT	REMARKS
1.	Dr (Mrs) Rina Dhar, MA PhdD H. B-II, 1968, BA (Hons) II. 1971 M. A. II, 1973, PhD-1984	Principal Full time	Principal takes the Pol. Science Classes.	a) Ex. Lecturer in the deptt. of Pol. Science, Assensul Girl's College (W.B) b) Ex. Lecturer Deptt. of Pol. Science, Delhi Public College, New Delhi. c) Served as the Senior Lecturer, Deptt. of Pol. Sc. Umsnyrpi College since 1st Aug. 1994.
2.	Mrs. Sumit Leane Zyrwa, MA H. S. L. C. II, 1981, P. U. II 1983 BA (Hons) II, 1986, MA 1988 55%	Lecturer Full time	Pol. Science.	
3.	Dr. Karana Kr. Shettagonerje, MA Phd. (Part via) Retd. Lecturer of St. Edmund's College.	Lecturer Part time	History	Retired as the head of deptt. from Edmund's college
4.	Mr. S. N. Lanere, MA, HSLC II 1984 P. U. II. 1987. B. A. Hons. 1990, II MA 1989 (64.4%)	Lecturer Full time.	History	
5.	Mrs. Swapna Nandee, MA M. Phil HSLC-I, 1982. IA-II, 1984, B. A. (Hons) 1986 - MA, MA 1989 (64.4%)	Lecturer Full time	Education	
6.	Miss Rousumi Choudhury, MA, HSLC II, 1986, PU-II, 1984, BA (Hons) II, 1981, MA II (56%)	Lecturer part time	Education	Working in Raid Laban College, Shillong.

1	2	3	4
7. Mrs. Soma Bhattacharjee, MA, HSLC-I 1986-HSSLC-II, 1967-BA (Hons) 1990; MA-II (56%) 1994.	Lecturer Full time	Economics.	
8. Miss Neena Das, MA, HSLC II 1985 PU II 1987, BA (hons) 1990, MA II 1993- 56.8%	Lecturer part time.	Philosophy	Teaching in the Institute of Computer Education, Shillong.
9. Mrs. Swarnali Biswas Bhattacharjee MA HSLC-I, 1985, HSSLC-I 1967-BA (Hons) 1990 MA II 52% 1994.	Lecturer full time.	English	Ex-lecturer in Heilakandi college.
10. Mr. Chandrajit Bose, MA HSLC-II 1985, HSSLC-II 1987, BA (Hons) 1990, MA II 1993 (57%)	Lecturer part time.	English	
11. Miss. Nirmita Biswas, MA HSLC-III 1959 III BA 1965, MA 1971(46%)	Lecturer full time	Bengali	Ex lecturer of Lady Keane college.
12. Mrs. H. Lalrinliani, MA HSLC III 1993, PU II 1975, BA II 1978, MA 58.8% 1984	Lecturer part time	Mizo	Serving as a part time lecturer in Women's College and Murning Star College.

SEAL

39/-Dr (Mrs) Rina Dhar,
Principal
Umshyrpi College,
Shillong.

THE MEGHALAYA CD-OP. APEX BANK LTD,
(Sponsored by the Government of Meghalaya)
H.Q. : SHILLONG-793001 (MEGHALAYA)

Ref No. _____

Dated. 24th August 1994.

Certified that UMSHYRPI COLLEGE LABAN, Shillong is maintaining Fixed Deposit Account No. D.1019 for Rupees Two Lakhs being Term Deposit for 3(three) years to be matured on 24.08.97. The College is also maintaining S/B Account No. J.1198 and C/D Account No. D.368 with our Branch as on date.

SEAL

Sd/-Illegible. 24/8/94
Branch Manager,

M.C.A.B.Ltd., Shillong Main Branch,
Shillong - 793001.

Sd/-illegible.
President
Governing Body
Umshyrpi College
Shillong.

%%%%%

THE MEGHALAYA
 CO-OPERATIVE APEX BANK LTD.
 Sponsored, financed & controlled by
 the Government of Meghalaya.
HEAD OFFICE
 SHILLONG, MEGHALAYA

All Official Correspondence should be
 Addressed to Bank and not to any Individual.

REF:.....

DATE.30.8.95.

Certified that Umshyrpi College Labab,
 Shillong is maintaining a Fixed Account No.0.1173 being
 Short Term Deposit for Rs.15,000/- (Rupees fifteen thousand)
 only with our Branch.

So/-illegible. 30/8/95.
 Branch Manager,
 Meghalaya Co-Op. Apex Bank Ltd.,
 (Shillong Main Branch)
 Kachari Road, Shillong-793001.

So/-illegible.
 President
 Governing Body,
 Umshyrpi College.

STATEMENT OF RECEIPT AND EXPENDITURE OF UMSHYPRI COLLEGE FROM THE OPENING OF THE
COLLEGE UPTO 31ST AUGUST - 1995.

(ANNEXURE -13)

RECEIPT	EXPENDITURE
By Shillung Muslim Union. Rs.2,00,000-00	To Salary of Principal Rs.25,500.00
By Shillung Muslim Union, monthly grant. Rs.1,40,000-00	To Honorarium of Teachers. Rs.61,622.50
By Public Donation Rs. 28,500-00	To Honorarium of Staff Rs.20,930.00
By Admission fees of PU I & II yr. Rs. 52,745.00	To Printing & Publicity Exp: Rs. 8,285.00
By Admission fees of B.1 I & II yr. Rs. 7,715.00	To Postage & Telegraph exp. Rs. 30.00
By Application forms & Fee Books Rs. 1,650.00	To Furniture & Fixture Exp. Rs.45,390.00
By Identity cards. Rs. 1,210.00	To Library Books exp. Rs.14,463.00.
By Bank Interest from SB & CD A/C Rs. 546.80.	To Stationary & Office exp. Rs. 4,280.00.
	To Registration & Affiliation Fees. Rs. 6,672.00.
	To opening of Bank A/C Rs. 600.00
	To News papers/Magazine Exp. Rs. 719.10.
	To Sports/Garms etc. Exp. Rs. 460.00
	To Hospitality Exp. Rs. 660.00.
	To Bank Commission exp. Rs. 20.00.
	To Misc. Exp. Rs. 273.00.
	To closing balance:- CASH AT BANK :-
	1. Fixed deposit A/C No.0.1019 2,00,000.00
	2. do do No.0.1173- 15,000.00
	3. SB A/C No.0.1198 Rs. 16,792.00
	4. CD, A/C, No.0.368. Rs. 6,951.00
	5. Cash in hand :- Rs. 1,719.30
TOTAL Rs.4,30,366.80.	TOTAL Rs.4,30,366.80.

Sd/-illegible.
President
Governing Body
Umshyrpi College

NORTH EASTERN HILL UNIVERSITY
BIJNI COMPLEX: BHAGYAKUL
SHILLONG-793003 (MEGHALAYA)

PROF. M.S. SANGMA,
CHIEF PROCTOR.

NO.C.D.616
October 18, 1995
NO: NEHU:CP: PERS : 95

SUB: INSPECTION OF NONGTALANG COLLEGE.

Dear Prof (Mrs) Giri,

I am forwarding herewith the report of the
Inspection Committee of the aforesaid college for your
information and necessary action.

Enclo: as above.

Yours Sincerely,

Sd/- M.S. Sangma 18/10/95

To

Prof (Mrs) Helen Giri,
Director, CDC,
NEHU, Bijnai Complex,
Shillong.

.....

NORTH EASTERN HILL UNIVERSITY
SHILLONG.

INITIAL AFFILIATION.

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

1. Name of the College: NONGTALANG COLLEGE, P.O. NONGTALANG
DIST. JAINTHIA HILLS: MEGHALAYA
2. Its sponsoring authority: NONGTALANG VILLAGE DURBAR.
3. The Legal Status of the College (whether college is a registered body under Societies Registration Act): Registered-
No. SR/MC-241/89 of 1989
4. Whether the college is having a Governing Body duly constituted for the purpose:
Yes. A copy attached
(attach a copy of the constitution)
5. Any special features of the Governing Body Constitution which deserve special attention for the grant of affiliation: NO.

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: YES,
2 hectares of land have been given by the village Durbar,
(copy enclosed)
(b) Give below a brief report on the suitability of the site
and plan after inspection:

It is a suitable site located at the Central of the village
with ground being level.

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

P. II. LEVEL.

DEGREE LEVEL

English, Khasi (MIL) Khasi (Elect)
History, Education, Pol. Science,
Economics, Philosophy & Foundation
Course.

8. Students seeking Admission :

P.U.ARTS _____ B.A.26 (twenty six)
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 :

Reasonable adequate.

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

NO,

10(a) Reading room facilities.

size 14' x 12' Adequate

(b) Classrooms

size 12' x 12' Adequate

(c) Students' common room

Size one - 10' x 10' Adequate

(d) Teachers' common room

size one - 14' x 12' Adequate.

11. Whether the college has adequate equipment/laboratory facilities for practical classes : Does not arise.

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

Name	Lecturer in	P.G. Degree with grade or specialization.
1. Prof. S. Bhattacheryya Principal	-History- -English-	58% 56%
2. Sri. A. K. Adnikari	P. Science Sociology	54% 52%
3. Sri. Tapon Baruah	Economics	67.5%
4. Sri. Abdul K. Mazumdar	English	46.25%
5. Sri. Stanley Sohlang	Philosophy	Results awaited.
6. P. M. Tariang	Anthropology	53%
7. Sri. A. Bhattacharyya	-History-	53.6%
8. Smti. Meri Looka Iongwai	-Khasi-	Result awaited.
9. Smti. Sipra Basu	Education	52%

NOTE: The University Regulation stipulates the following :-

<u>Level/Class</u>	<u>Minimum No. of Teachers in each subject.</u>
a) P.U. Non-Lab	One
b) P.U. Laboratory	Two
c) Degree Non-Laboratory (Pass) + P.U. non-Laboratory	Two in all subjects & 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 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.

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

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

Yes/ Two lakhs (copy enclosed)

If yes, the fixed deposit certificate -

No. KBT-041066 dt. 04-8-95

for Rs. two lakhs

in the Ka Bank Nonkyndong Ri Khasi Jaintia, Nonutalang Branch
(mention the name of the bank and branch.)

15. Any other observation(s) : NIL

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.

The College does not have the required number of Lecturers, Some of the Lecturers also do not possess the minimum percentage of marks in %A.

But the Inspection Team recommends that the college be granted Provisional Affiliation for Three Year Degree (Pass) for a period of three years after which, and the Inspection Team may be sent to see if the College has fulfilled the minimum requirements of affiliation. This has been recommended as the college is located at the interior place.

(Sd/-Dr. R. P. Sharma)
18/10/95

Sd/-Dr. L. S. Gassah.
18/10/95

(Sd/- S. C. Daniel)

Sd/-Prof. M. S. Sangma
18/10/95.

CERTIFICATE

This is to certify that the Village Durbar of the Nongtalang Village, Jaintia Hills, Meghalaya, is pleased to donate 3 hectares of land for the establishment of Nongtalang College. The above mentioned land has been donated free of cost and the land would remain under the authority of the college absolutely. There would be no claim over the plot of land donated to the College in future. The College can claim it as its property as long as it exists.

The boundaries of the said land are as follows.

NORTH : - P.W.D. ROAD .
EAST:-. COMMUNITY HALL, NONGTALANG .
SOUTH:- PUBLIC PATH
WEST :-GOVERNMENT HIGH SCHOOL COMPOUND.

Dated, Nongtalang,
The 21st July, 1990.

Sd/-
Headman
Nongtalang Village Durbar,
Nongtalang.

SEALED

Certified to be true copy

Sd/-S. Bhattacharyya
17.10.95.

Principal,
Nongtalang College.

3:5 (47)

ANNEXURE 'D'

KA. BANK NONGKYNDONG RI KHASI JAINTIA
KHASI JAINTIA RURAL BANK
(Sponsored by : STATE BANK OF INDIA)
HEAD OFFICE: POLIC BAZAR
SHILLONG-793001.

Nongtalang

No

Date 18.9.95.

TO WHOM IT MAY CONCERN

Certified that the Nongtalang College, Nongtalang has a fixed Term Deposit of Rs.2,00,000.00(Rupees two lakhs only)lying with the Nongtalang Branch of Ka Bank Nongkyndong Ri Khasi Jaintia vide Receipt No.KJT.041066 dt.04-8-95 for Rs.1,16,100/- and receipt No.KJT.041074 dt.31.8.95 for Rs.83,900/- deposited for Sixty Months (5 years).

So/- Illegible.

Branch Manager,
Ka Bank Nongkyndong Ri Khasi
Jaintia, Nongtalang Branch
P.O.Nongtalang.
Jaintia Hills.

ANNEXURE 'B'

MEMBERS OF THE CURRENT GOVERNING BODY OF THE NONGTALANG COLLEGE.

(Constituted in the meeting held on 7th August 1995)

1. Sri. J.D. Pohmen, Hon'ble Revenue etc. Govt. of Meghalaya: (President
2. Sri. Fidelis Pohmen Vice- President.
3. Prof. S. Bhattacheryya, Principal - Secretary (Ex-officio)
4. Sri. M.S.S. Thangkhiew, M.C.S. - Govt. Representatives.
S.D.O(C) AMLAREM
5. DR. S. M. BOHRMEN, M.B.B.S
6. Dr. R.P. Sharma - N.E.H.U. Representatives.
7. Dr. S.C. Daniel
8. Sri. Ghimti Lanin - Asstt. Secretary.
9. Sri. Chui Lyngdoh - Headman, Village Durbar
10. Sri. Skhentrian Pottai - Secretary, Village Durbar
11. Sri. Emerald Lyngdoh - Asstt. Secretary, Village Durbar
12. Sri. P.M. Tarian, Hd. Master, Nongtalang Govt. H.E. School, Ex-Secy.
13. Obiwel Pottam
14. Sri. Tapan Barua - Teachers' Representatives.
15. Sri. Stanley Suhleng.

Sd/-illegible.
President
G.B. Nongtalang College.

Sd/-S. Bhattacheryya,
Secretary
Nongtalang College.

Principal,
Nongtalang College,
Secretary
Governing Body
Nongtalang College,
Nongtalang.

ANNEXURE IIICONSTITUTION OF NONGTALANG COLLEGE, NONGTALANG, MEGHALAYA.

ARTICLE 1. The name of the College is Nongtalang College, Jaintia Hills, Meghalaya, an Educational Institution that belongs to the people of Nongtalang village and is also managed by the people of Nongtalang, Nongtalang Eleka, Jaintia Hills District, Meghalaya.

ARTICLE 2: The registered Office of the College will be situated at Nongtalang, Jaintia Hills.

ARTICLE 3: The aims and objects for which the College is established are :

AIMS AND OBJECTS.

(a) to take all steps and proceedings as may be deemed best for the expansion, improvement and development of collegiate Education and for giving education to boys and girls;

(b) to promote and develop good moral and social values in the students;

(c) to offer courses of study in Arts, Science & Commerce as per North Eastern Hill University Rules and Regulations and offer teaching to students preparing for examinations to be held according to the syllabi prescribed by NEHU;

(d) to prepare a platform for Social activities leading to feelings of oneness among the different cross-sections of people inhabiting the area. This will provide a practical course for National Integration;

(e) to transact all such other things as are conducive or incidental to the attainment of the above objects or any one of them.

ARTICLE 4:
MEMBERSHIP

OF COLLEGE: The College shall have institutional members registered by application with fees by invitations/co-option and by sponsorship and they will form the General Body of the College.

(a) Membership of the College shall be open to all irrespective of age, sex, caste, creed and faith, who have educational social and cultural interest and who agree to the aims and objects of the College.

(b) Membership fee shall be :-

(i) Rs. 50/- (Rupees Fifty) only for annual membership and renewable annually;

(ii) Rs. 1000/- (Rupees one thousand) only for life membership.

(c) Members right and responsibilities :-

The members will have voting rights to express views and guide the Steering Committee as and when necessary. They will attend the Annual General Meeting and all Cultural and other functions of the College and will elect the College Steering Committee every three years. They will also co-operate with the Steering Committee in matters of raising funds and other related necessities for the development of the College.

ARTICLES 5 (a) Steering Committee shall comprise of :-

STEERING 1. Chairman

COMMITTEE 2. Vice-Chairman

3. General Secretary

4. Joint Secretary

5. Treasurer

6. 15 (fifteen) members by election

7. 10 (ten) members by co-option

(b) The Steering Committee shall have the right to co-opt 10 (ten) members representing different localities and different occupation.

ARTICLE 6FUNCTION OF STEERING COMMITTEE

- (a) Steering Committee shall elect the Governing Body of the College for the affairs of both administrative and academic nature;
- (b) Steering Committee will have the duty to arrange for monetary and material resources of the College including its accommodation;
- (c) Steering Committee will have the duty to look into the discipline problem, if any, of the College;
- (d) Steering Committee will arrange for activities which will generate congenial atmosphere for developing good social understanding;
- (e) Steering Committee shall have the power to appoint Sub-Committee from amongst its members for any special work, Decisions of such Sub-Committee shall be subject to the approval of the Steering Committee.

ARTICLE 7POWERS OF STEERING COMMITTEE

- (a) The Steering Committee shall ordinarily meet at least four times a year.
 - (a) Seven days Notice shall be given for a meeting of the Steering Committee. The notice shall contain the Agendas to be transacted in the meeting.
- Emergent meeting can, however, be held with one clear day's notice.
- (b) Any member of the Steering Committee who fail to attend 3 meeting consecutive shall forfeit his/her membership right.

ARTICLE 8SPECIAL MEETING.

Special meeting of the Steering Committee shall be called if and when felt necessary by the General Secretary in consultation with the Chairman and/or when requisitioned by at least 10 (ten) members. The meeting must be held within 10 days from receipt of such requisition.

ARTICLE 9. QUORUM

One-third of the members of the Steering Committee shall form a Quorum in a meeting.

ARTICLE 10. TERMS OF OFFICE.

The Office bearers of the Steering Committee shall hold office on election for three years but shall be eligible for re-election.

ARTICLE 11. DUTIES OF STEERING COMMITTEE OFFICE BEARERS:

- (a) Chairman: There shall be one Chairman whose functions shall be to preside over the meetings of the meetings of the Steering Committee and General Body meetings of the College and generally to promote smooth and harmonious working of the College.
- (b) Vice-Chairman: There shall be one Vice-Chairman whose function will be to act for the Chairman in his absence and to perform such duties as delegated to him by the Chairman or by the Steering Committee.
- (c) General Secretary/Convener : A General Secretary/Convener shall perform the following duties :-
 - (i) To issue notices of all meetings in consultation with the Chairman, maintain all records of all proceedings of meetings and give effect to all decisions and resolutions of the Steering Committee and General Body of the College.
 - (ii) To conduct all correspondence necessary for the implementation of the Resolutions and decisions stated above.
 - (iii) To maintain Registrar of Members of the College and to the Steering Committee.
 - (iv) To prepare Annual Report and Statement, and maintain account and present the audited accounts before the Annual General Meeting of the College.
 - (v) To perform other duties as may be decided by the Steering Committee.

(d) Joint Secretary : Joint Secretary shall assist the General Secretary/Convener in all the affairs of the College and shall perform such duties as delegated to him by the Chairman or by the Steering Committee.

(e) Treasurer : The Treasurer shall have charges of all matters relating to the income and expenditure. He shall keep and be responsible for all books and accounts of the College and shall submit to the Steering Committee every year a statement of receipts and expenditure in consultation with the General Secretary/Convener. He shall deposit the collection retaining not more than Rupees One Hundred only in hand to meet the day today expenditure of the College. He shall not disburse any amount without the written sanction order by the Chairman and/or General Secretary/Convener.

ARTICLE 12. FUND

There shall be a College fund which shall be raised from annual membership, Life membership fees, donations, contributions, collections or otherwise. Fund raised shall be deposited in any Nationalised Bank. Bank account shall be operated jointly by the Chairman and Treasurer of the Steering Committee.

ARTICLE 13. GOVERNING BODY.

There shall be a governing body of the College entrusted with the management of the College. The Governing Body of the College shall consists as follows :-

1. President,
2. Vice-President.
3. Secretary.
4. Joint Secretary
5. 10 (ten) members, eight from (i) Khlachympa (ii) Banan, (iii) Anlariang (iv) Shnungklor, (v) Rong nusand, (vi) Tympang, (vii) Nongtalang Mission (viii) Shnung - pdeng and rest two from social workers of War Jaintia.

ARTICLE 14. DUTIES OF OFFICE-BEARERS OF GOVERNING BODY.

1. President: The President shall be the head of the College. He shall preside over all meetings of the Governing Body of the College. He shall have power to authorise an expenditure upto Rs.5000/- (Rupees (five thousand) only in consultation with the Chairman of the Steering Committee in emergent cases and the account for the authorised amount shall be placed in the next Governing Body Meeting. The President may accept/reject the resignation of any Governing Body member(s) on the advice of the Governing Body.
- 2) Vice-President : The Vice-President shall assist the President. In the event of President's absence/resignation from Office, the Vice-President shall assume the powers of the President. However, the Vice-President shall continue in office of the President shall continue in office of the President till the post of the President is filled up in the even of such occasion.
- 3) Secretary : The Secretary shall be responsible for effective function of the College and its activities under the supervision of the Governing Body. He shall call the meeting of the Governing Body. He shall fix agendas of the meeting in consultation with the President. The Secretary shall record the proceedings of the meetings in minute book and the same be placed in the next meeting of the Governing Body for confirmation.

ARTICLE 15. MEETING OF GOVERNING BODY.

The meeting of the Governing Body shall be held once in a two months, Seven days notice will be required for meeting; One-third of the members shall form quorum. In case of emergency the meeting of the Governing Body shall be held with on day's notice.

ARTICLE 16. PROPERTY OF THE COLLEGE.

The moveable and immovable property of the College shall be vested in the Governing Body with overall supervision of the Steering Committee on behalf of the members of the College and also the people of Nongtalang area and shall be accounted for by the Secretary of the Governing Body.

ARTICLE 17. CONDUCT OF BUSINESS.

The conduct of business at any meeting of the Governing Body, Steering Committee, Annual General Body meeting of the College shall be according to the usual rules and procedure at such meetings.

ARTICLE 18. BYE-LAWS

The Steering Committee shall have power to frame bye-laws not inconsistent to these rules and regulations for successful working of the College.

ARTICLE 19. AMENDMENT.

Amendments, if any, of the Constitution may be made in a meeting of the Steering Committee. A proposal for amendment should be made by any member in a notice to the General Secretary/Convener giving at least 15 days for convening a meeting for the purpose. The amendment will be effected only if 2/3rd of the members present approve it.

.....

3:5 (56)

NONGTALANG COLLEGE.WEEKLY WORK LOAD OF THE LECTURERS.

SL NO.	NAME OF THE LECTURERS.	DEPARTMENT	NO. OF CLASSES IN B.A. I	TOTAL NO. OF CLASSES
1.	PRINCIPAL S. BHATTACHARYYA	HISTORY & ENGLISH	4	4
2.	A. K. ADHICARI	POLITICAL SCIENCE	6	5
3.	TAPAN BARUA	ECONOMICS	5	6
4.	STANLEY SOHLAND	PHILOSOPHY	6	6
5.	MRS. SIPRA BASU	EDUCATION	5	5
6.	A. BHATTACHARYYA	HISTORY & ENGLISH	3	3
7.	A. K. MAJUMDAR	ENGLISH	3	5
8.	MISS MERI. I. IONGWAI	MIL (KHASI) KH SL.	6	6
9.	P. M. TARIANG	MIL (KHASI)	-	-

Sd/-S. Bhattacheryya
Principal
Nongtaland College.

SEALED.

SEAL

CERTIFICATE OF REGISTRATION OF SOCIETIES
ACT XII OF 1983

NO. SR/NC - 241/89 OF 1989

No _____ of 19 19

I hereby certify that NONGTALANG COLLEGE, JAINTIA HILLS
MEGHALAYA, has this day been registered under the Meghalaya
Societies Registration Act, XII of 1983.

Given under my hand at SHILLONG. this SEVENTH day of
THE MONTH OF SEPTEMBER.

ONE THOUSAND NINE HUNDRED AND EIGHTY NINE
REGISTRATION FEE OF Rs.100/- PAID.

Sd/-

(P.C. BURTHAKUR)
REGISTRAR OF SOCIETIES MEGHALAYA
SHILLONG.

.....

AS INSTRUCTED BY THE VICE-CHANCELLOR, WE PLACE BEFORE THE ACADEMIC COUNCIL THE FOLLOWING RECORDS AVAILABLE FOR DISCUSSION AND NECESSARY DECISION :-

1. Letter No.CDC/B.10/90-91 at 1.4.91 to the Principal, Shillong Law College, Shillong, stating the Expiry of the Governing Body (Enclosed)
2. Principal's reply to College Development Council Letter at 12/7/91. The Governing Body has been re-constituted for 1991-1996 (Enclosed).
3. List of the Governing Body (Enclosed) Approved by the Vice-Chancellor at 15.7.91 file No.CDC/B.10/90-91.
4. NEHU Representatives - Prof: I.Hussain, History Department and Dr. (Mrs) R.Borgohain approved by the Vice-Chancellor on the 15.7.91 - NEHU Notification (Enclosed)
5. Letter from R. T. Rymbai at 1.6.92 to the Vice-Chancellor/Endorsed to the Vice-Chancellor by Dr.Dev. Sharma on the 2.6.92. The Director was directed that a reply should go from the Registrar (Enclosed).
6. Letter from the Registrar to R. T. Rymbai (Enclosed)
7. Statute 33(1) (i) (Enclosed).
The procedure adopted by the University now is:-
 - (1) The Governing Body should be for a period of three years.
 - (2) The list of the Governing Body should be notified by the concerned State Government.
 - (3) NEHU Representatives cannot be processed/recommended/approved by NEHU without Government Notification.

COLLEGE DEVELOPMENT COUNCIL,
NEHU:SHILLONG.

-----0000-----

3:5(59)

NORTH EASTERN HILL UNIVERSITY
LOWER LACHUMIEE, SHILLONG-793001
(MEGHALAYA)

No.CDC/B.10/90-91

Dated.1.4.1991

To

The Principal,
Shillong Law College,
Shillong-793003

SUB:- To constitution the Governing Body

Sir,

With reference to the subject cited above, I am to request you kindly to send us the latest list of Governing Body Members of your College through the State Govt. As per Statute 33(I)(ii) of the NEHU Act, each College should have a Governing Body duly constituted by not more than 15 members out of which two will be nominated from the University. It appears from our office record that the term of G.B. of your college already expired and it needs to be reconstituted. You are requested to do the needful in the matter as per Ordinances.

Yours faithfully,

(Sd/-B.K.DEV SARMA)
DIRECTOR
COLLEGE DEVELOPMENT COUNCIL.

3:5(60)

SHILLONG LAW COLLEGE SHILLONG
(Estd : 1964)

Shillong-1
Phone:SH 24044
date.12th July 1991

No.Lc.3(85)/35-38

To

Shri.B.K.Dev Sarma,
Director,College Development Council,
North Eastern Hill University,
Lower Lachumiere, Shillong- 1.

SUBJ:-CONSTITUTION OF THE GOVERNING BODY OF THE SHILLONG
LAW COLLEGE.

REF: Your Memo No.CDC/B.10/90-91/141 dated 1.4.91.

Sir,

Ref.to your above quoted memo and the subject matter I am to state that the Shillong Law College was founded by the Nine prominent members of the Shillong Bar Asscu.in the year 1964.and they were jointly the trustees of the College and its properties, including the land and the college buildings. The Governing Body for the College was constituted and comprised of the then Advocate General of Assam,D.P.I.,Shri.Probin Kumar Chaudhury, and the said Nine founder members,who represented the teaching staffs of the College,Legal Educationists,and the public of the three major communities of Shillong,that is Khasi,Bengalee and Assamese,in equal proportion,and which was sought to be maintained,as far as possible,in every matters of the College.

All the aforesaid members of the governing body are now dead except myself,and I am presently the Principal and the Secretary of the College,which is being run by a skeleton governing body. The want of a proper and full Governing Body has been causing difficulties in certain aspects in the management of the college and its development,and it has become necessary to constitute a proper Governing Body on a reasonable basis following the original principal with which the founder members established this college. The college is purely a private institution and manages itself with its own indigenous funds and without grants or aid from the Govt.or any one else. It has therefore befallen on me, as the lone trustee and founder member now to reconstitute the Governing Body of the Shillong Law College and giving it a basis for its future.

In the premises,and as per your direction contained in your Memo under reference the Governing Body of the Shillong Law College has been reconstituted for the year 1991 to 1996(five yrs mentioned in the enclosed list and marked Annexure I, which may kindly completed by enlisting the TWJ NOMINATED members of NEHU as per the Statute 33(I)(i) of the NEHU Act,and acclaiming the Governing Body with your august sanction.

Yours faithfully,

Sd/-illegible 12/7/91
Principal

Shillong Law College.

Enclosed:Anxr.I.

.....

ANNEXURE I :

THE GOVERNING BODY OF THE
SHILLONG LAW COLLEGE FOR
THE YEAR 1991 TO 1996

1. Founder Member of the College: : 1. Mr. Hasibuddin Ahmed, Advocate.
2. Three prominent members of the Shillong Bar Association, to be nominated by the Founder Member of the Executive Committee of the Shillong Bar Association. : 1. Mr. Satya Brata Choudhury
: 2. Mr. Apolos Masar
: 3. Mr. Dharani Dhar Mahanta
3. Three members of the Public representing the three major communities of Shillong, to be nominated by the Founder Member of the Executive Committee of the Shillong Bar Association.. : 1. Mr. B. Lamare, Advocate.
: 2. Mr. B.K. Deb Sarma.
: 3. Mr. N. Pal Chaudhury.
4. Two representatives from the Teaching Staffs of the Law College to be nominated by the Principal. : 1. Mr. Barun Chaudhury
: 2. Mr. Drinson E. Shallam
5. Advocate General of Meghalaya : 1. Mr. L. Marbanlang.
6. D.P.I. of Meghalaya : 1. Mrs. M.R. Mawlong, I.A.S.
7. Two representatives of NEHU to be nominated by the Director of the College Development Council, NEHU, Shillong..... : 1. Mr.
: 2. Mr.

The members of the Governing Body will elect the President of the Governing Body in its first meeting to be called by the Principal of the Law College, who will be the Secretary of the Governing Body.

SEAL

Sd/-illegible.12/7/91.
Principal
Shillong Law College.

THE GOVERNING BODY OF THE SHILLONG LAW
COLLEGE FOR THE YEAR 1991 TO 1996.

1. Founder Member of the College.....:1.Mr.Hasibuddin Ahmed,
Advocate.
2. Three prominent members of the Shillong Bar Association, to be nominated by the Founder Member of the Executive Committee of the Shillong Bar Association.....:1.Mr.Satya Brata Choudhury,
:2.Mr.Apolos Masar
:3.Mr.Dharani Dhar Mahanta
3. Three members of the Public representing the three major communities of Shillong, to be nominated by the Founder Member, of the Executive Committee of the Shillong Bar Association.....:1.Mr.B.Lanare, Advocate
:2.Mr.B.K.Deb Sarma
:3.Mr.N.Pr1 Chaudhury
4. Two representatives from the teaching staffs of the Law College to be nominated by the Principal :1.Mr.Barun Chaudhury
:2.Mr.Dringson E.Shallam
5. Advocate General of Meghalaya : 1.Mrs.M.Marbaniang
6. D.P.I. of Meghalaya. : 1.Mrs.M.R.Mawlong, I.A.S.
7. Two representatives of NEHU to be nominated by the director of the College Development Council, NEHU, Shillong..... :1. Prof. I. Hussain, deptt.
: of History, NEHU.
:2. Mrs. R. Borgchain, deptt.
: of Pol. Science. NEHU.

The members of the Governing Body will elect the President of the Governing Body in its first meeting to be called by the Principal of the Law College, who will be the Secretary of the Governing Body.

SEAL

Sd/-Illegible 12/7/91
Principal
Shillong Law College.

The Completed list of the members of the Governing Body to be formally approved by the Executive Council of the NEHU under the Statute 33(I)(f).

Sd/-illegible 30/7/91
Principal
Shillong Law College.

3:5(63)

SHILLONG LAW COLLEGE SHILLONG
(Estd : 1964)

Shillong-1
Phone : SH 24044

NO:LC.5(91)/9

Dated 19th August 1991

NOTIFICATION

As directed by the competent authority of the North Eastern Hill University, I hereby notify the reconstitution of the Governing Body of the Shillong Law College, duly constituted and approved as provided by the Statute 33(I)(i) of the NEHU Act.1994, as under :-

1. Mr. Hasibuddin Ahmed,
Secretary & Principal, Shillong Law College.
2. Mr. S. B. Choudhury, Advocate.
3. Mr. Apolos Masar, Advocate.
4. Mr. Dharonidhar Mahanta, Advocate.
5. Mr. B. Lamare, Advocate.
6. Mr. N. Pal Choudhury, Advocate.
7. Mr. B. K. Deb Sarma, Director, C.D.C. NEHU.
8. Mr. Berun Chaudhury,
Lecturer, Shillong Law College.
9. Mr. Dringon F. Shallam
10. Prof. Imded Hussain,
Deptt. of History, NEHU, Shillong.
11. Mrs. R. Borgohain,
Deptt. of Pol. Science, NEHU, Shillong.
12. Mr. L. Merbanfang,
Adul. Advocate General, Govt. of Meghalaya, Shillong.
13. Mrs. M. R. Mawlong, I.A.S., D.P.I., Govt. of
Meghalaya, Shillong.

Sd/- illegible. 19/8/91
Secretary/Principal
Shillong Law College, Shillong.

3:5(64)

NORTH EASTERN HILL UNIVERSITY
COLLEGE DEVELOPMENT COUNCIL
LOWER LAZHUIMIERE : SHILLONG : I

NO.CDC/B.10/90-91/547-54

Dated.24.7.91.

NOTIFICATION

Subject to ratification by the Academic Council and Executive Council, the Vice-Chancellor, NEHU is pleased to nominate Prof. I. Hussain, Deptt. of History and Dr (Mrs) R. Borgohain, deptt. of Pol. Science as NEHU Representatives in the Governing Body of Shillong Law College, Shillong-1 with effect from the date of issue of this Notification for a period of three years.

Sd/-B.K.DEV SARMA
DIRECTOR
COLLEGE DEVELOPMENT COUNCIL

Copy for information and necessary action forwarded to:-

1. The Principal, Shillong Law College, Shillong-1. This is with reference to your letter No.LC.3(85)/35-38 dt.12.7.91.
2. Pvt. Secretary to Vice-Chancellor, NEHU, Shillong-1.
3. P.S. to Pro-Vice-Chancellor, NEHU, Shillong.
4. Director of Public Instruction, Govt. of Meghalaya-Shillong.
5. Deputy Registrar (Conf) NEHU, Shillong with request to place the Notification before the next A.C & E.C. Meeting for ratification.
6. Secretary, Education Deptt. Govt. of Meghalaya, Shillong.
7. Prof. I. Hussain, Deptt. of History, NEHU, Shillong.
8. Dr (Mrs) R. Borgohain, Deptt. of Pol. Science, NEHU, Shillong-14.

Sd/-B.K.DEV DARMA
DIRECTOR
COLLEGE DEVELOPMENT COUNCIL
NEHU: SHILLONG : I.

R.T.RYMBAI
Chairman
Meghalaya Administrative
Reforms Commission,

SEAL

"Makhane"
Jaiaw
Shillong-793002
X Off. PABX -401
X Res. 26976
X Res. 25109

Phone Nos.

No _____

Date 1.6.92

Dear Dr. Pakem,

I may please be excused for troubling you again with this letter on the subject of the reconstituting of the Governing Body of the Shillong Law College. It is because the letter No.CDC/B.10/91-92 dated 4.5.92 of Shri B.K. Dev Sharma to me with reference to my former letter dated 14.4.92 to you on the subject is vague begging the issues raised in my said former letter.

It appears from Shri Dev Sharma's letter that what the University had done when it found that the term of the Governing Body had expired was simply to ask the Principal to reconstitute the Governing Body 'as per norm'. The norm was not spelt out. The notification issued by the Principal stated that the Governing Body was constituted as directed by competent authority and was duly approved as provided by the statute 33(1)(i) of the N.E.H.U. Act, 1974. This does not appear to fall in line with the letter of Shri Dev Sharma to me.

As the reconstituting of the Governing Body is a departure from the usual procedure and practice followed before by the Law College, and as the administration of the College Fund after the expiry of the former Governing Body is a departure from the system followed till then which had provisions for checks and control against possible misuse of the Fund, some teachers of the Shillong Law College and lawyers too have expressed their great concern to me that as the departure lays the door open for possible misuse since it is being followed by the existing Governing Body, the University may place itself in an awkward position that it was indifferent to, or apathetic of, the warning given in my letters should any abuse of Fund take place.

In the circumstances I feel that I must request you once again to have another look into my former letter, a closer look with reference to the notification issued by the Principal constituting the Governing Body, the letter of Shri B.K.Dev Sharma and the new system of administering and controlling the College Fund compared with the system followed before. I would further request, if no objection, to kindly favour me with the necessary clarification of the issues raised by me to put the University in the clear in the public interests.

With kind regards,

Dr. B. Pakem, M.A., LL.B.,
Vice-Chancellor,
North-Eastern Hill University,
Shillong.

Yours sincerely,
Sd/- (R.T. Rymbai).

SEAL

3:5(66)

NORTH EASTERN HILL UNIVERSITY
LOWER LACHUMIEKE, SHILLONG-793001
(MEGHALAYA)

No. CDC/B.10/90-91/1091

Date: 27.7.92.

To

Shri. R.T. Rymbai,
Chairman,
Meghalaya Administrative,
Reform Commission,
"MAKHANE" Jalaw,
Shillong-793002.

Sir,

It has a reference to your letter of 1st June addressed to the Vice-Chancellor, NEHU, Shillong. In this regard I would like to state the following :

1. The Principal, Shillong Law College was informed by the Director, College Development Council, NEHU to reconstitute the Governing Body of the College since its term had expired. The norm was stated to the Principal as provided by the Statute 33(1)(i) of the NEHU Act 1974. This is the practice followed by the University for all colleges.
2. In principle, the Governing Body of a college after notification by the college authority, is placed to the Academic Council of the University for approval and then it is ratified by the Executive Council.
3. The Governing Body of the Shillong Law College was reconstituted by the college authority and the University nominated two representatives to it. The nomination was ratified by the 43rd meeting of Academic Council of NEHU held on 3rd & 4th March, 1992.
4. It is yet to be approved by the Executive Council, NEHU.
5. The miss appropriation of fund, etc, if any, is an internal affair of the College on which the University does not have any jurisdiction.

Yours faithfully,

Sd/-A. PATTON. 27/7/92.
REGISTRAR : NEHU.

NORTH EASTERN HILL UNIVERSITY STATUTES

Admission of Colleges, etc. to the Privileges of the University.

33. (1) Colleges and other Institutions situated within the jurisdiction of the University may be admitted to such privileges of the University as the Executive Council may decide on the following conditions namely :-

(i) Every such College or Institution shall have a regularly constituted Governing Body, consisting of not more than fifteen person approved by the Executive Council and including, among others two teachers of the University to be nominated by the Executive Council and three representatives of the teaching staff of whom the Principal of the College or Institution shall be one. The procedure for appointment of members of the Governing Body and other matters affecting the management of a college or an Institution shall be prescribed in the Ordinance :-

Provided that the said condition shall not apply in the case of Colleges and Institutions maintained by Government which shall however, have an Advisory Committee consisting of not more than fifteen persons which shall consist of, among others, three teachers including the Principal of the College or Institution, and two teachers of the University nominated by the Executive Council.

(ii).....

Suggested Readings

1. Agrawal & Singh: Economies of Under Development, Oxford, N.Delhi, 1978.
2. Alexander, J.W.: Economic Geography, Prentice Hall, 1974.
3. Amin, S. : Accumulation at World Scale, monthly review New York., 1978.
4. Baran, Paul : Political Economy of Growth, Penguin Books, Harmonds Worth.
5. Chorlay, R. & Hagget, P. : Models in human Geography, 1976.
6. Chisholm, M. : Rural Settlement and Landuse, London, 1962.
7. Choudhury, N.R. : Econ. Geography of India, 1975.
8. Dutt, R. P. India Today, Manisha India, 1975.
9. Guha & Chattorai: A New Approach to Economic Geography, Oxford, 1971.
10. Hagget, Peter: Geography: A Modern Synthesis, Harper International Edition, London, 1975.
11. Isard, W: Location and the Space Economy MIT, Mass 1956.
12. Isard, W. : Methods of Regional Analysis, MIT, Mass, 1956.
13. Meadows & Meadows: Limit to Growth, N.York, 1974.
14. Morgan, W.B. & Pugh, J.C.: The Field of Geography, Methuen Co., Ltd., 1974.
15. Munsri, S. K. : India: Resource Region and Regional Disparity Peoples Pub. House, N.D. 1977.
16. Myrdal, Gunnar: Economy Theory of Underdeveloped Region, Vera & Co., Bombay.
17. Myrdal, Gunnar: Asian Drama: Inquiry into the Poverty of Nation, Allen Lane Penguin Press, London.
18. Pokshishvesky: An Economic Geography of U.S.S.R.
19. Rostow, W.W.: Stages of Economic Growth: Non-Communist Manifesto, Cambridge Univ. Press.
20. Royon & Bengston: Fundamentals of Economic Geography.
21. Sen Gupta & Sdyasyuk: Economic Regionalisation of India, Causes of India.
22. Shahj, S.A. (ed): India Degradation and Development I, II M.Venkatarangaiya, foundation, 1983.
23. Smith, D. : Where the Grass is Greener, Penguin Books.
24. Thoman & Corbin: The Geography of Economic Activity, McEraw Hill Book Co.
25. Van Roven, W. & Bengston, N.A: Fundamentals of Economic Geography: An Introduction to the study of Resources, Prentice Hall, New Delhi, 1971.
26. Ward, Barbara and Dubos, Rene: Only One Earth, Penguin Books, 1980.
27. William, T.R. et.al.: Economic Geography, Orient Longman Ltd., New Delhi, 1983.
28. Zimmermann: Economic Geography.

GE-409 : Fundamentals of Social & Cultural Geography

Credit: 3
 Marks : 75
 Lectures:38

UNIT - I

1. Definition, scope and development of Cultural Geography.(3),
2. Themes and Concepts in Cultural ecology: Cultural region, Cultural diffusion, cultural ecology, Cultural Integration and cultural landscape.(4)
3. Types and Pattern of world Cultural regions with special reference to the following ;(12)
 (a) Agriculture b) Language c)Religion d) Ethnicity.
4. The field of Social Geography; approaches to definition. Development of Social Geography in Britain and the USA, especially after World War II. (5).
5. Social Evolution, Society & Environment, Social structure & social differentiation, Social diversity & Plurality.(5)
6. The Concept of Social space and Social Area analyses. (5)
7. Social justice, social action and Social planning: Political economy of Social infrastructure, Social Pathology. (4).

Suggested Readings

Cultural Geography

1. Britzer, Charles, F. : "The Scope of Cultural Geography", Journal of Geography, 63, 1966, pp.4-11.
2. Jordan, Terry, G & Rowntree, Lester: The Human Mosaic: A Thematic Introduction to Cultural Geog.
3. Saur, C.O. : "Forward to Historical Geography", Ann .Ass. An.Geog. 31,1941.
4. Thomas, W.L. : Man's Role in Changing the Face of the Earth,Chicago,1956.
5. Wagner, P.L. & Hikesell, M.W. (ed): Readings in Cultural Geography, Chicago, 1962.

GE-10 : Settlement and Population Geography

Credits : 3
 Marks : 75
 Lectures : 39

Settlement Geography

1. Nature, Scope & significance of settlement geography (2).
 2. Classification and distribution of settlements (2)
 3. Evolution of rural settlements, site & situation, pattern and types of settlements with special reference to India (3).

GE-11

1. Definition of Urban settlement, urban growth and process of urbanization (3)
 2. Functional classification of towns with special reference to India (3)
 3. Morphology of towns with special reference to India. (3)
 4. Central place theory, functional hierarchy and spatial relationship of towns. (4)

Population Geography

GE-12

1. Nature, scope & significance of population geography. (2)
 2. World distribution of population; Problems of uneven distribution in developing countries. (3)
 3. Trends in Growth of world Population; the population crises, Population growth in developed & developing world. (4)

GE-13 - IV

1. Concept of demographic Transition, its implications for developing countries. (3)
 2. Types, causes and consequence of internal migration with special reference to India. (3)
 3. Population composition: Sex, age and literacy with special reference to India. (3)

GE-410 Suggested Readings

Settlement Geography

1. Haggett, Peter : Network Analysis in Geography. Explorations in Spatial Structure, Edward Arnold 1965, p.360.
2. Hudson, F.S. : A Geography of Settlements, Macdonald and Evans Ltd., 1970, p.364.
3. Sharma, R.C. : Settlement Geography of an Indian Desert, K.B. Publications, 1972.
4. Ucko, M.J. et.al. : Man, Settlement and Urbanism, Duckworth, 1972.

Population Geography

1. Bhende Asha, A. & Kanitkar, Tara: Principles of Population Studies, Himalaya Publications House, Bombay, 2 Ed., 1982.
2. Chandna, R.C. & Sidhu, M.S: Introduction to population Geography, Kalyani publications, Ludhiana, 1980.
3. Clarke, John I.: Population Geography and Developing countries, Pergamon Press, Oxford, 2Ed., 1972.
4. Clarke, John I.: Population Geography and Developing Countries, Pergamon Press, Oxford, 1971.
5. Demko, G.J., Rose, H.M.: Population Geography: A Reader, & Schnell, G.A. (editor)McGraw Hill, N.Y., 1970.
6. Garnier, J.B. : Geography of Population: World Patterns John Wiley, N.Y., 1969.
7. Harrison, G.A. : The Structure of Human Populations, Boyce, A.J. (editors)Clarendon Press, Oxford, 1972.
8. Trewartha, G.T.: A Geography of Population: World Patterns, John Wiley, N.Y., 1969.
9. Trewartha, G.T. : The Less Developed Realm: Geography of its population, John Wiley, N.Y. 1972.
10. Thompson & Lewis: Population Problem, F.M.H. Edition.
11. United Nation: The Population Debate: Dimensions and Perspectives, Papers of the World Population.
12. Zeligsky, W. : A Prologue to Population Geography, Prentice Hall, N.Y.
13. Zeligsky, W. et.al. (eds) : Geography and a Crowding World Oxford Univ. Press, N.Y., 1970.

III-11: REMOTE SENSING AND SURVEYING (Practical)

III - I

1. Aerial Photo:

(i) History and Development of Aerial Photography as a means to geographical interpretation, its varied uses in different branches of Geography, need for interpretation (3)

(ii) Understanding the different instrument required for interpreting an aerial photo (3)

(iii) Scale in aerial photographs and its importance in geographical studies (2)

(iv) Elements of Photo interpretation.

(v) Practical Exercises: (14)

(a) Test of stereoscopic vision:

(b) Computation of Photo scale using the estimated size of familiar objects;

(c) Orientation of stereopair under a mirror stereoscope using flight lines and short methods;

(d) Detection of defined objects and their description.

(e) Preparation and interpretation of Landuse/Landcover map

(f) Preparation and interpretation of settlements map.

2. Satellite Imagery

(i) Basic Concept: remote sensing Technique, its utility in geographical studies (2)

(ii) Fundamentals of satellite Imagery - types, sensors, resolution, bands (2)

(iii) Elements of Image interpretation (2)

(iv) Practical Exercises (8)

(a) Preparation land Interpretation of 'Lineament map'

(b) Preparation and interpretation of Landuse/Land cover maps.

III - III

12. SURVEYING

(i) Understanding the practical applicability of different types of surveys (2)

501:
GE- ~~22~~ Suggested Readings

1. Barbara, W & Dubose, R. : Only One Earth: The Care and Maintenance of a Small Planet, N.Y. ,1972.
2. Bodzin, D.B. & Keller, E. : Environmental Studies Charles E. Merrill Publ. Co., Columbus, Ohio, 1982.
3. Odum, E. P. : Fundamentals of Ecology, W.B. Sanders, Philadelphia, 1971.
4. Park, C. C. : Ecology and Environmental Management, Butterworths, London, 1980.
5. Paul, R.E., et.al. : Ecoscience: Population, Resource & Environment, Freeman, San Francisco, 1977.
6. Russwurm, L.H., and Sommerville, E. (ed) : Man's Natural Environment - A systems Approach, Duxbury, Massachusetts, 1985.
7. Smith, R. L. : Man and His Environment : An Ecosystem Approach, Harper and Row London, 1972.
8. Southwick, C. (ed) : Global Ecology, Massachusetts, 1985.
9. Strahler, A.H. & Strahler, A.N. : Geography & Man's Environment, John Willey, New York, 1977.

GE-505: Applied Climatology

Credit : 4
 Marks : 100
 Lectures : 45

UNIT - I

1. Emergence of Applied Climatology, its nature & scope (4)
2. Man made climates: Micro-climatic conditions, radiations, interference in atmospheric process. (8)
3. Climate and production process: Influence of climate on soil formation, weather & crop production, hazards and monitoring processes & measurement, surplus & deficiencies (8)

UNIT - II

4. Water: Conservation, floods and droughts in India, flood prediction, forecasting, water policy framework, medium run monsoon prediction and droughts. (6)
5. Climate & Industries: Locational preference of industries to climate, industrial efficiency; industries and air & water pollution, the climatic impact; measures of management. (8)

UNIT - III

6. Climate and community life: Climate and health; climate & shelter; climate & recreation; climate & aviation. (6)
7. Weather forecasting; short, medium & longrun, perspective on recent developments and developments. (6)

UNIT-IV

8. Man Made climates: Urbanclimates, Air pollution and its effects (4)
9. Post-climates; through geological times; christian era; Theory of climatic changes, Astronomical theories Carbondioxide theory-etc. (2)

GE-505 contd...

Suggested Readings

1. Bach, W. : Atmospheric Pollution, McGraw Hill N.Y., 1972.
2. Barry, R.G. : Mountain, weather & Climate, Methuen, 1981.
3. Battan, L.J. : Weather in Year Life, Freeman, N.Y., 1983.
4. Gates, D.M. : Man and His Environment: Climate, Harper & Row, New York, 1972.
5. Griffiths, J. F. : Applied climatology: An Introduction, Oxford Univ. Press, London, 1968.
6. Lowry, W.P. : Meteorology, Academic Press, N.York, 1967.
7. Mathur, J.R. : Climatology: Fundamentals and Applications, McGraw-Hill, New York, 1974.
8. Monteith, J. L. : Vegetation and the Atmosphere, Vol. I & II, Academic Press, London, 1976.
9. Sutton, O. G. : Micro-Meteorology, McGraw-Hill, N.Y., 1953.

GE-510 : Fluvial Geomorphology

Credits : 4
 Marks : 100
 Lectures : 50

UNIT- I

1. The Geomorphic process, Importance of Fluvial Geomorphology in Geographical studies. (2)
2. Hydrological cycle-precipitation, transpiration, run-off, infiltration; waterflow budget. (3)
3. Drainage basin as a geomorphic unit - drainage net wrk, descriptive geometry, hydrologic behaviour. (5)
4. River and channel systems:(15)
 - (a) Fundamentals of river mechanics - types of flow, sediment transport, channel behaviour.
 - (b) Alternative patterns in plain and their significance straight, meandering, braided.
 - (c) Sequential changes in space.
 - (d) Sequential changes in time - aggradation, accumulation, rejuvenation.
5. Drainage pattern evolution - rill, gully, stream, river, relation between pattern and land, lithology, structure. (5)

UNIT - II

6. Normal cycle of erosion and associated landforms; interruptions in the cycle (5)
7. Major landforms associated with fluvial systems alluvial fans, valley fills, flood plains, terraces, deltas, etc. (7)
8. Effect of climatic changes on fluvial system .(2)
9. Study of thalwegs and valley profiles; mapping of fluvial forms - use of remote sensing techniques. (6)

Suggested Readings

1. Chorley, R. J (ed): Introduction to Fluvial Processes, Methuen & Co., 1973.
2. Dury, G.H.(ed.):Rivers and River Terraces, Macmillan, London, 1970.
3. Gregory, K.J.:River Channel Changes, John Wiley & Sons, New York, 1977.
4. Gregory, K. J. & Walling, D.E.:Drainage Basin, Form and Process: A Geomorphological Approach, John Wiley & Sons, New Delhi.
5. Leopold, L.B. et.al.: Fluvial Processes in Geomorphology, McGraw Hill, 1968.
6. Morisow, Marie: Streams - Their Dynamics and Morphology, Freeman, San Francisco, 1964.
7. Schumm, Stanley: Fiver Morphology, Benchmark Papers in Geology (ed), Dowden, Hutchinson & Ross Inc., Stroudsburg, Pennsylvania, U.S., 1972.
8. Schumm, Stanley: The Fluvial System, John Wiley & Sons, New York, 1977.

GE-511 : TROPICAL GEOMORPHOLOGY

Credits : 4
 Marks : 100
 Lectures : 45(T)

UNIT - I

1. Significance of Tropical Geomorphology (2)
2. The Tropical Environment : Definition & Boundary; Climatic regimes and its effects; Significance of temperature, rainfall, moisture and evapotranspiration in the tropical environment; Natural vegetation (5)

UNIT-II

3. Geomorphic Processes:

- a) Weathering Processes: Factors affecting weathering; Weathering Processes and types of weathering; weathering Products; weathering profile; Depth of weathering; Laterites; Factors affecting laterisation; Distribution with special reference to India. (8)
- b) Mass movement: Factors responsible for mass movement; Types of mass movement; stability of surfaces on hill slopes; Soil creep (4).
- c) Denudational Processes: Chemical denudation; mechanical eluviation; movement of material on hill slopes; gully erosion; fluvial erosion (4)
- d) Depositional Processes: Agents of Deposition; Deposition landforms (3)

UNIT -III

4. Environmental Changes and Landform development (3)
5. Characteristics of Tropical Terrain: Relief, Drainage & Landforms (6)
6. Pediments: Origin, Characteristics & Distribution (2)

UNIT -IV

7. Human Impact on Tropical Landscape: Role of Tropical Agricultural systems; Destruction of Tropical Forests; Development Processes in the tropical region and its effects (5)
8. Evaluation of Tropical landscape (3)

Suggested Readings

1. Douglas, I. & Spencer, T. (eds) : Environmental Changes Tropical Geomorphology George Allen & Unwin, London, 1985.
2. Faniran, A.K. : Humid Tropical Geomorphology. Longman Group Jije L.K.Ltd., New York, 1983.
3. Garner, H.F. : Origin of Landscape-A synthesis in Geomorphology Oxford Univ, Press N.Y., 1974.
4. Ollier, C.D. : Weathering Longman London, 1975.
5. Thomas, Michael : Tropical Geomorphology- A Study of Weathering and Landform development in Warm Climates. Macmillan, London, 1974.
6. Tricart, J & Cailleux, A : Introduction to Climatic Geomorphology Longman Green, London, 1972.
7. Tricart, J. : The Landforms of the Humid Tropics, Forest and Savannes, (Translated by C.J..K. de Jongé), Longmans, London, 1972.
8. Thomas, M. 1984. : Geomorphology in the Tropics.
9. Janet : Tropical Geography, Methuen, London.
10. Joy & Tivy : Human Impact on the Ecosystem.

GE: 513 Advanced Geomorphology

Credit: 4

Marks : 100

Lectures: 45 (1)

UNIT-I

1. Development of geomorphology: Development of geomorphological Schools in U.S.A. and Europe and development of geomorphology in India.
2. Elementary knowledge of standard geological time scale.
3. Study of Indian stratigraphy under following heads: Archaean Group of rocks, Vindhyan system, Gondwana system and Tertiary rocks.

UNIT-II

4. Evolution of landforms and drainage in (a) Domal (b) Faulted and (c) Folded structures.
5. Quantitative study of drainage basin as a geomorphic unit.

UNIT III

6. Theories of slope evolution put forward by (a) W.M. Davis, (b) Penck (c) L. King and Wood.
7. Feneplanation and multicyclic landscape with special reference to India.
8. Applied Geomorphology:
 - (a) Mineral exploration
 - (b) Engineering Projects
 - (c) Selection of dam and aerodrum sites.
 - (d) Military geology.
 - (e) Landuse and settlements.
 - (f) Transport and communications.
 - (g) Urban Geomorphology

UNIT-IV

9. The concept of terrain and its classification.
- (10) Regional geomorphology of N.E. Region.
 - (a) Meghalaya, (b) Assam, (c) Mizoram and Tripura.

Suggested Readings

1. Davies, J.L.: Landforms of cold climate. The MIT Press, 1969.
2. Dikshit, K.R.: Geomorphology
3. Doornik, Camp.: Numerical analysis in Geomorphology Edward Arnold, London.
4. Easter Book, O.J.: Principle of Geomorphology McGraw Hill book Co., 1969.
5. King C.A.M.: Techniques in Geomorphology Edward Arnold, Ltd., London, 1966.
6. King, L.C.: Morphology of the Earth Oliver and Boyd, London, 1962
7. Krishnan, M.S. : Geology of India and Burma Higgins and Bothams Ltd., Madras 1962.
8. Leopold, L.B. et.al.: Fluvial Processes in geomorphology Asia Pub. House, New Delhi, 1969.
9. Pitty, A.F.: Introduction to Geomorphology Methuen and Co. Ltd., 1971.
10. Rai, R.K.: Geomorphology of Sonar Burma Basin Concept publishing House, New Delhi, 1980.
11. Scheldegger, A.F.: The Geomorphology
12. Sharma, H.S.: Perspectives in Geomorphology, Vol. I-IV Concept Pub. House, New Delhi.
13. Small, R.J.: The Study of landforms, Cambridge Univ. Press, Cambridge.
14. Sparks, B.W.: Geomorphology.
15. Thomas, M.F.: Tropical Geomorphology, Macmillan, 1974.
16. Thornes, J. B. & Brunson, D. : Geomorphology and Time, London, 1977.
17. Thornbury, W.D.: Principles of Geomorphology John Willey and Sons, New York, London, 1961.
18. Tricart, J. et.al.: Introduction to Climatic Geomorphology. Macmillan, London, 1970.

GE 515 : SOCIAL GEOGRAPHY OF INDIA

Credits -4
Marks -100
Lectures-45

UNIT-I : Conceptual and Historical Outline

1. Delimiting the area of social Geography. Subject matter of social Geography and its growth in India (3)
2. Social Plurality in India: Need for a geographical appraisal (3)
3. Geographical factors in Indian History (3)
4. Evolution of social Regions in India : Areas of attraction, isolation and relative isolation; evolution of perennial nuclear regions; evidences from mahajanapadas (7)
5. Regional structure of India during medieval and British period (2)
6. Process of peopling in India ; Racial and Linguistic evidences (2)

UNIT -II Components of Social Diversity

7. Tribe : Definition; Spatial patterns of distribution, identification of tribal regions (3)
8. Language and dialect : Role of language in region formation and regional differentiation, Linguistic regions (3)
9. Religion : Spatial distribution of religious groups with special reference to the minorities; the nature of religious diversity in India (3)
10. Caste : Delimitation of caste regions spatial patterns of distribution of the scheduled castes (3)

UNIT III Consequences

11. Centripetal and centrifugal tendencies in Indian Polity. (3)
12. Nature of social change in India- evidences from caste-based societies, evidences from tribal societies, Indicators of social transformation: Literacy and educational development (5)
13. Problems of integration of Indian polity and forces of unification (4)

Suggested Readings

1. Census of India : Economic and Socio-Cultural Dimensions of Regionalisation. Census Centenary Monograph No.7., Govt. India, N.D., 1974.
2. Desai, A.R.: Rural Sociology in India, Popular, Bombay.
3. Davis, K.: Population of India and Pakistan Princeton University Press, Princeton, 1951.
4. Geddes, A.: Man and Land in South Asia (eds. Learmonth, A.T.A. et al.), Concept, N.D., 1982.
5. Ghurye, G.G.: Caste and Class in India, Popular Prakashan Bombay, 1957.
6. Gosal, G.S. and Mukherjee, A.B.: "Religious Groups in India", Jiischrift.
7. Grierson, F.A.: Linguistic Survey of India
8. Guha, S.S.: Racial Elements in India's population, Oxford University Press, London, 1977.
9. Habib, Irfan: Historical Atlas of Moghul India.
10. Hutton, J.H. Caste in India.
11. Jones, Emrys and Eyles, John: An Introduction to Social Geography, Oxford Univ. Press, London, 1977.
12. Jones, Emrys (ed.): Readings in Social Geography, Oxford University Press, London, 1975.
13. Majumder, D.N.: Races and Culture of India.
14. Rao, M.S.A.: Urbanisation and Social Change, Orient Longmans, New Delhi, 1970.
15. Raza, M. et al.: Muslims in India- A Regional Dimension.
16. Raza Moeniz and A. Ahmad, Tribal Atlas Concept, 1989.
17. Risley, H.: The People of India Reprint, Delhi, 1969.
18. Schwartzbury, J.E.: "Distribution of Selected Castes in Northern Indian Plain", Geographical Review 1965.
19. Schwartzbury, J.E.: A Historical Atlas of South-Asia.
20. Singh, K.S.: Tribal Situation of India, Indian Institute of Advanced Study, Simla, 1972.
21. Sopher, D.E.: An Exploration of India, Longman, London, 1980.
22. Srinivas, M.N.: Social change in Modern India.
23. Subbarao : Personality of India, Oriental Institute, M.S. University, Baroda, 1958.

GE 516: GEOGRAPHY OF TRIBES OF INDIA

Credits:4
 Marks :100
 Lectures:45

UNIT- I: Patterns

1. Definition of a "tribe" with special reference to India; Relevance of tribal studies in Geography(4)
2. Historical perspectives and present spatial patterns of distribution of tribal population in India-Aspects of clustering and concentration(4)
3. Economic responses of the tribes to their habitats(3)
4. Identification of tribal regions in India: Basis of regionalization; identification of tribal regions using racial, ecological and linguistic parameters(6)

UNIT-II: Processes.

5. Socio-spatial interaction between the tribes and the non-tribes and its effects on tribal economy, society and culture(4)
6. Spatial dispersion of tribal groups: Evidences from tribal cores and peripheries(3)
7. Understanding ecological, economic and cultural roots of tribal deprivation; Effects of forest policy and management; mining and industrialization; landlessness and/or land alienation; processes of redistribution of tribal population(6)

UNIT-III: Planning.

8. Regional Development policies and planning for tribal Development: Programmes and strategies with special reference to tribal area sub-plan and the sixth schedule provisions; problems and prospects of micro-planning and growth centre strategies(8)
9. Problems education in tribal areas of India(2)
10. Tribal situation in the North-East: Distribution and resource base; colonial tribal policy, quest for autonomy and state formation, problems of economic development and preservation of cultural identity(5)

Suggested Readings

1. Bardhan, A.B. : Tribal Problem in India, New Delhi, 1973.
2. Bose, N.K. : Tribal Life in India, NBT, 1971.
3. Census of India: Socio-Cultural & Economic Dimension of Regionalization in India, Census Centenary Monograph No.7 New Delhi.
4. Desai, A.R. : Rural Sociology, popular, Bombay, 1978.

5. Elwin, V.: The Aborigines, OUP, 1944.
6. Ghurye, G. S.: The Scheduled Tribes, population, Bombay, 1959.
7. Mamona, C. B.: Tribal Demography in India, Kitab Mahal Allahabad, 1958.
8. Raza, M.: "The people in India" The Geographer, Vol. XXIV, No. 1, 1977.
9. Raza, M et. al.: The Tribal population of India-Spatial Patterns of Clustering and Concentration. Occasional paper No. 5, JNU, N.D. 1977.
10. Raza, M. and Ahmad, A.: Tribal Atlas of India, Concept, New Delhi, 1989.
11. Sharma, B. D.: "Environmental Context and the personal system- Its implications for Tribal Areas" Occasional papers on Tribal development. No. 9, New Delhi Govt. of India, 1976.
12. Singh, K. S.: Tribal Situation in India, Indian Institute of Advanced Study.
13. Subharao, B.: Personality of India, Univ. of Baroda, Baroda, 1958.
14. Singh, Bhupinder & Bhandari, J. S.: The Tribal World and its Transformation, Concept, N.D., 1980.
15. Thapar, Romesh (ed): Tribe Caste and Religion in India, MacMillan India, 1977.

GE 522 : POLITICAL GEOGRAPHY

Credits:4
 Marks :100
 Lectures:45

UNIT-I

1. Definition, scope & approaches in political Geography. (3)
2. Concepts and theories in political geography. (3)
 - (a) Territory in different forms, concept of sovereignty and elements of power and nation state.
 - (b) Core-periphery relationship and interaction.
 - (c) Political processes and political systems.
3. Geopolitical models and world-view: concepts and applications. (4)
4. Political boundaries and conflict areas (5)
 - (a) Frontiers and boundaries: Nature and classification of conflicts.
 - (b) Case studies of boundary conflict areas of West Asia, South Asia and the Indian subcontinent.

UNIT-II

5. Geography of federalism—its strengths and weaknesses (4)
6. Geography of regionalism. (3)
7. Geographical factors in state politics. (3)

UNIT-III

8. Electoral geography and spatial behavior. (3)
9. Geopolitical focus on (4)
 - (a) Resources—national and international.
 - (b) Technology and development and the regional economic groups.
 - (c) North-south relationship.
10. Political geography of the Indian Ocean (5)

UNIT-IV

11. Human Rights and International Relations (9);
 - (a) Theory—idea of Human right, Human rights and cultural relativism.
 - (b) Policies—Human right in Foreign policy.

Suggested Readings

1. Alexander, L.M.: World Political Patterns Ran McNally, Chicago, 1963.
2. Cohen, S.B.: Geography and Politics in a Divided World Methuen & Co., London, 1968
3. De Blij, H.J.: Systematic political geography, John Wiley, New York (Latest edition).
4. Deka, K.M. (ed): Nationalism and Regionalism in North East India, Dibrugarh Univ., Dibrugarh, 1985.
5. Dikshit, R.D.: The political Geography of Federation: An Inquiry into Origins & Stability, Macmillan Delhi, 1975
6. Dikshit, R.D.: political Geography, A Contemporary perspective, Tata McGraw Hill, New Delhi, 1982.
7. Fisher, C.A. (ed): Essays in political Geography Methuen and Co., London, 1968.
8. Muir, R.: Modern political geography, Macmillan, London 1975.
9. Pounds, N.J.G.: Political Geography, McGraw-Hill, New York, 1972.
10. Prescott, J.R.V.: Political Geography, Methuen, London, 1972.
11. Singh, G.S.: A political Geography of India, Central Book Depot, Allahabad, 1969.
12. Sukhwai, B.L.: Modern political Geography of India, Sterling publishers, New Delhi, 1968.
13. Taylor, Peter: Political Geography, Longman, London, 1985
14. Taylor, Peter & House, John: Political Geography: Recent Advances, Barnes & Noble Books, N.J., 1984.
15. Whittlesey, D.: The Earth and the State, Henry Fort, New York.
16. Vincent, R.J., 1991, Human Right and International Relations, C.U.P, London.
17. White, Alan, R, 1984, Right, Okaradon, Oxford.
18. Donnelly, J., 1985, The Concept of Human Rights St. Martin's Press, New York.
19. Alston P, 1982, The International Dimensions of Human Right, Greenwood press, Westport.
20. E. Haks, 1970, Human Rights and International Action (S.U.F, stanford)

.pl70

GE 523 : HISTORICAL GEOGRAPHY

Credits : 4
 Marks : 100
 Lectures: 45

UNIT-I

1. Nature and scope of Historical Geography and its relation with History. Differentiation between History of Geography, Geography of History and Historical Geography. (10)
2. Source material for the reconstruction of Historical Geography with special reference to India: Archaeological remains, Religious texts and Epics, chronicles, memories, Travel accounts, Revenue records, place names, old maps and oral tradition in the form of mythology(8)
3. Geographical Extent of Indus Valley Civilizations: physical and socio-economic basis of its emergence, spread, decline and fall(7)

UNIT-II

4. Geography of India during the puranic period: Geographical spread of Aryans and territorial organization of Mahajanpadas (10).
5. Geography of India as reported in the travel accounts of Hiuén Tsiang.(5)
6. Territorial organisation during the Mughal period on the basis of Ain-i-Akbari, delimitation of suba and Sarkar boundaries of India and Geographical account any one suba.(10)

Suggested Readings

1. Ali, S.M.: The Geography of the Puranas, peoples publ. House, Delhi, 1966.
2. Beal, S.: Chinese Accounts of India: Travels of Huién Tsiang, Vols. 1-4, Calcutta, 1963.
3. Cunningham, Alexander: The Ancient Geography of India, Bharatiya publishing House, Varanasi, 1975.
4. East, W. Gordon : The Geography Behind History, T. Nelson New Year, 1938.
5. Habeeb, I.: The Agrarian System of Mughal India, Oxford University press, London, 1963.
6. Habeeb, Irfan: An Atlas of the Mughal Empire, OUP, Delhi, 1982.
7. Hartshorne, Richard: The Nature of Geography, Chapter on Historical Geog., AAG, Lancaster, Penn., 1939.
8. Hasan, Mehdi : The Rehla of Ibn-Batuta, Orient Institute, M.S. University, Baroda, 1953.
9. Raza, M. & Ahmad, A. : "Historical Geography", A Survey of Research, Bombay, 1972.

GE-525 : Geography and Development

Credit : 4
Marks : 100
Lectures: 45

UNIT- I

1. Defining development. (2)
2. Philosophy of development; evolution of the development idea(2)
3. Social theory and geography(2)
4. Organic evolution of development theories: (6)
 - (a) Evolutionary theory (and the stages theory)
 - (b) Cumulative causation and the 'vicious circle'.
 - (c) Neo-classical theory & 'aid vs. trade' debate.
 - (d) Sustainable development theory
 - (e) The maximum theory of development.
 - (f) Dependency theory.

UNIT - II

5. Defining regional development: conditions of diversity and disparity.(2)
6. Regional development theories in specific reference to(8)
 - (a) Divergence - convergence model
 - (b) Export-base model
 - (c) dependency model
 - (d) 'Internal colony' model

UNIT-III

7. Measures of regional disparities (4)
8. Regional disparities in poor nations; application of theories to empirical conditions, with special reference to India.(8)

UNIT - IV

9. Questions of poverty and geographical analysis (5)
10. Concept of Human Development - reorienting the development idea; reorientation of geographic theory of underdevelopment/development(5)

GE-525: Suggested Readings

1. Amin, S. : Accumulation in World Scale: A Critique of the Theory of Underdevelopment, Brian Pearce, 1974.
2. Amin, Samir, : Unequal Development.
3. Baran, P. : The Political Economy of Growth, New York, 1957.
4. Dobb, M. : The Economic Development of Capitalism, New York, 1963.
5. Ehrlich, P. R., Enrich, A.H. : Ecoscience: Population, Resource, Environment, Freeman, S.F., 1977.
6. Frank, A. G. : Capitalism and Underdevelopment in Latin America, Monthly Review Press, N.Y., 1969.
7. Frankel, F. : Indian Political Economy, Oxford, 1978.
8. Ginsburg, N (ed.) : Essays on Geography and Economics of Development, University of Chicago, Research Paper No.62.
9. Hagget, P. : Geography: A Modern Synthesis, Harper, New York, 1972.
10. Herbert, David, T and David Smith : Social Problems and the City, Oxford, 1979.
11. Hirschman, A.O. : The Strategy of Economic Development, Yale, London, 1958.
12. Hurst, M.E.E. : "Geography, social Science and Society: Towards a Re-Definition", AGS Vol.18, No.1, 1980.
13. Johnston, R.J. : Geography and Geographers, Edward Arnold, 1983.
14. Meadows and Meadows : Limit to Growth, Pan Book, London, 1974.
15. Meadows, P.L. : Alternative to Growth, Cambridge, 1977.
16. Myrdal, Gunnar : Asian Drama, Penguin, 1972.
17. Roston, W.W. : The Stages of Economic Growth: A Non-Communist Manifesto, Cambridge, London, 1977.
18. Schmacher, E.F. : Small is Beautiful: A Study of Economics as if People Mattered, Radha Krishna (Indian Ed.), New Delhi, 1977.
19. Sengupta, P and Sdaslynk, G. : "Economic Regionalisation of India Problems and Approaches, Monograph No.8, Census of India, N.D., 1968.
20. Smith, D. : Human Geograpny: A Welfare Approach, Arnold.
21. Ward, B. and Rene Dubos : The Only Earth, Penguin, 1960.

BE-527 :Regional Planning- I

Credits : 4
 Marks : 100
 Lectures : 45

UNIT-I**(Planning Philosophy)**

1. Philosophy of Planning and Planning theory (4)
2. Defining region and regional planning: its scope and significance in Geography(3)
3. Typology of regions; concept of planning region (3)

UNIT -II**(Principles of Regional Planning)**

4. Regional resource complex analysis (2)
5. Decentralised planning: Philosophy & practice(2)
6. Regional environment and planning principle & Planning habitability (Glikson)
7. Multi level process in Regional Planning (2)
8. Metropolitan planning (2)
9. Identification of Problem regions(2)

UNIT - III**(Regional Planning Strategies)**

10. Induced growth strategies(3)
11. River valley (watershed) planning strategy(2)
12. Growth centre and growth pole strategies.(3)
13. Territorial production & energy cycle approach to regional planning (2)
14. Regional population planing (2)

UNIT - IV**(Regional Policy Planning)**

15. Backward area development policy (2)
16. Regional environment policy(1)
17. People's participation & empowerment(2)
18. Area specific policies:
 - (a) Hill areas (2)
 - (b) Drought Prone Areas(2)
 - (c) Tribal areas(2)

Suggested Reading

1. Agarwala, A. N. & Snigh, S.P.: The Economics of Under development, Oxford University Press, 1973.
2. Bhatt, L.S.: Regional Planning in India ISI, 1973.
3. Boudeville, J.R.: Problems of Regional Economic Planning
4. Christaller, W.: Central Places in Southern Germany, Prantice Hall, 1968.
5. Derwent, R.F.: Growth Poles and Growth Cent4res in Regional Development: A Review, Environmental and Planning, Vol.1, 1969.
6. Dunham and Horst, Hill: Issue in Regional Planning Mouton, the Hague, 1971.
7. Friedman, J. and William, A.: Regional Development and Planning: A Reader, .M.I.T press, 967.
8. Fisher S.C.: City and Regional Planning in Poland, Coronelli University Press, New YL:ork, 1966.
9. Glasson: introduction to Regional Planning
10. Glikson, A.: Regional Planning and Development, Netherlands Universities Foundation International Cooperation
11. Hall, Peter: Urban and Regional Planning, Penguin, 1974.
12. Hole, B. S.: (ed) Spatial Aspects of Development, John Wiley, London, 1974
13. Hilhorst, J.G.M. Regional Planning Retterdam Univ.Press Press, 1975.
14. Isard, W.: Method of Regional Analysis, MIT, 1960.
15. Kuklineki, A.R.(ed): Growth Poles & Growth Centres in regional Planning, Mouton, the Hague, 1972.
16. Losch, A.: The Economics of Location, New Haven, Yale, 1954.
17. Misra, R. P., Sundaram & Rao: Regional Planning in India A Strategy, Institute of Development Studies, Mysore.
18. Misra, R.P.: Regional Planning Concepts, techniques, Polices, University of Mysore, 1969.
19. Myrdal, G.: Economic Theory and Underdeveloped Regions, Methuen, London, 1964.
20. United Nations: Housing, Building and Planning, Nos: 12, and 15, Special Issues on Regional Planning, 1959.
21. Weber, A.: Theory of the Location of Industries, Chicago, 1929.

GE-532 : URBAN GEOGRAPHY

Credit : 4
Marks : 100
Lectures: 45

UNIT - I

1. Nature, scope and significance of Urban Geography (2)
2. Definition of urban settlements (2)
3. Approaches to study of urban geography (6)
 - (a) Evolutionary approach
 - (b) Positivist approach
 - (c) Marxist approach
 - (d) Dependency (core-periphery) approach
 - (e) urban systems approach

UNIT - II

4. Origin and theories regarding origin of cities (3)
5. Growth of cities and theories regarding urban growth (4)
 - (a) Economic base theory
 - (b) Induced growth theories
 - (c) Urban threshold theory
6. Urbanization and urban processes: factors and conditions; Urbanization in the Third World and its consequences (5)

UNIT - III

7. Classification system for urban centres: sizes & functions (2)
8. Urban hierarchy and urban systems analysis (3)
9. Intra & urban models of interaction: Gravity model, Retail distribution & Landuse models.

UNIT - IV

10. Distribution and growth of urban centres and urban population (5).
11. Urbanization and its determinants (2)
12. Problems of million plus cities (3)
13. Urban poverty & poverty alleviation. (3).

Suggested Readings

1. Alam, S. Manzur: Hyderabad - Secunderabad Twin Cities, Asia Publishing House, Bombay, 1964.
2. Beaujeu - Garnier, J. and Chabot, G. : Urban Geography Longmans, London, 1967.
3. Berry, B.J.L. & Horton, F. E. : Geographic Perspectives on Urban Systems, Prantice Hall, N.J., 1970.
4. Carter, Harold: The Study of Urban Geography, Edward Arnold Publishers Ltd., London, 1972.
5. Chapin, F. Stuart : Urban Landuse Planning, University of Illinois Press, Urban, 1965.
6. Davis, Kingsley & Hertz, H. : Patterns of World Urbanizations, Columbia Univ. Press, N.York,
7. Dickinson, R.E. : City & Region Routledge, London, 19674.
8. Duncan, D.D. Metropolis and Region, John Hopkins Press, Baltimore, 1960.
9. Dwyer, D.J. (ed): The City as A Centre of Change in Asia, Univ. of Hong Kong, Press, 1971.
10. Gibbs, Jack P. : Urban Dynamics, MIT Press, 1968.
11. Gibbs, Jack P. : Urban Research Methods, D. Van Nostrand Co. Inc., Princeton, New York, 1961.
12. Gist, N.P. & Fava, S.W.: Urban society, Crowell, N.Y., 1964.
13. Gottman, Jean: Megalopolis: The Urbanized North Eastern Seaboard of the United States, Twentieths Century Fund, New York, 1961.
14. Hagget, P.: Geography: A Modern Synthesis, Harper & Row, New York, 1972.
15. Hauser, Phillip M. and Schnore, Leo F. (ed): The Study of Urbanization.
16. James, F.E. and Jones, C.F. (eds): American geography Inventory and Prospect, Syracuse Univ., 1954.
17. Johnson, J.H. : Urban Geography: An Introductory Analysis, Pergamon Press, London, 1967.
18. Mahadev, P.D. (ed): Contribution in Geography, Vol. VII Urban Geography, Heritage, New Delhi, 1986.
19. Mayer, H.M. & Kohn, C.F. (eds): Readings in Urban Geography, Univ. of Chicago Press, 1959.
20. Mumford, L. : Culture of Cities Macmillan, London, 1958.
21. Mumford, L.: The City in History: Its Origins, its Transformations & its Prospects, Harcourt, Brace, N.York, 1961.
22. Murphy, R. E. : The American City: An Urban Geography McGraw Hill Book Co., New York, 1966.
23. Pacione, Michael: Progress in Urban Geography, Croom Helm, London, 1983.
24. Rao, V.L.S.P. : Urbanization in India, Allied Publishers, Bangalore, 1984.
25. Robson: Urban Analysis: A Study of City Structure with Special Reference to Sunderland, Cambridge University Press, 1976.
26. Singh, R. L. : Kanaras, Nandkishore, Varanasi, 1955.
27. Smailes, A.E. : The Geography of Towns, Hutchinson, Univ.

5:2:3 (48)

Credit: 4
Marks: 100(T)
Lectures:45(L)

UNIT-I

1. Meaning and scope of Integrated Area Planning, Elements of space economy, approaches to Area Development(5)
2. Role of Central places in the organisation of space-economy spatio-functional organisation, Decentralisation of spatial system(7)

UNIT - II

3. Resource structure and its related functions; Identification of functions and facilities, Centrality measurements, functional hierarchy, Locational behaviour and transport network analysis (9)

UNIT - III

4. Area Development Strategies - Spatial efficiency; Criteria functional as well as Locational choices, distance-location relationships; spatial Integration: Mass-Mobility and Distance-mobility relationships(10)

UNIT - IV

5. Application of the Integrated Area Planning approach with special reference to Hills and Plain areas of N.E. Region(7)
6. Integrated approach for Watershed management specially for North Eastern Hill Region(7).

Suggested Readings

1. Bhat, L.S. et.al.: Micro-level Planning K.B.Publ., New Delhi, 1969.
2. Roe, H.C.: Spatial Dispersion of Economic Activities, Rotterdam Univ. Press, Rotterdam, 1965.
3. Gaile, G.L.: "Towards a strategy of Growth Paths", Environment & Planning, Vol.55 (No.3), 1977.
4. Hanumantha Rao, C.H. & Joshi P.C. (ed): Reflections on Economic Development and Social Change, Allied Publication, New Delhi, 1979.
5. Hennings, G. et.al.: "The Promotion of Relief Poles", Applied Geography & Development, Vol.18, 1981.
6. Harmansen, T.: "Spatial Organisation & Economic Development" Development Studies, Mysore Univ., 181.
7. Isard, W.: Location and Space Economy, MIT Press, Cambridge, 1986.
8. Losch, A.: The Economics of Location, New Haven, Yale Press, 1954.
9. Misra, R. P & Sundram, K.V.: Multi-Level Planning and Integrated Rural Development in India, Heritage Pub. New Delhi, 1980.
10. Scott, A.J.: Combinatorial Programming, Spatial Analysis & Planning, Methuen, London, 1971.
11. Sen, L.K. (ed.): Readings in Micro-Level Planning and Rural Growth Centers, NIRD, Hyderabad, 1974.
12. Sen, L.K. et.al: Growth Centers in Raichur, NIRD, Hyderabad, 1975.
13. Sharma, A.N.: Spatial Approach for District Planning, Concept Pub., N.Delhi.
14. Singh, J: Central Places and Spatial Organisation in a Backward Economy, Uttar Bharat, Bhugdol Parishad, Gorakhpur, 1979.
15. Vickerman, R. W.: Spatial Economic Behaviour, Macmillan Press, London, 1980.
16. Whyte, R.O.: The Spatial Geography of Rural Economics, Oxford Univ. Press, N.Delhi, 1982.

GE-535 : Agricultural Geography

Credit: 4
Marks : 100
Lectures:45

UNIT- I

1. Nature, Scope and Significance of Agricultural Geography (2)
2. Domestication of plants animals, gene centres, Origin and development of agriculture diffusion and adaptation of crops and animals (6)

UNIT - II

3. Land use capability classification and agricultural land use, Optimum limit and location theory.
4. Physical conditions for agriculture.
5. Social and Institutional factors.
6. Global agricultural systems, Whittlesay and recent changes (8)

UNIT - III

7. Agricultural parameters: Cropping pattern, Crop Combination, Crop intensity, Agricultural Productivity patterns with special reference to India (10)
8. Institutional parameters:
Land distribution, Land Tenure and regional impact of Green Revolution.
9. Approaches to agricultural regionalization with special reference to Indian Agriculture (5)

UNIT - IV

10. Agriculture in N.E. Region (9)
 - a) Shifting Cultivation
 - b) Plantation agriculture.
 - c) Peasant agriculture

GE-535 Suggested readings

1. Alexander, J.W. : Economic Geography, Prentice Hall, N.J.
2. Bnalla, G.S. & Alagh, Y.K. : Performance of Indian Agriculture - A District-wise Study, Sterling Publishers, New Delhi, 1974.
3. Clark, C. and Haswell, M.: The Economics of Subsistence Agriculture, St.Martin s, London, 1964.
4. Curwen, E.C. and Hatt, G.: Plough and Pasture: The Farriyl History of Farming, H. Schuman, N.Y., 1953.
5. Dumont, R. : Types of Rural Economy, Praeger, N.Y., 1957.
6. Dunn, E.S. : The Location of Agricultural Production, Univ. of Florida Press, Gainsville, 1954.
7. Gobind, Nalini: Regional Perspective on Agricultural Development, Concept, Delhi, 1986.
8. Gregor, Howard F. : Geography of Agriculture: Themes in Research, Prentice Hall, N.J., 1970.
9. Hussain, N. : Agricultural Geography, Inter-India Publications, Delhi, 1979.
10. Morgan, W.B. and Munton, R.J.C.: Agricultural Geography Methuen, London, 1971.
11. Sauer, Carl: Agricultural Origins & Dispersals, American Geographical Society (Bowman Memorial Lectures), New York, 1952.
12. Sinoh, J. : Agricultural Atlas of India - A Geographical Analysis, Vishal Publ., Kurukshetra, 1974.
13. Symons, L. : Agricultural Geography G. Bells and Sons, London, 1967.
14. Tarrant, J.R.: Agricultural Geography, David & Charles, Newton, 1974.
15. Wheeler, K.E. , Ladley, A.M. and Leong, F.G.: Studies in Agricultural Geography, Bland Educational, London, 1970.
16. Van Royen, W. : Atlas of the World's Resources, Vol.I. The Agricultural Resources of the World, Prentice Hall, New York, 1954.

GE-536:Microlevel Planning

Credit : 4
Marks : 100
Lectures: 45(L)

UNIT-I: Concepts

1. Development Process- spatial, social and Environmental Perspectives, Relationship between Regional, Political and administrative frame work in planning.
2. Multi Planning and Decentralised Planning.
3. Structure and Function Decision making in Multi level Planning in relation to district, Block level Planning.

UNIT - II : Planning Strategies.

4. Planning approaches, Top Down and Bottom up approach.
(ii) Micro level Planning and Growth Centre approach.
5. Objectives and strategies of Planning at the District and Block level Planning.
6. Community Development Programme, IRDP, MNRP, NREP, JRY, IAY, IMY
Need for spatial, structural and functional coordination.
7. Grass root level planning, land Development, Village as units in Planning.

UNIT- Planning Methods

8. Techniques and Methodologies in District and Block Level Planning Cartographic and Qualitative.
9. Micro level planning - local self Government.
10. People's participation and Panchayati Raj system
special reference to 73 constituencies Amendment.
11. Gandhian approach of Development and village Republic.

UNIT- IV: Case Studies

12. Rural Resource Mobilisation and Land use Planning.
13. Block Level Planning and Rural Industrialisation small and cottage Industries.
14. Role of N.G.Os in the Grass Rootlevel Development and sustainable Development.

SE-536 Suggested Readings

- S.L. Dube Indian Changing Villages Human Factor in Community Development, Allied Publication.
- Kathleen Gough Rural Change in South East India, 1950-1980s, Oxford Univ. Press.
- K.V. Sundaram : Urban and Rural Planning in India, Vikas.
- Healey Patsy : Planning and Change Progress in Plan Programme Press, Oxford.
- M.K. Qureshi & Mathur : A Geo-Economic valuable for Micro Level Planning, Concept Gurgaon Div.
- V.L. Howli : Rpie of Voluntary organisation in Social Development Sterling, Pub.
- Naidu K.M. (ed.) Area Planning For Regional Development District Level Planning Persons from Experiences, Inter India Pub.
- G.K. Mishra: Block Level Planning Rawat Pub. Nadia Dist. Pargnat II Block.
- Spat K.S. Micro Level Planning K.B. Publication N. Delhi
- K.S. Snelvankar, V.K. Aegh, A.M. Kkuroo, G.S. Bhella, D.D. Narule "In Aspects of Planned Development CENTRE FOR RESEARCH IN RURAL AND INDUSTRIAL DEVELOPMENT"
- L. Bahuguna: Development of Threat to Culture, Gandhi Ward, Vol. 15, no. 2, 1994.
- Pradipto Roy And B. K. Patil Manual For Block Level Planning,
- L.B. Bhatt, Micro Level Planning A study of Karnal Area
- Association of Volunteers Agencies of Rural Haryana Development, New Delhi, Micro Level Planning, Studies.

GE-548: Regional Structure of North East India

Credit:4

Mark : 100

Lectures:45

UNIT-I

1. The North East: Geographical Unity and Diversity. (2)
2. Physical Structure: Geomorphic features and Physiographic divisions; distribution and regional variation in Climate, Natural vegetation and soils. (8)

UNIT-II

3. Historical set up; (a) Influence of geographical factors in the course of cultural history of the region; (b) areas of attraction, isolation and relative isolation and the role of physical factors in the evolution of different cultures in these areas; (c) Centripetal and centrifugal forces in the emergence of unified culture in the Brahmaputra Valley and diverse cultures in hilly areas of the region. (8)
4. Social Structure: (a) Peopling of the region and the racial groups; (b) Linguistic families and distribution of languages in the region; (c) Spatial distribution of tribal population in the region; (d) Religious groups and their distribution pattern; (e) Distributional pattern of scheduled Caste population (12)
5. Population and Settlement Structure; (6)

- (a) Distribution land Density of Population;
- (b) Population growth and Migration;
- (c) Rural and Urban population;
- (d) Types and distribution of settlement.

UNIT-III

6. Resource Base and Economic Structure: (8)
 - (a) Communication Network and economic development of the region.
 - (b) Agriculture with special reference to the Jhum cultivation
 - (c) Forests and development;
 - (d) Power and mineral resources;
 - (e) Industries and Industrial development.
7. Levels of Regional Development and Problems of Economic Development in the North East India (2)

Suggested Readings

1. Baruah, A.R. : Geography of Assam
2. Chaudhury, P. C. : History of Civilization of Assam, Gauhati, 1960.
3. Das, H.P. : Geography of Assam, N.B.T., 1972.
4. Gait, E. : History of Assam, Calcutta, 1926.
5. Singh R.L. (ed) : Regional Geography of India.
6. Spate, O.H.K. : India and Pakistan
7. Ahmad, A. : "Physiography as a Framework to Early Human Migration in N.E.R.", NEHU, Shillong, 1978.
8. Ahmad, A. : "Linguistic Pattern of North Eastern Region" Language and Social and Regional Identities in India, CSRD., JNU., New Delhi, 1982.
9. Bhuyan, M.C. : "Trends in Population Growth in Assam", NEIGS, Vol No. 1&2. Gauhati, 1973.
10. Rao, S.N. : "Geographical factors in Cultural History of N.E. India", Seminar on Resource base and Problems of Reg. Dev. of NE Region of India, NEHU, Shillong, 1977.
11. Taher, M. : Tribes of North-East India: A Diagnostic Survey of Spatial Pattern, Unpublished.

GE-549 : Project

UNIT - I

Credit : 4
 Marks : 100
 Lectures:20+Dissertation.

1. As stipulated in the course structure, there will be eight weeks of theory on the regular basis containing the following aspects: (a) What is research? and the importance of research in Geography. (b) Empirical research & field investigations in Geography. (c) Identification of a research problem. (d) Specification of the objectives. (e) What is a hypothesis and how to generate them? (f) Survey of literature (g) Preparation for field work. (h) Field methods:

(1) Surveys (Geographical), (2) Socio-economic surveys including preparation of scheduled & questionnaires.

(i) Primary analysis of field data (j) Writing a research paper.

UNIT -II

(Field Work (3 weeks)

UNIT- III

Project Report (Dissertation).

Note: The Course will start from the beginning of III Semester. The students are required to do an abridged research methodology course, after which the synopsis of dissertation will be finalised. The students can do the field work related to the problem and finalise the reports, which then will be evaluated at the end of IV semester. The overall division of marks will be in the following manner:

a) Research methodology	: 15
b) Field work	: 10

	25 (SA)
c) Project Report	: 50
d) Viva voce	25

	75 (ESE)

Suggested Readings

1. Archer, J. E. and Dalton, J. H. : Field Work in Geography E.T.Satsford Ltd., London, 1968.
2. Elhance, D. N. : Fundamental of Statistics Kitab Mahal, Allahabad, 1972.
3. Gregory, S. : Statistical Methods and the Geographer, Longman, London, 1963.
4. Jones, F.A. : Field Work in Geography, Longman, London, 1968.
5. Stoddard, R. H. : Field Techniques & Research Methods in Geography, Kendall Hunt Publ., Dubuque, 1982.

GE-550 REMOTE SENSING AND IMAGE INTERPRETATION

Credits: 4
 Marks: 100
 Lecture: 50

UNIT I THEORY PAPER

1. Basic concept of Remote Sensing: Definition, Stages in Remote sensing, Platforms, Sensors, Types of Remote Sensing, Thermal Radiation Laws, Remote Sensing products, Sensitivity of films.
2. Basic specification and Information about Aerial Photography, Scale of Aerial Photographs, Types of Aerial photographs, Elements of Aerial photo interpretation techniques.
3. Image Interpretation: Elements of Image Interpretation, Techniques of Image Interpretation, Band concepts, Sensors, Platforms, Types of Satellites.
4. Fundamentals of Photogrammetry: Definition, Geometry of Aerial photographs, Measurement of Heights from Aerial photographs.
5. Application of Remote Sensing Techniques to Geomorphology/ Geology, Landuse/Landcover, Urban and Regional Planning, Water Resources, Transport, Flood Monitoring and assessment, Settlement pattern and types studies, Agricultural monitoring and assessment and Environmental management.

UNIT-II PRACTICAL

Photogrammetry :

- 1.1 Computation of photo scales :
 - .1 Using map of known scale .
 - .2 Using flight informations .
 - .3 Using size of a known scale .
 - .4 Using the estimated size of familiar objects .
- 2 .1 Using flight lines .
 - .1 Short method
 - .2 Under pocket stereoscope.
 - .3 Mounting a run of photographs.
- 3.1 Point transfer, principal point, flight lines and match lines.
 - .1 Point transfer with needles.
 - .2 Principal point, flight lines and match lines construction.

GE-550: Suggested Readings

1. American Society of Photogrammetry: Manual of plot graphic Interpretation, Banta Publication Co., Menasha, Wisconsin, 1960.
2. Avery, T.E.: Interpretation of Aerial Photography, Burgess Publishing Co., Minneapolis, 1962.
3. Barrett, E.C. and Curtis, L.F. : Introduction to Environmental Remote Sensing, Chapman, London 1976.
4. Dury, G.M. : Map Interpretation Issac Pitman, London, 1952.
5. Lattman, L.H. and Ray, R.R: Aerial Photographs in Field Geology, Hold, Rinerhart & Winston, N.Y., 1965.
6. Leuder, D.R.: Aerial Photographic Interpretation. MacGraw-Hill, N.Y., 1960.
7. Reeves, Robrt G.. (ed.) Manual of Remote Sensing (2 Vols) The American Society of Photometry, Falls Church, Virginia, 1975.
8. Smith, H.T.V.: Aerial Photographs and their Applied and appletion Century Crafts, N.Y., 1943.
9. Spurr, S.H.: Photogrammetry and Photo Interpretation, Ronald Press, N.Y., 1960.
10. Tomar, M.S. & Maslekar, A.R.: Aerial Photographs in Landuse and Forest Surveys, Jugal Kishore & Co., Dehra Dun, 1974.
11. Veil, S.W., (Revised by Hearn, G.S.G): Practical Survying, Technical Press, London, 1960.
12. Lillesand, M.T. & Kicfer, R.W. - Remote Sensing and Image Interpretation (2nd ed.) John Wiley & Sons, New York.
13. Sabins F.F. - Remote Sensing: Principles and Applications, MacGacGraw Hill, N.Y.

vi) Modification of the syllabus for M.A/M.Sc.
Anthropology.

The School Board of Humanities and Environmental Sciences in its meeting held on 17.10.95 approved the modification of the syllabus for M.A/M.Sc. Anthropology for course No.3.2,3.4. and 4.3. The modified syllabus at Annexure 'A' is placed before the Council for consideration.

5:2:6(2)

DEPARTMENT OF ANTHROPOLOGY
NORTH EASTERN HILL UNIVERSITY
SHILLONG

COURSE : 3.2

HUMAN GROWTH, DEVELOPMENT AND PHYSIQUE

FULL MARKS : 100

- I. Concept and scope of growth and development, Methods of studying growth, Tissue differentiation and organisation, Stages of human growth : Prenatal - embryo, fetus; post-natal - infancy, childhood, adolescence, maturity.
- II. Growth curves and organisation of growth process, Puberty-adolescent growth spurt, reproductive organs, Developmental age and maturity, Factors affecting growth and development.
- III. Mechanisms of various Endocrine and Hormones in determining Physical growth and development.
- IV. Human Constitution : Physique - classification; somatotyping; Kinanthropometry. Body composition - models, methods, applications.

Suggested Readings :

1. Harrison, G.A., Tanner, J.M., Pilbeam, D.R. and Baker, P.T. (1988) Human Biology, Oxford University Press, London.
2. Weiner, J.S. and Lourie, J.A. (1969) Human Biology - a guide to field methods. IBP Handbook No.9. Blackwell Scientific Publications, Oxford.
3. Tanner, J.M. (1962) Growth at Adolescence, Blackwell Scientific publications, Oxford.
4. Thompson, J. (1980) On Growth and Form. Cambridge University Press, Cambridge.
5. Brozecz, J. (1965) Human Body Composition. Pergamon Press, New York.

5:2:6(3)

COURSE : 3.4

PRACTICAL IN ADVANCE PHYSICAL ANTHROPOLOGY - I

FULL MARKS : 100

I. Blood Group System :

(a) ABO, (b) Rh, (c) MN,

Secretor Status: P.T.C. tasting ability

~~Disorders~~

Dermatoglyphic

Colour Blindness.

II. Somatometric measurements and indices :

Measurements - Stature, sitting height vertex, body mass, height acromion, height suprasternale, height iliocristale, height iliospinale, height dactylion, length of frontal trunk, chest length, chest breadth, chest depth, chest circumference, biacromial diameter, bicristal diameter, upper arm length, fore arm length, hand length, hand breadth, biceps girth, height tibiabile, height spherion, foot length, foot breadth, calf girth, humerus biepicondylar breadth, femur biepicondylar breadth.

Indices - Body mass index, relative sitting height, relative biacromial diameter, relative bicristal diameter, relative chest girth, acromo-iliac index, acromo-chest index, chest volume, interbicondylar index, brachial index, intermembral index, index of hand, index of foot, thoracic index.

III. (a) Skinfold measurements : biceps, triceps, subscabular, supra-iliac, calf, abdomen, mid-axillary, juxta-nipple, thigh, fore-arm.

(b) Techniques of measuring biological maturity : Dental maturity, skeletal maturity.

IV. Appropriate basic statistical analysis :

Suggested Readings :

- Bhatia, H.M. 1997 Procedures in Blood Grouping and Immunohaemotology. Blood Group Reference Centre, Bombay
- Cummins, H. & Finger Prints, Palm and Soles. Dover Publication Inc. New York.
- Midlo, C. 1986
- Krogman, W.M. 1986 The Human Skeleton in Forensic Medicine. Charles C. Thomas, London.
- Weiner, J.S. & Human Biology. Blackwell Scientific Publications, Oxford.
- Lourie. 1969

COURSE : 4.3.

HUMAN ECOLOGY AND ADAPTATION

- I. Human ecology - definition, objectives, and relationship with other disciplines. Principles and definitions in the study of Human Adaptation.
- II. Ecosystem - classification, populations and their subsistence ways in various ecozones, cultural adaptations. Concept of weather and climate. Biological clock.
- III. Climatic adaptation - Thermoregulation and acclimatization to heat and cold stress, biological effects and responses to high altitude.
- IV. Nutritional ecology - malnutrition, deficiency diseases and their distribution. Infectious and non-infectious diseases.

Suggested Readings :

1. Campbell, B. (1984) Human Ecology. Aldine de Gruyter, New York.
2. Damon, A. (1975) Physiological Anthropology. Oxford University Press, London.
3. Harrison, G.A., Tanner, J.M., Philbeam, D.R., and Baker P.T. (1988) Human Biology. Oxford University Press, Oxford.
4. Bresler, J.B. (1966) Human Ecology : collected readings. Addison-Wesley, Reading.
5. Cohen, Y.A. (ed) (1974) Man in Adaptation - the Biosocial Background. Aldine, Chicago
6. Weiss, M.L. (1981) Human Biology and Behaviour : An Anthropological Perspective. Little-
& Mann, A.E. Brown, Boston.

5:2:6(5)

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, senescence and gerontology, methods of studying growth and development.
- II. Factor affecting growth and development, growth curves and variation in growth. Growth as an indicator of nutritional status, Developmental age physiological maturity. Catchup growth, secular changes in growth.
- III. Endocrinology : the role of endocrines, and hormones in growth.
- IV. Human physique and somatypes : Viola, Sheldon, Kretschmer, Heath-Carter methods. Body Composition, model, methods and application, obesity and fatness.

SUGGESTED READING:

- Baker, P.T. & J.S. Weiner. 1966 The Biology of Human Adaptability- Clarendon, Oxford.
- Brozek, 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.
- Tanner, J.M. 1962. Growth at Adolescence. Blackwell. Oxford.
- Tgomson. J. 1980. On Growth and Form. New Edition Cambridge University Press.

5:2:6(6)

COURSE : 3.4.

PRACTICAL IN ADVANCE PHYSICAL ANTHROPOLOGY-I

FULL MARKS :100

- I. Blood Group Systems :
(a) ABO, (b) Rh, (c) MN.
Secretor Status; P.T.C. tasting ability
Dermatoglyphic
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, body mass index, relative sitting height relative biacromial diameter, relative bicristal diameter, relative chest girth, acromoliac index, acromochest index, chest Volume, inter.bicondylar index, brianacial indes, index, index of hand, thorax index.
- III. Skin fold measurements; Biceps, triceps, sulescapular, suprailiac calf, abdomen, 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 :

- Etatia, H.M. 1977. Procedures in Blood Banking and Immunohaemotology Blood Group Reference Centre, Bombay.
- Cummins, H. & Midlo, C. 1961. Finger Prints, Palm and Soles. Dover Publication Inc. New York.
- Krogman, W.M. 1986. The Human Skeleton in Forensic Medicine. Charles C. Thomas, London.
- Weiner, J.S. & Lourie. 1969. Human Biology. Blackwell Scientific Publications, Oxford.

.....

5:2:6(7)

COURSE : @4.3.

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 weather and climate. Biological clock.
- III. Adaptive 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, malnutrition, work physiology-ethnic and ecology variation, sports and exercise.

SUGGESTED READINGS :

1. Carr-Saunders, A.M. 1902. 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. Adolescent Sterility. Charles C. Thomas. Springfield, Illinois.
-

(vii) Revised syllabus for M.Sc Zoology

The school Board of Life Sciences in its meeting held on 16.10.95 approved the revised syllabus for M.Sc.Zoology. The revised syllabus is placed at Annexure 'A' for consideration of the Council.

NORTH-EASTERN HILL UNIVERSITY
 DEPARTMENT OF ZOOLOGY
 M.Sc. ZOOLOGY PROGRAMME
 COURSE DISTRIBUTION

Paper No.

	<u>Name</u>	<u>Theory*</u>	<u>Practical*</u>
1st Semester	Cell Biology and Immunology	Z-101	Z-102
	Molecular Biology	Z-103	Z-104
	Animal Physiology	Z-105	Z-106
2nd Semester	Biological Chemistry	Z-201	Z-202
	Genetics and Developmental Biology	Z-203	Z-204
	Parasitology and Entomology	Z-205	Z-206
3rd Semester	Animal Ecology and Behaviour	Z-301	Z-302
	Endocrinology and Reproductive Biology	Z-303	Z-304
	Aquatic Biology and Fisheries		
4th Semester	Biosystematics and Evolution	Z-401	Z-402
	Techniques in Biology and Biometrics		
	Special Paper	Z-405	Z-406

Special Papers Offered:

- A. Biochemical Adaptation
- B. Cell Biology and Immunobiology
- C. Developmental Biology
- D. Endocrinology and Reproductive Physiology
- E. Entomology
- F. Genetics
- G. Limnology
- H. Parasitic Helminthology

*- Theory - 100 marks

*- Practical - 50 marks.

Z-101 CELL BIOLOGY AND IMMUNOLOGY (Theory)

Unit-1 Cell Structure and Plasma Membrane

1. Structure and organisation of bacteria, cyanobacteria and viruses.
2. Structure of eukaryotic cells and the differences with prokaryotic cells.
3. Models of plasma membrane organisation.
4. Structure, chemical composition and functions of plasma membrane
5. Intercellular communication endocytosis and exocytosis, vesicular transport.

Unit-2 Cytoskeleton and cell Organelles

1. Types, structure and functions of cytoskeleton
2. Detailed structure and function of :
 - mitochondria
 - ribosomes
 - lysosomes
 - peroxisomes
 - golgi complex
 - chloroplast
 - endoplasmic reticulum.

Unit-3 Eukaryotic Nucleus and Cell Division

1. Nuclear membrane and nucleolus
2. Chromatin - types, structure, chemical composition and function and importance
3. Synapsis and synaptonemal complex molecular structure and importance
4. Crossing over and chiasma formation.
5. Cell cycle - features of different phases of cell cycle and its regulation
6. Malignant growth

Unit-4 Immunology -1

1. Introduction and Scope of Immunology
2. Innate and acquired immunity-components and characteristic features
3. Immunoglobulin-basic structure, classes and functions
4. Antigens- antigenicity epitopes, haptens and adjuvants
5. Antigen- antibody reaction

Unit-5 Immunology-II

1. Mechanisms of antibody diversity
2. Lymphokines- interleukins
3. Alternate/classical complement pathways
4. Major histocompatibility complex (I-2, III A) Class-I & II
5. Delayed/immediate hypersensitive reactions.

Z-102

CELL BIOLOGY AND IMMUNOLOGY

(Practical)

1. Preparation of solutions fixatives of different normality, and dilutions
2. Study of mitosis in onion root tips
3. Study of meiosis in grasshopper testis
4. Study of sex-chromatin in human buccal cavity cells
5. Isolation and staining of mitochondria from mammalian liver
6. Dissection and histology of lymphoid organs in rat/mouse
7. Antigen-antibody reaction-Double radial immunodiffusion
8. Study of bone-marrow cells from mouse
9. Study of lymphocytes/monocytes in blood smears from mouse
10. Determination of blood groups in human
11. Phagocytosis in spleen macrophages.

Suggested Readings:

1. Alberts, R, Bray D; Lewis, J, Raff M Roberts K and Watson J.D. (1994) Molecular Biology of the Cell, Garland publishing Inc.
2. Cooper E.L. (1982) General Immunology Pergamon Press
3. Darnell J, Lodish P and Baltimore D (1990) Molecular Cell Biology
4. De Robertis, E.D.F. and De Robertis EMF (1987) Cell and Molecular Biology, 8th Edition, Lea and Febiger International edition
5. Dewitt (1977) Biology of the Cell - An Evolutionary Approach, Saunders Co.
6. Roitt, I.M. (1994) Essential Immunology, Blackwell Scientific Publications
7. Roitt, I.M. Brostoff, I and Malc, D.K. (1985) Immunology, Gower Medical Publishing.
8. Thrope, N.O. (1984) Cell Biology, John Wiley & Sons.

Z-103

MOLECULAR BIOLOGY

(Theory)

Unit-1 Structure and Properties of nucleic acids

1. Prokaryotic and eukaryotic genomes
2. Nucleic acid as genetic material, information flow
3. Detailed structure of DNA including various forms
4. Physico-chemical properties of DNA
5. Types, structure and properties of Prokaryotic and eukaryotic RNAase

Unit-2 Replication, Transcription and Recombination:

1. DNA replication - semiconservative, structure and properties of DNA polymerases in prokaryotes and eukaryotes
2. Mechanism and enzymology of DNA and RNA replication
3. Genetic recombination in prokaryotes and eukaryotes
4. Transcription-Sense and antisense strand, structure and properties of RNA polymerases in prokaryotes and eukaryotes
5. Mechanism of transcription initiation, elongation and termination
6. Reverse transcription

Unit-3 RNA Processing, Genetic Code and Protein Synthesis

1. Characteristic features and mechanism of RNA processing, RNA editing
2. Genetic code-triplet codon concept features of genetic code
3. Translation-initiation, elongation and termination of protein synthesis
4. Protein splicing
5. Protein secretion and signal hypothesis

Unit-4 Regulation of Gene Expression

1. Prokaryotic gene expression-inducible and repressible operon systems
2. Concept to eukaryotic gene regulation and its differences with prokaryotic system.
3. Transcription factors general specific
4. Concept of oncogenes and its role in cancer

Unit-5 Genetic Engineering and its Application

1. Bacterial genetics-transformation conjugation transduction and sex duction
2. Principle and methods of genetic engineering
3. DNA transformation techniques, site specific mutagenesis
4. Gene targeting
5. Application in agriculture, health, medicine and industry.

1. Extraction of DNA from mammalian liver and kidney
2. Extraction of RNA from mammalian liver and kidney
3. Estimation of DNA
4. Estimation of RNA
5. Separation of lymphocytes by ficoll gradient
6. Radiation-induced chromosomal aberrations
7. Gel electrophoresis
8. To study the absorption spectra of DNA & protein
9. Bacterial transformation studies

Suggested Readings:

1. Ayala, F.J and Kiger, J.A.(1984) Modern Genetics, 2nd Edition: Benjamin/Cumming Publ.
2. Friedlander, D(1994) Molecular Biology, 2nd Edition, Jones and Bartlett Publishers, Inc.
3. Glover, D.M.(1985) Gene Cloning Vol.I, IRL Press
4. Lewin, B (1994) Genes, 5th Ed, John Willey & Sons
5. Saenger, W(1984) Principles of Nucleic Acids Structure, Springer Verlag
6. Stryer, L(1988) Biochemistry, W.H. Freeman & Co
7. Watson, J.D. et al (1987) Molecular Biology of the Gene. 4th Ed., The Benjamin/Cumming Publishing Co.
8. Williamson, R(1982) Genetic Engineering. 2 Academic Press
9. Lehninger, Nelson & Cox(1993) Principles of Biochemistry, 2nd Edition.

Z-105

ANIMAL PHYSIOLOGY

(Theory)

Unit-1

1. Neuron : Ultrastructure, types and functions; Resting potential and action potential; Calculations; Neural impulse conduction through an axon; Neurotransmitters and synaptic transmission.
2. Musculature in vertebrates—smooth, skeletal and cardiac; Ultrastructure and chemical composition of skeletal muscle; Mechanism of muscle contraction; Muscle fatigue; Tetanus and rigor mortis.

Unit-2

1. Physiology of digestion—Digestive enzymes in vertebrates; secretion and regulation in mammals; Mechanism of digestion and absorption of different food materials; Vitamins
2. Contractability of gastrointestinal tract; Gastrointestinal hormones.

Unit-3

1. Types of circulatory system in invertebrates and vertebrates
2. Physiological types of hearts
3. Cardiac cycle and its regulation
4. Composition and functions of blood; Blood volume; haemopoiesis; Blood pressure; Blood groups; Blood coagulation.

Unit-4

1. Respiratory organs in vertebrates
2. Mechanism of respiration through gills in fishes
3. Mechanism of breathing and its regulation in mammals
4. Respiratory pigments — brief chemistry and function
5. Transport of oxygen and carbon dioxide: Oxygen equilibrium curve : Bohr effect and Root effect

Unit-5

1. Structure of vertebrate kidney and nephron; Formation of urine; Acid-base balance; Homeostasis
2. Nitrogen excretion in animals; Modification of nitrogen excretion.
3. Osmoregulation in aquatic and terrestrial animals.

1. Comparison of RBC number in different vertebrates
2. Comparison of WBC number in different vertebrates
3. Comparison of Hb concentration in the blood of different vertebrates and preparation of haemin crystals
4. Measuring of blood pressure under different physiological conditions.
5. Recording of heart beat and effect of different physical and chemical factors
6. Estimation of casein content in milk
7. Estimation of glycogen content in liver of any vertebrate
8. Estimation of ascorbic acid in tomato, lemon and milk
9. Recording of muscle contraction and effect of load
10. Determination of the rates of oxygen consumption from water by an aquatic animal
11. Determination of respiratory quotient of an air breathing animal
12. Qualitative determination of some digestive enzymes and absorption of digested food materials.
13. Investigation on active transport through mucosal cells of any vertebrate
14. Dehydrogenase activity in milk or muscle extract

Suggested Readings:

1. Eckert, R and Randalk, D (1988) Animal Physiology, W.H. Freeman and Company
2. Gordon, M.S. et al. (1982) Animal Physiology, Macmillan publishing Co. Inc.
3. Hainswoth, F.R (1981) Animal Physiology: Adaptations in Functions
4. Hoar, W.S. (1983) General and Comparative Physiology, Prentice-Hall of India Pvt. Ltd
5. Keele, C.A. and Neil, E (1974) Samson Wright's Applied Physiology (12th Edition) ELBS and Oxford University Press
6. Prosser, C.L. (1991) Comparative Animal Physiology, Saunders
7. Schmidt-Nielsen, K (1985) Human Physiology, Harper & Row, Publishers, New York
9. Strand, F.L (1978) Physiology—A Regulatory Systems Approach. Macmillan publishing Co. Inc, New York

Z-201

BIOLOGICAL CHEMISTRY

(Theory)

Unit-1

1. Evolution of biomolecules
2. Structure of atoms, chemical bonds and their importance in biological interactions
3. p^H and buffer - significance Henderson-Hasselbalch equation and simple calculations on p^H and buffer
4. Classification, structure, function and chemistry of carbohydrates and lipids
5. Levels and structural organisation of proteins

Unit-2

1. Laws of thermodynamics and its use in cellular reaction
2. Free energy, energy rich compounds and their biological significance
3. Glycolytic pathway and its regulation; T.C.A cycle and its regulation
4. Redox potential; Respiratory and Photosynthetic electron transport and phosphorylation.

Unit-3

1. Gluconeogenesis, Glycogenesis and glycogenolysis
2. Hexose monophosphate shunt
3. Reaction of amino acids-deamination, transamination, decarboxylation and oxidation; Urea cycle; Outlines of biosynthesis and catabolic routes of amino acid metabolism
4. Oxidation and biosynthesis of fatty acids

Unit-4

1. Enzymes - classification, specificity and properties
2. Energetics of enzyme catalysed reactions, active site
3. Mechanism of enzyme action
4. Effect of different physico-chemical factors on enzyme activity
5. Induction and inhibition of enzyme activity

Unit-5

1. Enzyme kinetics - Michaelis-Menten equation, Lineweaver-Burk plot; Significance of K_m ; Calculations on enzyme kinetics
2. Allosteric enzymes; Isoenzymes
3. RNA as an enzyme
4. Vitamins as co-enzymes; Co-factors.

Z-202

BIOLOGICAL CHEMISTRY

(Practical)

1. Titration of weak acid (acetic acid) and preparation of buffer
2. Determination of PK_a of amino acids
3. Estimation of sugar using anthrone reagent
4. Estimation of amino acids using ninhydrin reagent
5. Estimation of protein using Biuret reagent
6. Estimation of protein using Folin's reagent
7. Estimation of phosphate by Fiske-subharao reagent
8. Separation and identification of amino acids by paper chromatography
9. Separation and identification of sugars by paper chromatography
10. To study the effect of time on enzyme activity
11. To study the effect of substrate concentration on enzyme activity
12. To study the effect of temperature on enzyme activity
13. To study the effect of an inhibitor on enzyme activity
14. Determination of K_m and V_{max} of enzyme by Michaelis-Menten and L.B. plots.

Suggested Readings:

1. Cohn, E.E. and Stumph, P.K. (1976) Outlines of Biochemistry, 4th ed Willey Eastern Ltd.
2. Lehninger A.L. (1984) Principles of Biochemistry, C.B.S.
3. Lehninger, Nelson and Cox (1993) Principles of Biochemistry, 2nd Edition
4. Murray, R.K. et al, (1993) Harper's Biochemistry 23rd Ed, Prentice-Hall International
5. Plummer L (1989) Practical Biochemistry, Tata Mc Graw-Hill
6. Rawn, J.D. (1989) Biochemistry, North Carolina Biol. Supply Co.
7. Stryer, L (1988) Biochemistry W.H. Freeman and Company.

Z-203 GENETICS AND DEVELOPMENTAL BIOLOGY (Theory)

Genetics

Unit-1

1. DNA as the genetic materials; the law of DNA constancy, E-value and cot value; Repetitive sequences (Satellite DNA methylation; Genetic code.
2. RNA as the genetic material; Extrachromosomal inheritance, (episome, mitochondria and chloroplast); Transposable elements
3. Concept of gene-interrupted overlapping; Pseudo and conserved genes; Complementation test

Unit-2

1. Sex determination, role of Y chromosome sex mosaics, sex chromosome anomalies, sex influenced alleles, sex limited genes and hormonal influence
2. Mutation: Chromosomal, gene mutation, spontaneous, induced, molecular basis, detection; DNA damage, repair and retrieval
3. Behavioural genetics; Genetics of mental retardation; Intelligent behaviour and chromosomal anomalies

Unit-3

1. Genes and enzymes- inborn errors of metabolism and other monogenic conditions.
2. Polygenic and environmental disorders; Chromosomes and cancer, Genetic counselling; Gene therapy
3. Somatic cell genetics; Transgenesis.

Developmental Biology

Unit-1

Early events-from egg to embryo

1. Introduction and scope of developmental biology
2. Gametogenesis-Differentiation and functional organisation of sperms and ovum
3. Regulation of oocyte growth, maturation and ovulation
4. Fertilization-Egg-sperm interaction egg activation rearrangement of egg cytoplasm, and biochemical basis of fertilization; Prevention of polyspermy Parthenogenesis
6. Cleavage-Types of eggs and patterns of cleavage; Biochemical changes and significance of cleavage, equivalence of nuclei
7. Gastrulation in vertebrates-fate map and formation of germ layers significance of gastrulation, concept of organiser and induction.

Unit-2 Organogenesis - stability of the differentiated State.

1. Totipotency and determination of blastomeres
2. Morphogenetic determinants and maternal control of early development.
3. Role of nuclear - cytoplasmic interaction in determination
4. Metaplasia and transdetermination
5. Differential gene expression and differentiation
6. Segmentation genes and homeotic genes in Drosophila
7. Differentiation gone out of control
8. Tissue interaction in the morphogenesis of vertebrates; Eye, brain and heart.

Unit-3 Exception to the stability of the differentiated state

1. Metamorphosis in insects and amphibians
2. Environmental and hormonal control of metamorphosis
3. General consideration of Regeneration-morpholaxis and epimorphosis
4. Regeneration in flatworms and coelenterates; Regeneration of amphibian limb, tail and eye lens; Mechanism of regeneration
5. Growth patterns - isometric and allometric growth
6. Physiology of growth and growth factors

Z-204 GENETICS AND DEVELOPMENTAL BIOLOGY (Practical)

Genetics

1. Study of Meiosis and preparation of permanent slides from Grasshopper testis.
2. Preparation of salivary gland polytene chromosome and its mapping from Chironimus
3. Preparation of Karyotypes
4. Study of metaphase chromosome from rat/mouse bone marrow and/or from kidney of fish.
5. Drosophila Genetics
 - i) Preparation of culture medium
 - ii) Study of wild and mutants
 - iii) Study of life cycle and handling of flies
 - iv) Monohybrid cross
 - v) Dihybrid cross.

DEVELOPMENTAL BIOLOGY

1. Study of sperm and ova of frog
2. Induced breeding and development of frog
3. Incubation and moulting of chick embryo
4. In ovo study of chick development
5. Regeneration in Hydra
6. Regeneration in Planaria
7. Regeneration in Amphibia
8. Comparison of different types of eggs, cleavage and gastrulation

Reference Books :

1. Gardner, E.J. and Snustad, D.P (1984) Principles of Genetics 7th Ed.....John Willey & Sons
2. Hart, D, Freidfelder, D and Snyder, LA(1988) Basic Genetics, Jones & Bastlett Publisher.

Suggested Readings :

1. Lewin, B(1994) Genes, 5th Ed..., John Willey & Sons
2. Strickberger, M.W (1985) Genetics, Macmillan Pubs.Co
3. Woodward, D.O. and Woodward, V.M.(1980) Molecular Genetics, McGraw Hill
4. Edelman, G.M.(Ed)(1985) Molecular Determinants of Animal Form, Alan R. Reis
5. Loomis, F(ed)(1987) Genetics Regulation of Development, Allan R. Reis
6. Raff, R and Kaufman, T.C.(1983) Embryos, Genes and Evolution: The Developmental - Genetics Basis of Evolutionary Change, Macmillan
7. Sang, J.H.(1984) Genetics and Development, Longman Inc.
8. Slack, J.M.II(1983) From Egg to embryo, Determinative Events in Early Development, Cambridge University Press
9. Wessells, N.K.(1977) Tissue Interactions and development, Benjamin/Cummings Publishing Co.Inc.

Z-205

PARASITOLOGY AND ENTOMOLOGY

(Theory)

Parasitology

Unit-1

1. Introduction to parasitism, various symbiotic association, definitions
2. Protozoa: Life cycle and pathogenicity of parasitic amoebae, trypanosomes Leishmania, Plasmodium, piroplasma, Pneumocystis, ciliates of man parasites of fishes

Unit-2

1. Introduction and general account of helminth parasites
2. Life cycle and pathogenicity of - Liver flukes Schistosoma, Diphylobothrium, Taenia, Echinococcus granulosus, Ascaris, Trichuris, Dracunculus, Wuchereria and other filarial infections of man
3. Plant parasitic nematodes

Unit-3

1. Acanthocephala - Macracanthorhynchus hirudinaeus
2. Host-parasite interactions : Parasite-host specificity; Immunity - types, mechanism in relation to important human/animal parasitic infections antigenic variations among parasites

Entomology

Unit-1

1. Origin and evolution of insects
2. Outline classification and nomenclature

Unit-2

1. Mouth parts in various groups of insects
2. Structure and variations of wings and genitalia

Unit-3

1. Insect life history patterns
2. Beneficial, harmful and social insects
3. Insect - Plant interactions
4. Insect control strategies

Z-206

PARASITOLOGY AND ENTOMOLOGY

(Practical)

Parasitology

1. Preparation and study of enteric and paenteric protozoan parasites from frog, fish, earth worm
2. Preparation of thin and thick blood smears for detection of blood parasites.

3. Study of blood smears depicting haemoflagellates, haemosporidia, microfilariae
4. Exploration of parasitic infections in vertebrate hosts with special reference to locally available fish, amphibia and mammalian hosts; collection, preservation and study of parasites recovered
5. Study of helminth parasites of economic importance from permanent preparations
6. Isolation and preparation of plant parasitic nematodes

Entomology

1. Study of morphology of grasshopper to show various organs :Study of different types of antennae wings and genitalia of insects
2. Study of mouth parts of cockroach, grasshopper, aphid housefly, silkworm larva and weevil.
3. Study of human body louse, dog's louse and cat flea from permanent preparations.
4. Study of various developmental stages of mosquitoes

Suggested Readings:

Parasitology

1. Chatterjee K.D.(1980) Parasitology; Protozoology and Helminthology in Relation to Clinical Medicine (12 Ed) Published by author
2. Cheng, T.C(1986) General Parasitology (2nd) Academic Press
3. Cox, F.E.G(1994) Modern Parasitology, Blackwell Scientific Publications
4. Faust, E.C, Baver, P.C. and Jung, R.C.(1975) Animal Agents and Vectors of Human Diseases (4th Ed) Lea & Febiger
5. Schmidt, G.D.(1989) Foundations of Parasitology Mosby
6. Soulsby, E.L.(1982) Helminths, Arthropods and Protozoa of Domesticated Animals (7th Ed), Bailliers, Tindall and Cassell Ltd.
7. Manua of Veterinary Parasitological Techniques (1977) Technical Bulletin No:18, HMSO, London

Entomology

1. Blum, M.S.(1985) Fundamental of Insect Physiology John Willey & Sons, New York, Chichester, Brisbane, Toronto, Singapore
2. Chapman, R.F(1972) The Insects :Structure and Function ELBS Edition, The English University Press, Ltd London.
3. Imms, A(1964) A General Textbook of Entomology, Metheun & Co, Ltd London.
4. Herms, W.B.(1950) Medical Entomology, Macmillan Company New York
5. Ramakrishnan, T.V.(1984) Handbook of Economic Entomology for South India, International Books and Periodicals Service, India.

Unit-1

1. Basic concepts, definitions, objectives and scope; Sub-divisions of Ecology; Levels of organisation in the Biosphere
2. Structure of ecosystem - Abiotic and Biotic components and their relationships; Variations in physical environment and adaptations; Homeostasis
3. Law of limiting factors - Shelford's law of Tolerance and Liebig's Law of minimum; Important limiting factors

Unit-2

1. Diversity of Ecosystems - Salient features of aquatic and terrestrial ecosystems and their biotic communities.
2. Biotic community concept and community analysis- Organisation, population density, relative abundance, frequency, dominance, carrying capacity, species richness and species diversity
3. Community development - Types of community changes, causes and examples of ecological succession; Climax community and stability
4. The Niche concept in community ecology

Unit-3

1. Population Ecology - Growth patterns, natality and mortality; Effect of density dependent and density independent factors
2. Life-history strategies - 'K' and 'I'- selection; Age and sex ratios; Life tables and survivorship curves
3. Population interactions- Predation and Predator - Prey relationships competition and population regulation: Mutualism, commensalism symbiosis and parasitism

Unit-4

1. Trophic dynamics- Trophic structure, food chain and food webs; Energy flow and Lindemann's trophic dynamics concept; Ecological efficiencies; Trophic relations and ecological pyramids
2. Productivity- concepts of biomass and production; Assessment of primary and secondary production.
3. Biogeochemical cycles - Carbon, Phosphorus, Nitrogen and Sulphur cycles; Impact of human activity on nutrient cycles

Unit-5

1. Ecological concerns - Green house effect; Global warming and environmental pollution
2. Animal Behaviour - Feeding, learning parental care mimicry and Social behaviours
3. Animal Behaviour - Circadian rhythms, migration in fishes and birds sociobiology.

1. Analysis of pH and specific conductivity of soil samples
2. Analysis of moisture contents of different types of soil
3. Study of Temperature profile of soil layers
4. Estimation of organic carbon of the soil samples
5. Estimation of Nitrate content of the soil
6. Estimation of Phosphate content of the soil
7. Qualitative analysis of soil micro-arthropods
8. Quantitative abundance of arthropod communities in different soils
9. Vertical distribution of edaphic communities.
10. Estimation of population size of a known sample
11. Study of effect of thermal stress on horse-fly
12. Estimation of population size of unknown samples (dots)
12. Study of effect of thermal stress on horse-fly
13. Study of the effect of crowding on fecundity in *Drosophila*
14. Analysis of pH and specific conductivity in water samples
15. Estimation of dissolved oxygen of water samples
16. Analysis of morphological variations in a natural population
17. Comparison of community similarities between natural populations
18. Analysis of community structure and succession in a natural population
19. Estimation of biomass (by harvest method) in a terrestrial eco-system
20. Analysis of species diversity in a natural population.

Suggested Readings:

1. Dajoz, R (1977) Introduction to Ecology, Holder and Soughton
2. Kormondy, E.J. (1978) Concepts of Ecology, Prentice-Hall of India Pvt. Ltd
3. Krebs, C.J. Ecology The Experimental Analysis of Distribution and abundance (2nd) Harper and Row Publishers
4. Odum, E.P. (1971) Fundamentals of Ecology (3rd. Ed.), W.B. Saunders
5. Odum, E.P. (1975) Ecology, Holt, Rinehart and Winston Inc
6. Remmert, H (1980) Ecology, A textbook, Springer-Verlag
7. Smith, R.L. (1974) Ecology and Field Biology (2nd) Harper and Row Publishers

Contd..... 17/.

Z-303 ENDOCRINOLOGY AND REPRODUCTIVE BIOLOGY (Theory)

Unit-1: Chemical Integration

1. Neuroendocrine system in invertebrates (Insects and Crustacea) and vertebrates
2. Hormones: Endocrine, paracrine and autocrine hormones
3. Structure and function of the Hypothalamus. Hypothalamic hormones; Feedback mechanism
4. Chemistry, biosynthesis, and transport of hormones. Steroids, thyroid hormones and catecholamine
5. Pheromones: in insects and mammals

Unit-2: Mechanism of Hormone Action

1. Localization of hormone receptors
2. Hormone-receptor complex and signal transduction
3. Mechanism of action of peptide/protein hormones. Role of second messengers
4. Mechanism of action of steroid hormones

Unit-3: Peptide Hormones: Structure and Function

1. Renin-Angiotensin system (RAS)
2. Erythropoietin
3. Atrial natriuretic peptides: ANP
4. Thymosin
5. Insulin, Glucagon
6. Gastro-intestinal hormones: Gastrin, secretin and cholecystikines (CCK)
7. Growth factors

Unit-4: Hormonal Regulations

1. Metamorphosis and development in Insecta
2. Moulting in Crustacea
3. Glucose homeostasis in blood Diabetes mellitus
4. Metabolic rate and the oxidative metabolism in vertebrates
5. Osmoregulation in vertebrates
6. Calcium homeostasis in blood

Unit-5: Reproductive Biology

1. Structure and function of reproductive organs in vertebrates
2. Testicular cycle; Estrous and Menstrual cycles and their regulation by hormones
3. Neuroendocrine regulation of gonadal activity. Hypothalamo-hypophyseal-gonadal axis
4. Photoperiodic regulation of annual breeding cycle: Pineal as a photo-transducer organ.

Z- 304 ENDOCRINOLOGY AND REPRODUCTIVE BIOLOGY (practical)

1. Dissection of the neuroendocrine system in cockroach
2. Survey of endocrine glands in albino rat/mouse
3. Histological study of endocrine glands (pituitary, thyroid, adrenal, testis and ovary)
4. Castration in albino rat/mouse
5. Ovariectomy in albino rat/mouse
6. Adrenalectomy in albino rat/mouse
7. Study of estrous cycle in albino rat/mouse
8. Comparative study of male reproductive organs of vertebrates.
9. Comparative study of female reproductive organs of vertebrates.
10. Maintenance of albino rat colony

Suggested Readings:

1. Gorbman, A; Dickhoff, W.W; Vigna, S.R; Clark, N.B and Ralph, C.L. (1983) Comparative Vertebrate Endocrinology, Wiley International
2. Griffin, J.E. and Obeja (1992) Textbook of Endocrinology
3. Highnam, K.C and Hill, L. (1977) The Comparative Endocrinology of the Invertebrates, ELBS and Arnold Ltd.
4. Turner, C.D and Bagnara, J.T (1976) General Endocrinology, W.B. Saunders Company.
5. Norman, W.A and Litwack, G (1987) Hormones, Academic Press
6. Wilson, J.D and Foster, D.W (1992) Williams Textbook of Endocrinology, 8th Edn., W.B. Saunders Company

Contd/.../-

Z-305 AQUATIC BIOLOGY AND FISHERIES (Theory)

Unit-1

1. Water as an environment; Hydrological cycle and global water balance.
2. Water in the biosphere—Distribution of aquatic resources; Impact of demographic growth, over-drainage and changing land use and need for conservation
3. Aquatic biotopes—diversity of aquatic ecosystems; Characteristic features of fresh water, estuarine and marine environs.
4. Lake basins—different kinds of lake basins and their origin

Unit-2

1. Aquatic biocoenosis—Composition of aquatic communities; Plankton, Nekton, Neuston, Periphyton and Benthos and their role in aquatic biotopes; Classification of plankton and planktonic adaptations
2. The river continuum concept—stream order and biotic community structure; Adaptations in fast-flowing waters
3. Cyclomorphosis in aquatic organisms—causes, examples and its adaptive significance.

Unit-3

1. Dynamics of aquatic ecosystems—trophic dynamics, role of producers, consumers, allochthonous and autochthonous production and trophic relationships.
2. Aquatic productivity—different methods for estimation of primary production.
3. Aquatic productivity—methods for estimation of secondary production in populations with and without cohorts.
4. Ontogeny of aquatic ecosystems—the process of ontogeny and its impact.

Unit-4

1. Aquaculture—Principles, status and scope; Types of aquaculture (warm and cold water aquaculture; extensive, semi-intensive and intensive aquaculture etc); Production of fish, crustaceans, molluscs and sea-weeds etc.
2. Aquaculture potential in India
3. Fisheries—commercially important fresh water, brackish water and marine fishes of India

Contd./.../-

Unit-5

1. Conventional methods of fish-farming-concepts of various methods and their role in pisciculture
2. Non-conventional methods of fish-farming: sewage-fed fisheries, paddy-cum-fish culture, duck-cum-fish culture, poultry-cum-fish culture, pig rearing-cum-fish culture and integrated fish culture
3. Induced breeding and carp fish seed production
4. Fish-farm management: construction and management of nursery and stocking and their economic viability

Z-306 AQUATIC BIOLOGY AND FISHERIES(Practical)

1. Determination of percentage saturation of dissolved oxygen in different aquatic ecosystems
2. Estimation of free carbon-dioxide of water sample
3. Estimation of total alkalinity and calculation of fractions of bicarbonate carbonate and hydroxylations
4. Estimation of total hardness of water samples
5. Estimation of calcium and magnesium hardness
6. Estimation of chloride content of water samples
7. Study of penetration of light in an aquatic ecosystem
8. Estimation of total solids and dissolved solids of water samples
9. Estimation of primary production(light and dark bottle method) in an aquatic ecosystem
10. Qualitative analysis of planktonic communities in a water body
11. Quantitative analysis of planktonic communities in a water body
12. Analysis of aquatic communities in a Hill-stream
13. Analysis of morphometric variations in commonly available fish species
14. Analysis of meristic variations in commonly available fish species
15. Analysis of length-weight relationships in a commonly available fish
16. Analysis of gut content of commonly available fish
17. Analysis of condition factor or Ponderal Index of a commonly available fish
18. Qualitative and quantitative analysis of plankton of nursery, rearing and stocking ponds.
19. Visit to a local fish-farm

Suggested Readings:

1. Jeffries, M and Mill, D (1992) Freshwater Ecology, CBS Publishers and Distributors(P) Ltd.
2. Moss, B (1968) Ecology of Freshwater. Blackwell Scientific Publications.
3. Wetzel, R.G (1983) Limnology, Saunders College Publishing
4. Goldman, C.R and Horne, A.J (1983) Limnology, McGraw-Hill International Book Company
5. Sugunan, V.V and Bhaumik, U (1990) Technologies for Inland Fisheries Development, Central Inland Capture Fisheries Research Institute
6. Balsare, D.K (1986) Tropical Fish farming, Environmental Publication.
7. Jhingran, V.G (1980) Fish and Fisheries of India (2nd. Ed.) Hindustan Publishing Corporation
8. Talwar, P.K and Jhingran, V.G (1991) Inland Fisheries of India and adjacent countries, Oxford and IBH Publishing Co. Pct. Ltd.

Z-401 BIOSYSTEMATICS AND EVOLUTION (Theory)

Biosystematics

Unit-1

1. Definitions and basic concepts of Biosystematics, Taxonomy and Systematics; Historical resume of systematics
2. Importance and application of biosystematics in biology
3. Material basis of biosystematics—different attributes
4. Trends in biosystematics—concepts of various conventional and newer approach

Unit-2

1. Dimensions of speciation—types of lineage changes, production of additional lineage; Mechanisms of speciation in Pannictic and Aponietic species
2. Species concepts—species category, different species concepts; Sub-species and other infraspecific categories
3. Theories of biological classification and hierarchy of categories
4. Taxonomic characters—different kinds.

Unit-3

1. Taxonomic procedures—taxonomic collections, preservation, curation and process of identification
2. Taxonomic keys—different kinds of taxonomic keys, their merit and demerits
3. Systematic publications—different kinds of publications
4. Process of Typification and different Zoological types
5. International code of Zoological Nomenclature (ICZN)—its operative principles, interpretation and application of important rules, Zoological nomenclature; Formation of scientific names of various taxa.

EVOLUTION

Unit-1

1. Theory of Natural selection
2. Synthetic Theory
3. Genetic variation, Genetic Polymorphism
4. Genetic equilibrium
5. Notion of selectively neutral mutation (Kimura)
6. Evolution by gene duplication

Unit-2

1. Modes of speciation, Allopatric, Sympatric, Parapatric, Staspatric speciation
2. Implication of geographic distribution for modes of speciation
Zoo-geographical realms.

Contd/.../-

3. Isolating mechanism and their role in evolution
4. The founder principle, Bottleneck effect and Genetic drift as factor in speciation

Unit-3

1. Origin of life, evolutionary history of protein and the concept of molecular clock, molecular drive.
2. Evolution history of natural integration
3. Evolution in Man

Z-402 BIOSYSTEMATICS (Practical)

1. Identification and classification of commonly available freshwater fishes of North-Eastern region
2. Qualitative enumeration of various groups of aquatic micro-organism of Shillong and its adjacent areas
3. Observations on species composition of the studied groups in various aquatic biotopes and analysis of faunal similarities (vide Sorenson Index) Record of morphometric and ecotypic or cyclomorph variations in selected species
4. Identification of commonly available fish species
5. Identification of commonly available local species of amphibians
6. Identification of common species of decapod Crustaceans (Prawns) of North-Eastern Region
7. Extraction and study of representative of various groups of soil micro-invertebrates
8. Preparation of taxonomic keys for identification of the studied organisms
9. Visit to local regional station of Zoological Survey of India, Shillong to learn various techniques of collection and curation and to study the deposited collections
10. Collection, identification and submission of various species of invertebrates and vertebrates of this region.

Suggested Readings

Biosystematics:

1. Minelli, A (1993) Biological Systematics, Chapman & Hall
2. Quicke, D.L.J (1993) Principles and Techniques of Contemporary Taxonomy, Blackie Academic & Professional
3. Jaffrey, C (1980) Biological Nomenclature, Oxford & IBH Publishing Company
4. Mayer, E (1980) Principles of Systematic Zoology, Tata McGraw Hill Publishing Company Ltd.
5. Ross, H.H. (1974) Biological Systematics, Addison-Wesley publishing Company, Inc.,

Contd/.../-

Evolution

1. Moody, A.J(1978) Introduction to Evolution, Kalyani Publisher, New)
2. Dobzhansky, T; Ayala, F.J, Stebbins, G.L and Valentine, J.W (1977) Evolution, W.H. Freeman & Company, USA
3. Vole, E.P.(1989) Understanding Evolution, Universal Book stall New
4. Gutfreund, H (1981) Biochemical Evolution, Cambridge University Press, U.K. 368pp.
5. Futuyma, D.J(1986) Evolutionary Biology, Sinauer Associate, Inc 600pp
6. Li, W.H and Graur, D(1991) Fundamentals of Molecular Evolution. Sinauer Associates, Inc., 284pp
7. Kimura, M(1983) The Natural Theory of Molecular Evolution, Cambridge University Press, London.
8. Jha, A.P(1993) Genes and Evolution, Macmillan India Ltd., Delhi 706pp.

Z- 403 TECHNIQUES IN BIOLOGY AND BIOMETRICS (Theory)

Techniques in Biology

Unit-I : Methods in Cell Biology and Tracer Techniques

1. Microscopy: Light, Phase-contrast, Fluorescent and electron microscopy
2. Cytometry and flow cytometry
3. Cell and Tissue culture
4. Chromosome banding
5. Principle and application of tracer techniques: Autoradiography, Radioimmunoassay and their half life
6. Immunological Techniques: Immuno diffusion, Immunoelectrophoresis, Enzyme linked immunosorbant assay (ELISA)

Unit-2 Molecular and Biochemical Techniques-I

1. Tissue processing and separation of various sub-cellular organelles by centrifugation
2. Chromatography: Adsorption, Partition, Ion-exchange, Gel filtration, Affinity and High Performance Liquid Chromatography (HPLC)
3. Electrophoresis and Isoelectrofocussing
4. Protein sequencing
5. Spectrophotometry, Spectrofluorometry, Spectroscopy

Unit-3: Molecular and Biochemical Techniques-H

1. Southern, Northern and Western blotting techniques
2. Sequencing of nucleic acids
3. Principle and application of Nick-Translation, In situ hybridisation
4. Dot and slot blots
5. Polymerase chain reaction (PCR)
6. Pulse-field gel electrophoresis
7. Restriction fragment length polymorphism

Biometrics

Unit-1: Biometrics-I

1. Statistics and its application in Biology
2. Sampling, sampling error and errors
3. Skewness and kurtosis
4. Probability
5. Distribution: Normal, binomial, poisson and frequency distribution.

Contd/.../-

Unit-2 : Biometrics-II

1. Measure of central tendency-Mean, Median and Mode
2. Statistics of dispersion, coefficient and variation
3. Standard errors and standard deviation
4. Tests of statistical significance-t-test, x-test
5. Analysis of variance, F-test
6. Simple correlation and regression

Z-404 TECHNIQUES IN BIOLOGY AND BIOMETRICS (Practical)

Biometrics

1. To make diagram, bar diagram, frequency table, column diagram, frequency polygon, histogram, ogive, from a given data
2. Computation of averages, quartiles, mean deviation, standard deviation coefficient of skewness and kurtosis.
3. Computation of coefficient of correlation
4. Regression analysis and fitting straight line for a bivariate data
5. Student's test, chi-square test and Snedecor's test
6. Computation of ANOVA for one way and simple two way classified data.

Study Tour:

1. To visit research laboratories and institutions
2. Faunistic collections from different habitats
3. Submission of collected specimens and field report

Suggested Readings:Techniques in Biology:

1. Maniatis, T et al, (1982) Molecular Cloning, A Laboratory Manual, Cold Spring.
2. Plummer, D.T (1987) An Introduction to Practical Biochemistry, 3rd Edn. Tata McGraw Hill
3. Wilson, K and Walker, J (1994) Principles and Techniques of Practical Biochemistry, Cambridge University Press
4. Lehninger, Nelso and Cox (1993) Principles of Biochemistry, 2nd Edn.
5. Stiles et al (1991) Basic & Clinical Immunology, Prentice-Hall International Inc.
6. Harris, R (Edn (1991) Biological Microscopy for Biology, a Practical Approach, Oxford, IRL Press.

Contd/.../-

7. Murad, H and Atique MV, A (1991), Biological Techniques in Electron Microscopy, CBS Publication.

Biometrics:

1. Bhattacharya, G. K. and Johnson, R. A. (1977) Statistical Concepts and Methods, John Willey & Sons
2. Simpson and Kafka (1952) Basic Statistics, Oxford & IBH
3. Goon, A. M; Gupta, M. K and Dasgupta, B (1985) Basic statistics World Press.
4. Modhi, J (1992) Statistical Methods—Willey Eastern Limited
5. Daniel, W. W. (1983) Biostatistics—A foundation for the Health Science, John Willey & Sons
6. Fisher, R. A (1970) Statistical Methods for Research Workers, Hafner Press, New York
7. Rao, C. R (1953) Advance Statistical Methods in Biometric Research, John Willey

Tables for Practicals:

Rao, C. R; Mitra, S. K; Mathai, A and Ranamurthy, K. G (1985) Formulae and Tables for Statistical Work Statistical Publ. Society, Calcutta.

SPECIAL PAPER

Z-405 A BIOCHEMICAL ADAPTATION (Theory)

Unit-1

1. Chemical evolution and molecular organisation of living structures
2. Properties of water as suitable media for living systems
3. Thermodynamics—entropy and enthalpy, application of second law of thermodynamics for conservation and release of energy.
4. Biological oxidation and reduction reactions
5. Free energy and determination of free energy changes in biochemical reactions

Unit-2

1. Mechanism of enzyme catalysis—acid-base, covalent and metal ion catalysis
2. Enzyme activity regulation by phosphorylation, proteolysis and calmodulin
3. Enzyme inhibition and induction
4. Allosteric regulation of enzyme activity
5. Kinetics of single and bisubstrate reactions
6. Determination of K_m and K_i

Contd/.../-

Unit-3

1. Nitrogen metabolism-production and utilization of ammonia for synthesis of different amino acids and nucleotides
2. Ammonia toxicity and detoxification; ornithine-urea cycle and its regulation; uricolytic pathway
3. Effect of various environmental and endogenous factors on nitrogen metabolism
4. Evolutionary significance of nitrogen metabolism in animals

Unit-4

1. Concept of elastic and plastic strain
2. Stress resistance, stress avoidance (regulation) and stress tolerance (conformity)
3. Adaptation, acclimation and acclimatization
4. Mechanism of homeostasis

Unit-5

1. Adaptation to cold and heat (structural and rate effect): Role of heat shock protein in temperature adaptation
2. Adaptation to osmotic and ionic stress; Principles of cell volume regulation during osmotic stress
3. Adaptation to oxygen deficient stress
4. Adaptation to high altitude and deep sea

SPECIAL PAPER

Z-406 BIOCHEMICAL ADAPTATION (Practical)

- 1-8 Separation and estimation of different biomolecules from animal tissues such as:
 - a. DNA
 - b. RNA
 - c. Proteins
 - d. Amino acids
 - e. Sugars
 - f. Lipids
 - g. Free and bound phosphates
 - h. Urea
9. Assay of enzyme by spectrophotometric method
10. Determination of K_m , K_i , and V_{max} of an enzyme
11. Determination of nature of inhibition of enzyme by different substrates
12. Quantitative analysis of proteins, carbohydrates and lipids by using electrophoretic chromatographic and spectrophotometric techniques

Suggested Readings:

1. Lehninger, Nelson and Cox (1993) Principles of Biochemistry (2nd Ed.)
2. Rawn, J.D (1990) Biochemistry
3. Stryer, L (1988) Biochemistry
4. Alberts et al (1994) Molecular Biology of the Cell, 3rd Edn.
5. Prosser, C.L (1991) Comparative Animal Physiology
6. Prosser, C.L (1986) Adaptational Biology
7. Hochachka, P.W and Somero, G.N (1977) Strategies of Biochemical Adaptation
8. Hoar, W.S (1984) General and Comparative Physiology
9. Plummer (1987) Practical Biochemistry
10. Harper's Biochemistry, 23rd Edition, (1993)
11. Wilson, K and Walker, J (1994) Practical Biochemistry

SPECIAL PAPER

Z-405 B. CELL BIOLOGY AND IMMUNOBIOLOGY (Theory)

Unit-1

1. Plasma membrane: Chemical composition and organization, membrane associated antigens and receptors; Cell surface changes in malignant cells
2. Membrane transport: Uniport, symport and antiport, ion Channels
3. Cytoskeleton: Molecular structure and organization of microtubules, microfilaments and intermediate filaments

Unit-2

1. Cell junction: Structural and functional significance of tight anchoring (adhesion belts; focal contacts, desmosome and hemidesmosomes) and communication filaments
2. Extracellular Matrix: Structure and functional significance of proteoglycans, collagen fibronectin, elastin and laminin; Extracellular matrix receptors-integrins
3. Endocytosis-Receptors mediated; cell signalling and G-protein

Unit-3

1. Haematopoietic system: T & B cells-Origin, Maturation and characterization
2. T-cell receptors-Structure, TCR-genes and generation of diversity
3. Antigen-antigenicity, types and nature of antigens; Processing and presentation of exogenous and endogenous antigens
4. Class-I and II MHC molecule; MHC genes and regulation

Contd./.../-

Unit-4

1. Immunoglobulins—Molecular structure, functions, allotypic, isotypic and idiotypic variations; Monoclonal selection theory. Light and heavy chain genes—organization and generation of Ig diversity
2. Complement System—Classical and alternate pathways—activators, mechanism and regulation of complement cascade reaction; complement receptors and regulation of complement activation
3. Cytokines: Types and functions, Interferons—types and mechanism of action
4. Regulation of immune response

Unit-5

1. Cancer—general characteristic features; Oncogenes and Mechanism of cell transformation, cell cycle check points, Immunity to cancer cells, Monoclonal antibody
2. Autoimmune diseases—mechanism of infection, Hashimoto's thyroiditis
3. AIDS

SPECIAL PAPER

Z-406 CELL BIOLOGY AND IMMUNOBIOLOGY (Practical)

1. Working of light, phase and florescent microscopes, demonstration of at and their component
2. Preparation of single cell suspension from spleen, viability and cell counting
3. Studies of patching/capping of lectin binding sites of splenocytes using FITC Labelled Con A
4. Studies on the agglutination of normal and cancer cells using lectins
5. Study of cancer cells—morphology, nuclei, chromosomes
6. Estimation of free and total sialic acid of cell/tissues
7. Fractionation of liver mitochondria and study of a marker enzyme (SDH)
8. Preparation of blood smear, staining and identification of cells of immune response, Peroxidase reaction in blood smear
9. Collection of PEC and capillary migration inhibition studies
10. Quantitative estimation of glutathione in cells/tissues
11. Raising anti sera in rabbit and immunodiffusion studies in agar gels
12. Polyacrylamide gel electrophoresis of proteins/glycoproteins

Suggested Readings:

1. Alberts, B; Bray; Lewis, D.; Raff, J; Roberts, M and Watson, J, D (1994) Molecular Biology of the Cell, Garland Publishing Inc, 3rd Ed.
2. Darnell, J; Lodish, H and Baltimore, D (1990) Molecular cell Biology, Scientific American books.
3. Thorpe, N.O (1984) Cell Biology, John Willey & Sons

4. Smith, C.A and Wood, E.J (1992) Molecular and Cell Biochemistry- Cell Biology; Chapman and Hall, London.
5. Roitt, I (1994) Essential Immunology, 8th Ed., Blackwell Scientific Publications, London
6. Kuby, J (1994) Immunology, 2nd Ed. W.H Freeman and Co., New York
7. Faner, F.B and Walker, J.M (Eds) (1985) The Molecular basis of cancer, Groom Helm Australia Pvt.Ltd, Sydney.
8. Stites, D.P; Terr, A.I and Parslow, T.G (1994) Basic and Clinical Immunology, Prentice-Hall International Inc.
9. Talwar, G.P and Gupta, S.K (Eds) (1992) A Handbook of Practical and Clinical Immunology. Vol.1, 2nd Edition, CBS Publishers and Distributors, Delhi.
10. Prescott, D.M (1988) Cells-Principles of Molecular Structure and Function, Jones and Barlett Publishers, Boston

SPECIAL PAPER

Z-405 C.DEVELOPMENTAL BIOLOGY (Theory)

Unit-1 : Evolution of Morphogenesis and Differentiation and Mosaic Development.

1. Morphogenesis and differentiation in Unicellular eukaryotes
Acetabularia
2. Morphogenesis and differentiation in colonial eukaryotes
Dictyostelium
3. Morphology and differentiation of imaginal disc in Drosophila with emphasis on concepts of compartmentalisation and transdetermination
4. Early development of Dentalium
5. Early development of Sea-Urchin and double gradient hypothesis

Unit-2: Primordial Germ Cells and Segmentation of Vertebrate Embryo.

1. Origin and fate of Primordial germ cells with special reference to amphibia and chick
2. Formation and fate of somites in vertebrates with special reference to chick
3. Notochord and embryonic elongation

Unit.3: Tissue Interactions and Development

1. Types of Tissue interaction: Instructive tissue interaction and permissive interaction-permissive interaction in skin development
2. Tissue interaction and morphogenesis-cell behaviour during morphogenesis
3. Tissue interaction in the morphogenesis of limb, heart and liver.

Contd/.../-

Unit-4 Molecular Biology of Development

1. A hierarchy of genes control development
2. The nature of Differentiation
3. DNA rearrangements and amplification during development in frog and Drosophila
4. Genetic control of morphogenesis: Gradient and discrete compartments; Genetic control of segmentation, Homeotic loci affecting cell fate
5. Teratogenesis-Teratoma, types of abnormalities, teratogens and their specificity

Unit-5: Development of Immune System and Ageing

1. Differentiation of T and B lymphocytes
2. Fetal antigenicity and protection against maternal immune response
3. Ageing: Theories of ageing and cellular basis of ageing

SPECIAL PAPER

Z-406 DEVELOPMENTAL BIOLOGY (Practical)

1. Study of primordial germ cell in histological slides
2. Role of Thyroxine and Iodine in the metamorphosis of frog
3. Analytical experiments on frogs such as effect of pressure Temperatures on cleavage
4. In vitro culture of chick embryo by New's Techniques
5. Preparation of dyed-agar and observation of morphogenetic movements frog/chick using dyes.
6. Alizarine preparation of developing stages of frog/chick
7. Preparation of microtomy slides of frog/chick development
8. Staging of embryos of frog/chick

Suggested Readings:

1. Balinsky, B.I (1976) An Introduction to Embryology (5th Ed.) W.B. Saunders & Co.
2. Berril, N.J. & Karp, G (1978) Development, Asian Students Ed.
3. Browder, L.W (Ed) (1978) Developmental Biology-Comprehensive Synthesis, Vol 1 & 2
4. Browder, L.W (1980) Development Biology
5. Call, J.G (ed) Gametogenesis and the early embryo, Alan, R. Reis
6. Gilbert, S.T (1988) Developmental Biology, 2nd Ed, Sinauer, Sunderland
7. Gilbert, L.I & Fieden, E (1981) Metamorphosis: A problem in Developmental Biology, Plenum

Contd/.../-

8. Grant, P (1978) Biology of developing systems, Holt-Sunders International Eds, Holt Rhinehart & Winston
9. Langman, J (1990) Medical Embryology 6th Ed. Williams & Walkins
10. Metz, C.B and Monroy, A (eds) (1985) Biology of fertilization, Academic Press.
11. Nieuwkoop, P.D and Sutasurya, L.A (1979) Primordial germs cells in the chordates, Cambridge University Press
12. Oppenheimer, S.B (1980) Introduction to embryonic development, Allyn & Beacon Inc
13. Raff, R.A & Raff, S.C (eds) (1987) Development as an evolutionary process, Alan, R, Reis
14. Thomas, R & Reif, W (eds) (1988) The construction of living organisms. Sinauer
15. Lewin, B (1994) Genes (5th Ed).

SPECIAL PAPER

Z-405 D. ENDOCRINOLOGY AND REPRODUCTIVE PHYSIOLOGY

(Theory)

Unit-1: Hormones: Structure and Functions

1. Chemistry, biosynthesis and functions of hormones; Pituitary hormones, adrenal and gonadal steroids, melatonin.
2. Mechanism of action: Types of hormone receptors, structure and function of G-proteins, cAMP, cGMP, Calcium, DAG, IP3 and phosphatidate as second messengers; structure and function of steroid hormone receptors

Unit-2: Ovulation, Fertilization and Implantation

1. Ovarian activity and breeding cycles: Estrous and menstrual cycles and their hormonal regulation; Tests of ovarian function; Induction of ovulation; Assessment of testicular function; Mechanism of egg activation.
2. Role of hormones in placentation; Hormones in pregnancy; Chemistry and functions of hCG & hPL; Pheromones in mammalian reproduction

Unit-3: Parturition and Lactation

1. Hormonal regulation of parturition
2. Hormonal regulation of development and differentiation of mammary gland; Hormonal regulation of initiation and maintenance of lactation; Neuroendocrine reflex during milk ejection

Contd/.../-

Unit-4: Gonadal Disorders and Hormone Assay

1. Syndromes of testicular and ovarian dysfunctions
2. Techniques of bioassay, radio-immuno assay (RIA), radio-receptor assay (RRA) and enzyme linked immuno-sorbant assay (ELISA)

Unit-5: Fertility Control

1. Principles and techniques of fertility control in males
2. Principles and techniques of fertility control in females: Hormonal contraceptives, IUDs and immuno-contraceptives

SPECIAL PAPER

Z-406 D ENDOCRINOLOGY AND REPRODUCTIVE PHYSIOLOGY
(Practical)

1. Maintenance of a rat/mice colony
2. Vasectomy and vasoligation in albino rat/mouse
3. Tubectomy and tubal ligation in albino rat/mouse
4. Study of effects of castration and testosterone on secondary sex organs
5. Study effect of ovariectomy and estradiol on Estrous cycle of albino rat/mouse
6. Counting of spermatozoa
7. Effect of oxytocin on mammary gland of lactating rat/mouse
8. Bioassay of estrogens using immature albino rat/mouse
9. Radioimmuno-assay of thyroid hormones (T₃/T₄)

Suggested Readings:

1. All books suggested for the papers "Endocrinology and Reproductive Biology"
2. Bolander, F.F. (1989) Molecular Endocrinology, Academic Press
3. DeGroot, L.J. (1989) Endocrinology, Vol 1-3 Springer-Verlag, Berlin
4. Dekroster, D.M.; Burger, H.G. and Hudson, B. (1989) The Pituitary and Testis. Springer-Verlag, Berlin
5. Evangelopoulos, A. E. et al (1989) Receptors Membranes Transport and Signal Transduction. Springer-Verlag, Berlin
6. Finn, C.A. (1982) Oxford Reviews of Reproductive Physiology, Oxford University Press.
7. Kleinman, R.L. (1990) Hormonal Contraception, IPPF Medical Publications, London.
8. Kleinman, R.L. (1991) The Pineal organ, Springer-Verlag, Berlin
10. Wilson, J.D. and Foster, D.F. (1992) Williams Text book of Endocrinology, 8th Ed. W.B. Saunders Company.
11. Zuckerman, S. and Weir, B.J. (1977) The Ovary, Academic Press

Contd/.../-

SPECIAL PAPER

Z-405 E. ENTOMOLOGY (Theory)

Unit-1

Integument: Structure, physiology and biochemistry of sclerotization and tanning in cuticle chemistry and functions of various components of cuticle-chitin, and protein sclerotin

Unit-2

1. Nutrition and digestive organs: anatomy and physiology of digestion and assimilation of nutrients
2. Excretory system: Structure of excretory organs, physiology of excretion; synthesis of uric acid.
3. Circulatory system: anatomy, physiology and biochemistry of haemolymph, haemocytes and their function.

Unit-3

1. Respiratory systems: structure and physiology
2. Intermediate metabolism of carbohydrates, lipids and nitrogen compounds
3. Muscular system: structure and physiology of flight muscles and flight mechanism

Unit-4

1. Nervous system: various types of nervous system; structure and physiology of nerve impulse conduction
2. Structure and physiology of reproductive system; hormonal control and molecular mechanism of vitellogenin synthesis

Unit-5

1. Hormones and morphogenesis in insects; their role in growth, differentiation and metamorphosis diapause and reproduction; mode of action of various insect hormones
2. Pheromones—sex pheromones, alarm pheromones, recruitment pheromones, primer pheromones; molecular mechanism of action of pheromones
3. Defensive mechanism in insects.

Contd/.../-

SPECIAL PAPER

Z-406

E. ENTOMOLOGY (Practical)

1. Collection, preservation and display of insects with emphasis on insects of agriculture and horticulture
2. Study and permanent mount preparations of different types of antennae legs and wings, and tracheal system
3. Study of nervous system of grasshopper, bug, cockroach, and larval stages of insects
4. Study of neuroendocrine system of grasshopper, cockroach and silkworm
5. Histological preparations of testis and ovary of grasshopper/cockroach

Suggested Readings:

1. Blum, M.S (1985) Fundamentals of Insect Physiology, John Wiley & Sons, New York, Chichester, Brisbane, Toronto and Singapore.
2. Burdette, W.J. (1974) Invertebrate Endocrinology and Hormonal Heterophyly. Springer-Verlag, Berlin, Heidelberg and New York.
3. Englemann, F (1970) The Physiology of Insect Reproduction. Academic Press, Oxford, New York, Toronto, Sydney, Braunschweig
4. Gilmour, D (1964) The Biochemistry of Insects, Academic Press New York and London.
5. Jacobson, M (1972) Insect Sex Pheromones. Academic Press, New York and London.
6. Kerkut, G and Gilbert, L.I (1985) Comprehensive Insect Physiology, Biochemistry and Pharmacology. Vol. 1-13. Pergamon Press, Oxford, New York Toronto, Sydney, Paris, Frankfurt.
7. Romoser, W.S (1973) The Science of Entomology. Macmillan Publishing Co. Inc., New York; Collier Macmillan Publisher, London
8. Rockstein, M (1973, 1974, 1975) The Physiology of Insects, 2nd Ed. Academic Press New York and London.
9. Slama, K; Romanul and Sorm, K (1974) Insect Hormones and Bioanalysis. Springer-Verlag, Wein New York.
10. Wigglesworth, V.B. (1973) The Principles of Insect Physiology, Chapman and Hall, Methuen & Co, Ltd. London.

Contd/.../-

SPECIAL PAPER

Z-405

F.GENETICS (Theory)

Unit-1: Regulation of Gene Expression

1. RNA polymerase, promoters, cis-elements and transacting factor
2. Termination and antitermination
3. Regulation at transcriptional and translational level
4. Tissue specific gene expression in eukaryotes
5. Antisense RNA
6. Organisation of active chromatin
7. Coupling of transcription to DNA-repair

Unit-2 Microbial Genetics

1. Organisation of prokaryotic genome, single stranded DNA phages, RNA phages
2. Conjugation
3. Transduction
4. Transformation
5. Lytic and lysogenic phage morphogenesis
6. Plasmids-characteristics replication
7. SV-40 and Adenovirus-life cycle and gene expression

Unit-3: Recombinant-DNA Technology

1. Enzymes used in molecular cloning
2. Cloning vectors, Expression and Shuttle vector
3. Genomic and cDNA libraries
4. Identification of recombinant clones
5. Gene cloning in eukaryotes
6. Gene transfer in animals and transgenic animals

Unit-4: Cancer

1. Differences between normal and cancer cell and types of cancer
2. Cell transformation and factors for cell proliferation
3. DNA and RNA tumour viruses
4. Oncogenes and their role in cancer
5. Chromosomal basis of human cancer
6. Genes, apoptosis and cancer
7. Cell cycle control and cancer

Contd/.../-

Unit-5 : Differentiation

1. Differential gene expression during development
2. Homeo boxes-significance in differentiation
3. Mutants affecting major developmental patterns in *Drosophila*
4. Teratogenesis

SPECIAL PAPER

Z-406

F.GENETICS (Practical)

1. Mitotic chromosome preparation from rat/mouse bone marrow
2. Meiotic chromosome preparation from rat/mouse testis
3. Banding techniques mouse/rat chromosome
 - a) G-Band
 - b) C-Band
4. Study of chromosome abberation induced by mutagens and/or radiation-rat/mouse chromosome
5. Leucocyte culture techniques from peripheral blood of human
6. Electrophoretic studies of isozymes

Suggested Readings:

1. Berg,P and Singer(1990) Genes and Genomes
2. Davidson,E.A(1986) Gene Activity in Early Development,Academic Press
3. Glovers,D.M(1985) Gene Cloning,Vol.IIRL Press
4. Hames,B.D. and Glover,D.M(1988) Transcription and Splicing HLL Press
5. Lewin,B(1994) Gene 5th Ed,John Willey & Sons
6. Watson,J.D et all (1987) Molecular Biology of the Gene,4th Ed Benjamin/Cummings Publ.
7. Williamson,R(1981) Genetic Engineering 2, Academic Press
8. Shapiro,J.A(1983) Mobile Genetic Elements,Academic Press

Contd/.../-

SPECIAL PAPER

Z-405

G. LIMNOLOGY (Theory)

Unit-1

1. Limnology-concepts, objectives and scope. Palaeolimnology and Applied Limnology, Status and scope of Limnology in India
2. Inland aquatic biotopes-characteristic limnological features of ground waters, running-waters and standing waters
3. Freshwater communities-major groups of fresh water organism, composition and ecology of biotic communities in ground waters, lentic and lotic ecosystems
4. Limnological techniques-qualitative and quantitative sampling of various aquatic communities in lentic and lotic biotopes

Unit-2

1. Light-its importance as a limnological factor, nature of light factors affecting light penetration, colour of natural waters.
2. Temperature-distribution of heat and water temperature: Thermal stratification, its stability and mixis: Thermal stratification and lake typology; Meromixis and its causes
3. Ionic concentration, salinity and specific conductance; Distribution of different conservative and dynamic ions
4. Water movements-kinds of surface and internal water movements and their role in inland waters

Unit-3

1. Dissolved oxygen-its solubility, distribution and lake typology; Metalimnetic oxygen maxima and minima; Hypolimnetic oxygen deficits.
2. Fate and distribution of inorganic carbon in freshwaters; Hypolimnetic accumulation of Carbon Dioxide
3. Occurrence and distribution of major nutrients (phosphorus and nitrogen) in inland waters.
4. Occurrence, distribution and cycling of micronutrient (sulphur and silica) in inland waters

Unit-4

1. Eutrophication-natural and cultural eutrophication, its impact, characteristic features of oligotrophic and eutrophic waters
2. Management and restoration of inland waters-guidelines for choosing alternatives, restoration plan
3. Restoration of inland waters-algal biomass control, macrophytic biomass control, biomanipulation and hypolimnetic aeration
4. Trophic dynamics in different inland aquatic ecosystems.

Contd/.../-

5: 2: 7: (41)

Unit-5

1. Waste water-general characteristics; Waste stabilization ponds and role in waste stabilization
2. Treatment of waste waters-primary, secondary and tertiary and treatment methods
3. Waste water-alternative systems of treating raw sewage; Harvesting of sewage waters
4. Sludge-different methods of sludge treatment and sludge disposal

SPECIAL PAPER

Z-406

G.LIMNOLOGY (Practical)

1. Analysis of dissolved oxygen, free carbon dioxide, alkalinity, hardness of different water bodies.
2. Estimation of sodium and potassium contents of water samples by flame-photometer.
3. Estimation of sulphate concentration of water samples
4. Estimation of dissolved organic content of water samples
5. Estimation of total phosphorus of water samples
6. Estimation of phosphate content of water samples
7. Estimation of nitrate concentration of water samples
8. Estimation of silicate content of water samples
9. Analysis of thermal stratification in a lacustrine ecosystem
10. Qualitative analysis of littoral and limnetic communities
11. Qualitative analysis of epilithic and other periphytic communities
12. Quantitative analysis of littoral and limnetic communities
13. Analysis of aquatic communities of rice-fields
14. Analysis of zoobenthos in a lotic ecosystem
15. Analysis of vertical distribution of plankton
16. Analysis of morphometric, ecotypic and cyclomorphic variations in certain zooplankton species
17. Estimation of biomass of Algae
18. Estimation of biomass of Rotifera
19. Analysis of species richness and species diversity in aquatic communities
20. Computation of statistical correlations between various abiotic and biotic factors.

Suggested Readings:

1. Goldman, C.R and Horne, A.J (1983) Limnology, McGraw Hill International Book Company.
2. Jeffries, M and Mills, J (1992) Freshwater Ecology, CBS Publishers and Distributors(P) Ltd.

Contd./.../-

3. Payne, A.I. (1986) The Ecology of Tropical Lakes and Rivers, John Willey & Sons.
4. Moss, B. (1988) Ecology of Freshwaters, Blackwell Scientific Publications
5. Wetzel, R.G. (1983) Limnology, Saunders College Publishing
6. Wetzel, R.G. and Likens, G.E. (1990) Limnological Analyses, Springer-Verlag.

SPECIAL PAPER

Z-405 PARASITIC HELMINTHOLOGY (Theory)

Unit-1 : Structure and Function of Host-Parasite Interface

1. Tegument in platyhelminth parasites; Body wall in nematodes and acanthocephala
2. Nutritional requirements: Uptake and energy metabolism; Metabolic specializations and adaptations

Unit-2: Parasite Transmission

1. Helminth eggs : Types, structure and formation of egg shell; Hatching
2. Infective larval stage; Miracidium, cercaria, metacercaria types; Process of encystment and excystment; Metacestodes; Nematode larvae, Moulting and ensheathment
3. Host-finding and penetration mechanism; Adaptations for transmission

Unit-3: Behaviour and Parasitism

1. Factors affecting growth and establishment of parasites within the host: Inter and intra-specific interactions—Effect of host age, nutrition, sex, hormones, modes of living; Crowding effect
2. Parasite Induced effects—Modification of host growth factor, Behaviour; parasitic castration.

Unit-4

1. Immune system of vertebrates in relation to parasitic infections; Immunity to Schistosoma, Hydatid, Trichincha and filarial infections; evasive mechanisms in parasites
2. Epidemiology
3. Anthelmintics: Possible mode of action

Contd./.../-

Unit-5

1. Vaccine development against parasitic diseases; Potential vaccines, characterization of stage-specific antigens; Cloning of genes for immunization
2. Probe technology for parasitic diagnosis: DNA probes; Serological diagnostic methods
3. Control strategies

SPECIAL PAPER

Z-406

H. PARASITIC HELMINTHOLOGY (Practical)

1. Faecal examination ; by direct smear, salt floatation technique; Identification of various egg types (of trematodes, cestodes, and nematodes) in sample
2. Preparation and study of anterior extremity and stomodaeum (feeding apparatus) of various nematode species
3. Histology of a trematode, cestode, nematode and acanthocephala representative for study of body wall
4. Use of Baerman's apparatus for recovery of active larvae from faecal/soil samples
5. Preparation and/or study of various larval forms; Intramuscular stages of trematodes; Cestode and nematode larvae.
6. Morphometry of diagnostic stages of infection (eggs/larvae)
7. Culture of miracidia from fluke eggs.
8. Culture of Ascaris eggs to infective stage; Effect of temperature on development; Physiological hatching of the infective eggs in vitro
9. Haematological analysis; WBC count in normal and infected hosts
10. Antigen-antibody reaction: Immunodiffusion
11. Prevalence and intensity of infection: Assessment from autopsied hosts, assessment of worm burden by egg count per gram (EPG) of faeces
12. Laboratory maintenance of parasites in vivo and in vitro

Suggested Readings:

1. Mehlhorn, H (1988) Parasitology in Focus: Facts and Trends
2. Schmidt, G. D (1989) Foundation of Parasitology
3. Cox, F. W. G (1994) Modern Parasitology
4. Noble, E. T. and Novel, G. A (1982) Parasitology, The Biology of Animal Parasites
5. Trager, W (1986) Living together: The Biology of Animal Parasitism
6. Smyth, J. D and Halton, D. W (1983) The Physiology of Trematodes

Contd/.../-

7. **Snyth, J.D and McManus, D.P(1989) The Physiology of Cestodes**
8. **Lee, D.L. and Atkinson (1975) The Physiology of Nematoda**
9. **Esch, G.W(1992) Functional Biology of Parasitism**
10. **Barret, J(1980) Biochemistry of Parasitic Helminths**
11. **Bryant, C and Behm, C.A(1989) Biochemical Adaptation in Parasites**
12. **Maggenti, A.R(1981) General Nematology**
13. **Chitwood, B.G and Chitwood, M.B(1974) Introduction of Nematology**
14. **Bearer, P.C(1984) Clinical Parasitology**
15. **Garcia, L.S and Ash, L.A(1979) Diagnostic Parasitology: Clinical Laboratory Manual**
16. **Advances in Parasitology-Volumes 1 to 34.**

5:3:3(1)

Recognition of NERIST as a Research Institute and some of the teachers as Supervisor of Ph.D. programmes.

On the request of NERIST, the Academic Council through its Resolution No.EC:48:94:5:03(i) had appointed an inspection team to assess the facilities available at NERIST for recommendation as a Research Institute and also to recognise some as Teachers/Supervisors for Ph.D.programmes.

The Committee appointed for the purpose consisting of Prof.A.L.Verma as Chairman, Prof.S.N.Bhat, Prof.S.S.Khare, Prof.R.S.Tripathy, Prof.L.K.Jha as Members had visited the Institute from 21st to 24th September, 95 of whom only Prof. F.K.Jha could not join the team and had recommended as follows :-

- 1) The NERIST, Nirjuli may be recognised as a Research Institute to conduct the Ph.D.programmes.
- 2) The teachers listed in the Report of the Committee (Annexure-A) in the Departments of Physics, Chemistry, Mathematics and Applied Science (Forestry) be recognised to guide the Ph.D. programmes as per provisions in our University Ordinance No.OC-4 on Ph.D. programmes.

While the details of the report will be placed before the Academic Council by the Chairman, the Council may consider the recommendation for approval.

.....

Proposal to modify the existing conditions
for re-evaluation of a paper.

As per the existing rule of re-evaluation of a paper, the percentage of the candidate in the paper concerned must be either less than 40% or less than $\frac{3}{5}$ th of the average percentage in the rest of the papers.

The spirit behind this rule has been that the candidates should have scored much less marks as compared to the marks in the other papers/subject i.e. less than 60% of the average percentage in the rest of the papers. For examples, if a candidate gets average of 70% marks in the rest of the papers he/she must get less than 42% in the paper which he/she intends to get re-evaluated. The gap between 42% and 70% is so large that most of the candidates are put to great disadvantage because of the existing rule. There has been several representations in this regard.

On the other hand, candidates getting even 5% or so are eligible to apply for re-evaluation, as there is no minimum percentage of marks prescribed below which a candidate is not eligible for re-evaluation. As a result, while on the one hand many good candidates are denied for re-evaluation, on the other hand Department get: loss of applications for re-evaluation of a paper in which candidates have secured even 0%, having practically no possibility of getting changed to 30% after re-evaluation.

Keeping the above points in view, it is suggested that the existing condition for re-evaluation may be modified as follows :-

A candidate may be eligible for re-evaluation of a paper provided -

- 1) The percentage obtained by the candidate on the paper concerned is greater than or equal to 15% and (i) less than or equal to 40% or (ii) less than or equal to $\frac{3}{5}$ (80%) of the average percentage of marks obtained by the candidate in the rest papers.

- 2) A candidate may be eligible for re-evaluation only in two papers.

The existing provision of scrutiny may be allowed to stand.

For better clarity the following table may be seen.

Average % obtained in the rest of papers.	Minimum % of marks to be obtained in the concerned paper as per the existing rule	Minimum % of marks to be obtained in the concerned paper as per the suggested rule.
57 %	40.2 %	53.6 %
70 %	42 %	56 %
80 %	48 %	64 %
90 %	54 %	72 %

The matter is put up to the Academic Council for consideration and decision.

.....

(iv) Introduction of B.Com Major in
Government Aizawl College.

The Inspection Team visited the College and submitted a report on the feasibility of introducing of B.Com Major in Government Aizawl College which is placed at Annexure-'A' for further consideration of the Council.

NORTH EASTERN HILL UNIVERSITY
SHILLONG.

FOR NEW COURSE/ UPGRADATION

INSPECTION REPORT

1. Name of the college. GOVT. AIZAWL COLLEGE.
2(a) Year of affiliation & corresponding University
Notification No. A.3/ANC/75-86/182/384

(b) Level to which affiliation : P.U. LEVEL.

3. Affiliation/Permanent sought to upgrade
to or B.A/B.Sc Pass Course in.....
Introduction (a new subject).....
B.Sc.Hons. in.
B.Com. in ... Provisional Affiliation for B.Com.
(with Major) with effect from 1996-97

4. Admission (for the last four years)

YEAR	P.U. COMMERCE	B.Sc.I.	B.COM.I.	B.A.III.	B.Sc.III.	B.COM.III
1991	36					
1992	28					
1993	30					
1994	55					

5. Result of University examination during the last three years.

EXAMINATION	YEAR	PERCENTAGE OF PASS
P.U.(COMMERCE)	1991	47.61%
-do-	1992	42.10%
-do-	1993	85.71%
-do-	1994	32.14%

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. The College wants to have both pass & Major in B.Com.

YEAR	NO. OF STUDENTS APPEARS.	% SUCCESS.
------	--------------------------	------------

B.com. class is yet to be started.
pending the affiliation as applied for.

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/Specialization of the Teaching Staff (of the relevant subjects only).

NAME AND DESIGNATION.	QUALIFICATION (WITH GRADE & SUBJECT IN P.G.)
-----------------------	--

- | | |
|-----------------------------------|---------------------|
| 1. Shri.L.Gyanendra Singh (Poona) | M.Com. 62.8% |
| 2. Smti.Lalrenruati (Patna) | B.A.M.B.A. 76% |
| 3. Shri.R.Vanlalaiama (NEHU) | M.COM. II CLASS 59% |

N.B: At least two more teachers are required in addition to a specialised teachers for a compulsory course/ ^{i.e.} Business Maths and Computer Awareness in B.Com. Major.

NOTE: THE UNIVERSITY REGULATION STIPULATES THE FOLLOWING STAFFING REQUIREMENT.

- | <u>LEVEL/CLASS</u> | <u>MINIMUM NO. OF TEACHING IN EACH SUBJECT.</u> |
|--|--|
| a) P.U. Non-Laboratory | One. |
| b) P.U. Laboratory | Two |
| c) Degree Non-Laboratory (Pass) | Two in all subjects & 3 in English. |
| d) Degree Laboratory (Pass) | Six of whom four should be Lects. |
| 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 lecturers + 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 - 2 acres.
- b) Accommodation(give size):- 20 rooms(25'x16')
- 1. One room for the Principal : 25' x 16'
- 2. One room for the Vice-Principal: 15' x 8'
- 3. One room for the college office: 25' x 16'
- 4. For staff common room 37' x 24' Adequate.
- 5. Common room for boys and girls: 75' x 48'
- 6. Library with reading room : 75 x 48'
- 7. Class room 25' x 16' adequate.

10. Workload of Teachers : 12 classes a week per teacher.

11. Library books:
Total volumes : 500 +(only for commerce)
Subjectwise break-up(of relevant subjects only):

Whether the college has a trained Librarian: Yes, B.A.M.Lib.Sc.

12. Laboratory facilities.

- a) Whether accommodation is adequate or not : does not
- b) No. of shirts the students use their practicals arise..

13. When was the last Governing Body meeting:

14. Any other relevant information(s)/point(s).

R E C O M M E N D A T I O N S:

Please make your recommendation without any ambiguity. In case your suggest provisional affiliation for a particular period please mention the academic year specifically. Please also mention the conditions, if any, to get fulfilled if extension of affiliation is to be considered: Recommended for affiliation of B.Com with Major provided two more teachers are recruited.

Signature of the Members of the Inspection Team.

1) Sd/-T. LANGLAW (M.A.) 11/9/95

2) Sd/-LIANZELA

3) Sd/-J.K.PATNAIK

4) Sd/-H.VANLALKEUVA

Recommendation of the Committee on the formula for scaling of marks between Major/ Non-Major Degree holders for admission to Post-Graduate programmes.

In accordance with the Academic Council Resolution No.AC:45:92:5:08(iii) a Committee was appointed to suggest a formula for scaling of marks between Major and Non-Major Degree holders for purpose of admission to the Post-Graduate programmes.

The Major Degree holders are examined on 800 marks in the subject concerned while the Non-Major Degree holders are examined on 300/400 marks (in Arts, Commerce and Science subjects respectively). For purpose of admission it would be natural to attach higher weightage to the Major Degree holders over the Non-Major Degree holders.

However, the Academic Council felt the need of keeping the door open for admission of very good non-major Degree holders also for admission to Post-Graduate programmes and accordingly it was felt that a suitable formula should be worked out to determine this equation.

To this end the Committee met on 25.2.94 and 17.10.95 and deliberated on the basis for proper scaling technique to be followed. Some of the points highlighted were :-

1. The level of difficulty in securing marks increases at an increasing rate as one goes nearer to the total marks of the paper.
2. This difficulty sets in earlier (at about 65%) in Arts subjects. In other words, it is usually difficult to obtain marks over 65 % in Arts subjects while in Science subjects the same degree of difficulty may set in at about 75% to 80%. Keeping this view, the number of papers in Arts subject be scaled up by a factor of 1.33 to make it equitable to number of papers in Science subject.
3. The level of difficulty in securing marks is proportionately more in major examination as the examinees have to appear in 8 papers of relatively more depth while in non-major subjects an examinee appears in 3/4 papers only which are of relatively less depth.

4. A major degree holder has an advantage in coping up with the P.G. Course while a non-major degree holder has a deficiency of about 4 to 5 papers since the Post-Graduate programmes begin where major course ends up. As a matter of fact, P.G. programmes are built on the foundation of training given at major degree level. Therefore, only those students from general stream should be encouraged to join P.G. programme who have exhibited a high degree of aptitude in the concerned subject good enough to cope up and compensate for the above mentioned deficiency.

In view of the above consideration, the Committee devised the following formula for establishing the equivalent relationship between major and non-major degree holders for the purpose of admission to P.G. programmes.

Scaling factor (F) :

$$F = \sqrt{\frac{\text{No. of papers offered in major subject}}{\text{No. of papers offered in general subject}}}$$

approximated upto the 1st decimal place. This works out to be 1.4 for the degree holders of NEHU.

However, the applicants from other Universities may have five, six, seven, eight or even ^{no.} more of papers in major course. For them the scaling factor would be :-

- i) $F = \sqrt{8/5} = 1.3$ if no. of papers in major subject is 5
 ii) $F = \sqrt{8/6} = 1.2$ " " " " " 6
 iii) $F = \sqrt{8/7} = 1.1$ " " " " " 7
 iv) $F = 1$ " " " " " 8 or more

Scaling Formula :

$$\text{Scaled percentage} = \left(\frac{\text{Percentage marks (in the subject concerned)}}{\text{obtained by the candidate seeking admission}} \right) \times F$$

$$P^* = \frac{P}{F}$$

where P = Scaled % marks

P = Percent marks (in the subject concerned)

obtained by the candidate seeking admission

F = Scaling factor

The Committee recommends that all applicants for admission to P.G. programmes may be first assigned scaled percentage according to the above formula and then the merit list be prepared by comparing the scaled percentage (creating order relation on scaled percentage) and rest of the admission procedure be as per ordinance.

For further clarity the following detailed conversion table may be referred to :-

Converted Actual % obtained by the applicant in the subject scaled % concerned.

P*	P (NEHU Non-Major)	P (NEHU Major)	P (Non NEHU Major with 500 marks)	P (Non NEHU Major with 600 marks)	P (Non NEHU Major with 700 marks)	P (Non NEHU Major with 800 marks or more)
33	46.2	33	42.9	39.6	36.3	33
35	49	35	45.5	42.0	38.5	35
40	56	40	52.0	48.0	44.0	40
45	63	45	58.5	54.0	49.5	45
50	70	50	65.0	60.0	55.0	50
55	77	55	71.5	56.0	60.5	55
60	84	60	78.0	72.0	66.0	60
65	91	65	84.5	78.0	71.5	65
70	98	70	91.0	84.0	77.0	70
75	100	75	97.5	90.0	82.5	75
80	100	80	100	96.0	88.0	80
85	100	85	100	100	93.5	85
90	100	90	100	100	99.0	90
95	100	95	100	100	100	95
100	100	100	100	100	100	100
	Divide by scaling factor 1.4	Divide by scaling factor 1.0	Divide by scaling factor 1.3	Divide by scaling factor 1.2	Divide by scaling factor 1.1	Divide by scaling factor 1.0

The recommendations of the Committee are placed to the Academic Council for consideration and decision.

The Members of the Committee:-

- 1) Prof. H. Junjappa - Chairman
- 2) Prof. S. Khare -
- 3) Prof. Y. S. Chauhan -
- 4) Prof. S. K. Mishra -
- 5) Shri R. Kharpor -
- 6) Smt. A. Warbaniang -
- 7) Dr. A. Patton -

5:8:66

**An offer to Instituting Awards for Science
Popularisation and Science Education.**

Reference to the above, as per Annexure I enclosed, it appeared that there is an offer of Rs.50, 000/- (Fifty thousand) only to the University for instituting awards of Rs.10,000/- (Rupees ten thousand) each to the five names yet to be given by the offerree who would like to have his name kept confidential.

The matter is thus placed to the Academic Council for consideration.

5:5:4(2)

27.10.'95

Dear Prof. Pakem,

Sub: An offer for instituting awards for Science Popularisation and Science Education.

With reference to the discussion held in your Chamber, I take pleasure to make an offer to you in confidence of Rs. 50,000/- (Rupees fifty thousand) only for the purpose of creating 5 Endowments of Rs.10,000/- (Rupees ten thousand) each and institute awards to recognise best efforts in the region for science popularisation and science education. The details of the award to be instituted can be provided within a few days. The Endowments may be created in the name of the following who either introduce a rare concept of science centre or provide ardent support to make it functional:

- 1.
- 2.
- 3.
- 4.
- 5.

My only request to you would be to kindly keep the name of the offerree strictly confidential. However, this may be disclosed to the concerned officers for purpose of technical records and income tax, with a request to them not to disclose the name. I shall be grateful to you if you kindly accept the offer, initiate the process and advise necessary perusals.

With humble regards,

Sd/-

Encls: Cheques for Rs.50,000/- (Rupees fifty thousand) only.

vii) Identification of the allied and cognate subjects for constitution of the BPGS.

Consequent upon the re-organisation of schools, the allied and cognate subjects listed in the existing Table A and Table B following the Regulation OA-8/R-1 for constitution of the BPGS, have become obsolete in respect of many P.G. Departments. In view of this, the affected Departments have made fresh identification. The allied and cognate subjects within the School and outside the School as identified by the concerned Departments is shown at Annexure-A and if approved, the Tables A and B of Regulation OA-8/R-1 will be revised accordingly.

The matter is placed before the Council for consideration.

List of Allied and Cognate subjects for constitution of the BPGS
(identified consequent upon the re-organisation of Schools)

Name of the Department	Courses within the School (clause 1(iv) of OA-8)	Courses outside the School (clause 1(v) of OA-8)
Anthropology	Geography, Geology	Sociology, Linguistics, History, Economics, Philosophy, Bio-Chemistry, Zoology, Home Science, Rural Development, Literary & Cultural Studies, Eco-Development.
Sociology	Political Science, History.	Geography, Education
Khasi	English, Philosophy	Sociology, History.
English	Linguistics, Khasi Education, Philosophy.	History, Sociology, Anthropology, Psychology.
History	Political Science, Sociology, Public Administration.	Anthropology, Philosophy, English.
Political Science	Public Administration, Sociology, History.	Philosophy, Economics.
Philosophy	English, Education Linguistics.	Sociology, Psychology, Political Science, History, Economics, Anthropology, Mathematics.
Education	English, Khasi.	Psychology, Sociology, History, Economics.
Public Administration	Political Science, Sociology.	Economics, Geography.
Forestry	Eco-Development, Zoology, Botany.	Psychology, Education, Geography, Geology.
Social Work	Sociology, Psychology, Political Science.	Anthropology, Economics.
Economics	Commerce, Management, Statistics, Information Science, Population Education, Demography, Adult & Continuing Education.	Geography, Mathematics, Physics, Botany.
Library & Information Science	Economics	Psychology, Education, Statistics, Sociology, Computer Science.
Psychology	Sociology, Cultural & Literary Studies, Political Science	Anthropology, English, Forestry.