

ADMISSION INFORMATION BROCHURE
POSTGRADUATE COURSES – 2012-13



RAVENSHAW UNIVERSITY
CUTTACK – 753 003

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P.G. Entrance Examination – 2012
Programme Schedule

VENUE : COMMERCE BLOCK

Subject / Course	Date	Time
Applied Geography, Botany, Physics, Psychology, Geology	27.06.2012	9 AM – 11 AM
Economics, Education, Hindi, History, ITM, Biotechnology	27.06.2012	2 PM – 4 PM
Commerce, Chemistry, Mathematics, Zoology	28.06.2012	9 AM – 11 AM
Oriya, Philosophy, Political Science, English, Sociology	28.06.2012	2 PM – 4 PM
Journalism and Mass Communication (JMC), Computer Science	29.06.2012	9 AM – 11 AM
Rural Development, ETC	29.06.2012	2 PM – 4 PM

The candidates are requested to report **at least one hour before** the commencement of examination.

The candidates are required to bring the following documents with them positively to the Examination Hall:

- i) Admit Cards (both Office Copy and Candidate's Copy) with recent passport size photographs affixed on both the Copies.
- ii) Photocopies of Marksheet(s)* and Provisional Certificate of the last qualifying examination.

*** Where all three years' marks are not reflected in a single mark sheet, candidates are required to bring all mark sheets (individual semester/ annual) to the examination hall.**

ACADEMIC PROGRAMME

1. Introduction

i. Ravenshaw, one of the premier educational institutions in the country, was established in 1868 in Cuttack, Odisha. After one hundred and forty years of eventful existence, it was converted into Ravenshaw University by an Act of the State Legislature on November 15, 2006. Thus, as one of the heritage educational institutions, and as a young university, Ravenshaw is a veritable blend of the old and the new.

ii. The Ravenshaw campus with its majestic structures was set up in the year 1919 on the eastern side of Cuttack. After becoming a university, Ravenshaw has acquired another one hundred and forty acres of land on the bank of river Mahanadi to build its second campus for the new disciplines of management and applied sciences.

iii. The old Ravenshaw campus is located very close to the Cuttack Railway Station, and is about a 45 minutes drive from the Bhubaneswar Airport.

iv. As a young university, the old Ravenshaw is now in the throes of preservation and change. Its infrastructure, both academic and physical, is being strengthened and expanded to meet the needs to make it more contemporary, and raise the level of research and teaching with an aim to develop it as a centre of excellence.

2. Postgraduate Courses

Towards making Ravenshaw an institution of excellence, Ravenshaw University offers 25 Post Graduate Courses out of which 7 are professional in nature. The courses and number of seats (in parentheses) in each course at PG level are as follows.

- | | |
|---|---|
| 1 Applied Geography (24) | 14 Hindi (32) |
| 2 Biotechnology (24) | 15 History (64) |
| 3 Botany (24) | 16 Journalism and Mass Communication (60) |
| 4 Chemistry (40) | 17 Mathematics (48) |
| 5 Commerce (64) | 18 Oriya (64) |
| 6 Computer Applications (30) | 19 Philosophy (32) |
| 7 Computer Science (32) | 20 Physics (56) |
| 8 Economics (84) | 21 Political Science (64) |
| 9 Education (40) | 22 Psychology (32) |
| 10 English (104) | 23 Rural Development (40) |
| 11 Electronics and Telecommunication (60) | 24 Sociology (32) |
| 12 Geology (16) | 25 Zoology (24) |
| 13 Information Technology Management (24) | |

The University offers four M.Sc. Courses (Biotechnology, Computer Science, Electronics & Telecommunication(ETC) and Information Technology Management (ITM)), two M.A courses (Journalism & Mass Communication and Rural Development) and one MCA course in payment mode.

(i) M.Sc. in Biotechnology (24):

Biotechnology, a comparatively new branch of science, is an emerging area. The objective is to create human resource to further research and teaching in Biotechnology. **The course fee is Rs. 35,000/- per annum**

(ii) M.Sc. in Computer Science (32):

This course offers a scope of vertical progression to the graduates in computer science and information technology by producing high quality software personnel to cater to the needs of IT industries. **The course fee is Rs. 20,000/- per annum**

(iii) M.Sc. in Information Technology Management (24):

The course, offered in collaboration with Star Computer Institute Pvt. Ltd., aims at preparing students to pursue professional career in Software Design and Network Engineering. **The course fee is Rs.35,000/- per annum.**

(iv) M.Sc. in Electronics and Telecommunication (60):

The course, offered in collaboration with Heritage Vision Educational Trust, aims at preparing students to pursue professional career in Electronics and Telecommunication. **The course fee is Rs.35,000/- per annum.**

(v) M.A. in Journalism and Mass Communication (60):

This course, offered in collaboration with Heritage Vision Educational Trust provides a sound infrastructure for career-building in a wide range of activities covering print and electronic journalism, advertising and public relations, etc., and also imparts practical training. **The course fee is Rs. 20,000/- per annum.**

(vi) Master of Computer Applications (30):

The Ravenshaw University imparts teaching facilities in Master of Computer Applications (MCA). Admission into the Course is made through the Joint Entrance Examination conducted by BPUT, Odisha, and not through Ravenshaw University's own admission process. **The course fee is Rs. 25,000/- per annum.**

(vii) M.A in Rural Development (40)

The Ravenshaw University starts from this academic session a Masters course in Rural Development in Economics Department. **The course fee is Rs. 15,000/- per annum.**

3. REQUIREMENTS FOR ATTENDANCE IN CLASSES

Minimum of seventy five per cent (75%) attendance in the semester is essential for appearing at the Semester Examination. In exceptional cases of medical ground, and for students allowed by the department to conduct dissertations at other institutions, absence for representing the University (at state, national and international events), a relaxation of 15% in attendance may be considered. In no case any compromise in attendance shall be entertained.

4. ACADEMIC CALENDER

(i) For PG courses :

Semester	Date
Monsoon Semester (1July – 30 November)	
Date of Commencement	1 July
Date of Completion	30 November
Mid Term Examination	25 to 31 August
Form Fill Up	01 to 30 September
End Term Examination	1 to 30 November
Spring Semester (07 December – 30 April)	
Date of Commencement	7 December
Date of Completion	30 April
Mid Term Examination	22 to 28 February
Form Fill Up	15 February to 15 March
End Term Examination	01 to 30 April

5. RESIDENTIAL FACILITY

The University has limited residential facilities for boys and girls. Therefore, candidates who do not come under subject/course wise merit list for available accommodation in hostels, shall have to make their own arrangements for living.

Selection for admission in the hostels shall be made on the basis of merit. However, seats shall be reserved for SC/ST candidates as per the rule. Local students (i.e. students whose parents / grandparents are residing within 30km distance of the University) are not allowed to avail hostel accommodation notwithstanding their position in general merit list for admission.

For details on the residential facility, please refer the '**Hostel Admission Information Brochure**'.

Candidates desirous of availing hostel accommodation will have to apply separately in the prescribed application form, which will be

available in the University website after publication of the merit list for admission into different PG courses. They have to submit the application form in their respective departments.

6. RULES AND PROCEDURE OF ADMISSION

- (i) Candidates seeking admission into different PG courses of the University shall submit **online application** available in the Ravenshaw University Website 'www.ravenshawuniversity.ac.in' at the link 'ADMISSION-2012' on or before **June 18, 2012**.

All applicants should have a valid email ID before applying for admission into PG courses. All communications from the University to the candidates will be through email and website.

- **Application Fee for General Courses – Rs. 160/-**
- **Application Fee for Professional Courses – Rs. 400/-**
(Biotechnology, Computer Science, Information Technology Management, Electronics & Telecommunication, Journalism & Mass Communication and Rural Development)

The applicants are required to pay the Application Fee before submitting application online and to quote the particulars of payment of Application Fee therein.

Applicants are required to remit the Application Fee either by Demand Draft for Rs.160/- (Rs.400/- for professional courses) drawn in favour of 'Ravenshaw University PG Admission' payable at Cuttack.

OR

Applicants can directly deposit the Application Fee of **Rs. 160/- (Rs. 400/- for professional courses)** through chalan only at **SBI Ravenshaw University Campus Branch**. The deposit slip for chalan is available in the university website.

Applicants are required to make the following **entries on the reverse** of the Demand Draft / Counterfoil of the Deposit Slip.

- 1. Roll No./ Application ID**
- 2. Name and address**
- 3. Course / Subject applied**

Those who pay the application fee by Demand Draft are required to keep a photocopy of the Draft with them for future reference.

After submission of the application online, candidates are required to take a printout of the application form and the admit card.

The applicants are required to send the following documents by Registered post or Speed post to **the Registrar, Ravenshaw University, Cuttack, 753003** after online application so as to reach the University Office on or

before **June 22, 2012**. They can also submit the documents by hand at Ravenshaw University Counter on or before **June 22, 2012**.

1. Print out of the application form (printed application form after online submission) with a recent passport size photograph affixed on it.
2. Demand Draft for Rs. 160/- or Rs. 400/- (as applicable).

OR

Counterfoil of the Deposit Slip (University Copy), in case of depositing through bank chalan in SBI Ravenshaw University Campus Branch.

3. Photocopy of Marksheet and Certificate of the HSC/10th or equivalent examination.
4. Photocopy of Marksheet and Certificate of the +2/12th or equivalent examination
5. Photocopies of Marksheet and Provisional Certificate of the last qualifying (Degree or equivalent) examination.

(Where all three years' marks are not reflected in a single mark sheet, candidates are required to submit all mark sheets (individual semester/ annual).

OR

A photocopy of Admit Card of the last qualifying examination if the result is not published.

6. Photocopy of certificate(s) in support of claiming reservation, and domicile, if any.

All documents will be signed by the candidate as proof of self attestation. Submission of incorrect information may lead to cancellation of admission, and make the candidate liable for criminal proceedings.

The applicants are required to write "**APPLICATION FOR ADMISSION TO PG COURSE IN _____ SUBJECT**" on the top of the envelop.

Candidates are advised not to send any copy of the Admit Card alongwith the application form. They are required to bring the same alongwith the Degree Marksheet(s) to the Examination Hall on the day of entrance examination.

(ii) **Admit Card**

- After submission of application online, candidates are required to take printout of the Application Form and Admit Card.
- The Admit Card shall have **two parts**: one for the Candidate (Candidate's Copy), and the other for the Office (Office Copy). Applicants shall affix one recent passport size photograph on space indicated on the Office copy of the Admit Card.
- Candidates are required to bring both the copies (Candidate's Copy as well as Office Copy) along with **a photocopy of the Marksheet(s)* and Certificate of the last qualifying examination** on the date of examination and **submit the same to the invigilators in the**

examination hall. No other intimation shall be issued for appearing the entrance examination.

- The candidates are requested to report at the venue (Ravenshaw University Campus) **at least one hour before** the commencement of examination.

*** Where all three years' marks are not reflected in a single mark sheet, candidates are required to bring all mark sheets (individual semester/annual) to the examination hall.**

(iii) Applications for more than one subject

- Separate applications with requisite application fee are required to be submitted for admission into each subject.

7. ELIGIBILITY FOR ADMISSION INTO DIFFERENT PG COURSES

A second class honours with 45% in the concerned subject.

For PG in Hindi, 45% marks in Hindi Honours **Or** 50% marks in Hindi pass and 50% marks in aggregate taken separately (for all candidates including SC/ST).

For PG in Rural Development, 45% marks in any Honours or 50% in aggregate (or its equivalent CGPA) in any discipline at graduation level.

However, for pursuing PG programme in (i) Biotechnology, (ii) Computer Science, (iii) Journalism and Mass Communication (JMC), (iv) Information Technology Management (ITM), Electronics and Telecommunication (ETC) and Rural Development the minimum eligibility criteria as laid down above is required to be secured in the following pre-requisite subjects mentioned against each.

- a) **Biotechnology:** Honours in Biotechnology, Microbiology, Botany, Zoology, Chemistry or any other subject relating to Life Sciences.
- b) **Computer Science and Information Technology Management (ITM) :** Honours in Computer Science / ITM / IST or B.Tech. in Computer Science/ IT / Electronics / BCA.
- c) **Electronics and Telecommunication (ETC) :** Honours in Electronics / IST/ ITM/ Computer Science / IT/ Physics/Mathematics OR B.Tech. Electronics/ Computer Science / IT OR Equivalent
- d) **Journalism and Mass Communication (JMC) :** Bachelor Degree in any discipline.
- e) **Rural Development:**

Graduate in any discipline from a recognized university with a minimum 45% marks in honours or 50% in aggregate (or its equivalent CGPA) at graduation level can apply. The percentage of aggregate marks is to be calculated as per the practice followed by the concerned university/institution from which the candidate has obtained the degree.

N.B.: Those who have passed the Three-year Degree Course Examination from a University / Institution (situated outside the state of Odisha) where provision of teaching in Honours does not exist, will be eligible to apply for PG course provided they have taken the examination in the concerned subject with minimum of 8 papers carrying at least 800 marks, subject to the fulfillment of the minimum eligibility condition as laid down above.

A relaxation of 5% of marks shall be given in favour of SC and ST applicants.

8. SELECTION NORMS

The merit list for admission into PG courses will be prepared on the basis of (a) performance of the candidate in the entrance test and (b) academic career (HSC/10th, HS/+2 and Degree examination) on 60:40 basis.

Academic Career will be calculated in the following manner.

Examination	Career Assessment
HSC/ 10 th or equivalent	8%
HS/ +2 or equivalent	12%
Honours/ Major Subjects in Degree Examination	15%
Distinction	5 marks

The academic career will be calculated from % of marks secured by the candidate in the respective examinations.

9. RESERVATION OF SEATS

- Scheduled Caste (SC) – 8%, Scheduled Tribe (ST) –12%, Ex-Service Men and Family (ESM)–1%, Service Defence Personnel (SDP)– 1%, Physically Handicapped (PH) with 40% and above disability – 3%, Sports– 1%, N.S.S.- 1%.
- In case of non-fulfillment of reserved seats, they shall be de-reserved.
- In calculation of reserved seats, any fraction above 0.5 shall be counted as one while the decimal less than 0.5 shall be ignored
- ST / SC candidates from within the state can be admitted upto 18% (10% ST and 8% SC) beyond the sanctioned strength. (Here, SC+ST 18% which is less than the above prescribed 20 %), subject to the availability of facility and as suggested by the Teachers' Council of the respective departments.
- Weightage of 5% marks for representing university and 10% of marks for representing State in Cultural Troupes.
- Sports events, approved by the Indian Association of Universities, will only be considered for reservation.
- SC/ST certificate should be from competent authority (MP/ MLA/ Collector/ ADM/ SDO/ Deputy Collector/Tahashildar)

- PH certificate should be from the CDMO. Temporary PH certificate will not be considered.
- Reservation of seats is not applicable for candidates of outside the state.

10. DATE OF SUBMISSION

Last date of submission of **online** application for admission into all PG courses is **18 June 2012**. The **printed** application form with necessary documents should reach the university on or before **22 June 2012**.

11. PATTERN OF QUESTIONS IN ENTRANCE TEST AND THE SUBJECTS FOR P.G. COURSES

Applicants for various PG Courses are required to take the entrance test in the subject concerned. The detailed subjects for the entrance test are given at Annexure-I.

Multiple choice questions will be set in the Entrance Test. The responses to the questions shall be made on the OMR sheet by blackening the relevant oval in HB pencil. **The duration of Entrance Test shall be of two hours.**

There shall be 100 questions and all are compulsory. There is no negative marking in the entrance test. The detail syllabi for Entrance Test in various subjects are given at Annexure-II.

12. PUBLICATION OF MERIT LIST AND DATES FOR COUNSELLING

The Merit List for admission into different PG courses along with the Dates for counselling shall be published in the **website and the notice boards** of the university ordinarily after 10 days of the entrance test. Candidates are required to check the merit list and the dates for counselling and appear for counselling for admission on the scheduled dates with required documents. **NO INTIMATION SHALL BE ISSUED FOR ATTENDING COUNSELLING.** The selected candidates will be required to take admission on the same day or shall be given three days time to take admission on production of all required documents and fees, if they fail to produce the same at the time of counselling.

13. DOCUMENTS TO BE PRODUCED AT THE TIME OF COUNSELLING

- All original Certificates and documents in support of qualification (such as pass certificates and mark sheets), reservation, weightage and College Leaving Certificate shall be produced.
- Blood Group Certificate
- Four recent stamp size photographs
- Demand Draft for admission fees as intimated by the university office
- For Ex-service men and family members, Discharge Certificate in original
- All other required forms uploaded alongwith the merit list

If a selected candidate fails to submit the documents and admission fees on the specified dates of counselling, the claim for admission shall be forfeited.

14. PERIOD OF ADMISSION

All admissions shall be completed ordinarily within six weeks of the publication of UG results of Ravenshaw University. In exceptional circumstances the Vice Chancellor in consultation with Admission Committee can extend the admission date beyond six weeks.

15. ADMISSION FEES

Fees for admission into PG courses, to be collected at the time of admission, are as follows.

Fee Structure for P.G. Part I

Arts (Non-practical courses)	
Boys	Rs.1001/-
Girls	Rs.857/-
SC/ST	Rs.857/-
Arts (Practical courses)	
Boys	Rs.2587/-
Girls	Rs.2419/-
SC/ST	Rs.2419/-
Science	
Boys	Rs.2587/-
Girls	Rs.2419/-
SC/ST	Rs.2419/-
Commerce	
Boys	Rs.1001/-
Girls	Rs.857/-
SC/ST	Rs.857/-
Journalism and Mass Communication (JMC)	Rs.857/- (Admission fee)
	Rs.20,000/- (Course fee)
Information Technology Management (ITM)	Rs.919/- (Admission fee)
	Rs.35,000/- (Course fee)
Biotechnology	Rs.919/- (Admission fee)
	Rs.35,000/- (Course fee)

Computer Science	Rs.919/- (Admission fee)
	Rs.20,000/- (Course fee)
Electronics and Telecommunication	Rs.919/- (Admission fee)
	Rs.35,000/- (Course fee)
Rural Development	Rs.919/- (Admission fee)
	Rs.15,000/- (Course fee)
MCA	Rs.919/- (Admission fee)
	Rs.25,000/- (Course fee)

16. INTERPRETATION OF RULES

The decision of the Admission Committee with regard to anything not covered in the official Brochure, or has given rise to dispute in interpretation of any rule, shall be final and binding.

**Chairman, Council of Deans
Ravenshaw University**

17. PG Departments of Ravenshaw University
Applied Geography

1.	Year of Establishment	:	1944
2.	Courses Offered	:	B.A./ B.Sc., M.A/M.Sc., M.Phil. and Ph.D.
3.	Students Strength	:	B.A. (Hons) – 24 B.Sc. (Hons) – 24 B.A (Pass) – 32 M.A./M.Sc. – 16 M.Phil – 8
4.	Faculty	:	
	Reader		
	Dr. (Mrs) P.R. Daspattanayak		Urban and Regional Planning
	Dr. (Mrs) R. Bajpai		Political Geography
	Lecturer		
	Dr. S.B. Das		Population Geography
	Dr. (Ms) B. Majhi		Regional Planning

Biotechnology

1.	Year of Establishment	:	2001
2.	Courses Offered	:	M.Sc. and Ph.D.
3.	Students Strength	:	M.Sc. – 24
4.	Course Coordinator	:	Dr. P. K. Mohapatra HOD, Botany
5.	Faculty	:	
	Lecturer		
	Mr. S. K. Rath		Biotechnology and Molecular Biology
	Ms. A. Panda		Molecular Biology

Botany

1.	Year of Establishment	:	1924
2.	Courses Offered	:	B.Sc., M.Sc., M.Phil. and Ph.D.
3.	Students Strength	:	B.Sc. (Hons) – 32; Pass – 32 M.Sc. – 24; M.Phil – 8
4.	Faculty	:	
	Professor	:	
	Dr. P. K. Mohapatra		Ecotoxicology
	Reader		
	Dr. P. K. Jena		Microbiology
	Dr. (Mrs) S. Padhi		Biochemistry
	Dr. S. K. Naik		Cytogenetics and Molec. Biol.
	Lecturer		
	Dr. D. P. Barik		Cytogenetics and Molec. Biol.
	Dr. N. R. Singh		Biochemistry
	Dr. S. S. Swain		Plant Biotechnology

Chemistry

1. Year of Establishment : 1915
2. Courses Offered : B.Sc., M.Sc., M.Phil. and Ph.D.
3. Student Strength : B.Sc. (Hons) – 64;
M.Sc. – 40; M.Phil. – 08
4. Faculty :
Reader
Dr. (Mrs) S.P. Das Physical Chemistry
Lecturer
Dr. A.K. Sutar Inorganic Chemistry, Polymer
Dr. (Mrs.)Sabita Nayak Organic Chemistry
Dr. B.C. Mallick Biophysical Chemistry
Dr. K.S.K. Vardwaj Organic Chemistry
Dr. P. Parhi Physical Chemistry, Biomaterial
Dr. Rupashree S. Ray Quantum Chemistry
Dr. S. Mohapatra Organic Chemistry
Dr.(Mrs.) T. Moharana Inorganic Chemistry
Dr. J.P. Das Organic Chemistry
Dr. (Mrs.) R. R. Satpathy

Commerce

1. Year of Establishment : 1959
2. Courses Offered : B.Com, M.Com, M.Phil
3. Students Strength : B.Com – 512
M.Com – 64
M.Phil – 8
4. Faculty :
Reader
Dr. S. Satapathy Commerce
Lecturer
Dr. Suprava Sahu Commerce (Accounting)
Dr. T. K. Pani Management (Marketing)
Dr. K. K. Das Management (Finance)

Economics

1. Year of Establishment : 1931
2. Courses Offered : B.A., M.A., M.Phil. and Ph.D
3. Student Strength: B.A. (Hons) – 112
M.A. – 84; M.Phil. – 08
4. Faculty :
Professor
Dr. Mamata Swain Agricultural Economics
Reader
Dr. Sudhakar Patra Mathematical Economics
Dr. Dharmabrata Mohapatra Environmental Economics
Lecturer
Dr. Lipishree Das Rural Economics
Mr. Manoj Kumar Das Financial Institutions and Markets

Dr. Chittaranjan Nayak
Mr. Bikash Ranjan Mishra
Mr. Atal Bihari Das
Mrs. Minati Sahoo

Econometrics
Mathematical Economics
Monetary Economics
Agricultural Economics

Education

1. Year of Establishment : 1943
2. Courses Offered : B.A., M.A., M.Phil and Ph.D.
3. Student Strength : B.A. (Hons) – 24; B.A.(Pass) -64
M.A. – 40; PH.D. – 07
4. Faculty :
Reader : Elementary Education,
Curriculum Development, Tribal
Education, Research
Methodology
Dr. Nityananda Pradhan
Dr. Sudarshan Mishra : Educational Technology,
Sociology of Education, Teacher
Education
Lecturer
Dr. Sarat Kumar Rout : Educational Technology,
Teacher Education, Research
Methodology, and Assessment
in Education.
Mr. Sankar Prasad Mohanty : Educational Psychology,
And philosophy, Curriculum and
Development
Mr. Rajendra Kumar Nayak : Educational Research and
statistics, Teacher Education,
Measurement and Assessment
in Education
Mr. Mayadhar Sahoo : Educational Administration and
Management, Educational
Philosophy and history of
Education
Mr. Ranjan Kumar Rout : Special Education, Educational
Technology, and Comparative
Education

English

1. Year of Establishment : 1922
2. Courses Offered : B.A., M.A., M.Phil. and Ph.D.
3. Students Strength : B.A. (Hons) – 64; Compulsory- 512
each in 1st year and 2nd year, 512 in
B.Com. 1st year
M.A. – 104; M.Phil – 12

4.	Faculty	:	
	Professor		
	Dr. D.R. Pattanaik		Translation Studies, Children's Literature
	Reader		
	Dr. S.P.Das		Indian Aesthetics, Translation Studies
	Dr.M.Mohanty		American Literature
	Dr. S.Pani		English Language Teaching
	Dr. M.Pati		American Literature
	Lecturer		
	Dr. K.Sethy		American Literature
	Dr. S.Panigrahi		Environmental Criticism
	Dr B.K.Tripathy		Creative Writing
	Dr U.Bedamata		Linguistics
	Dr M.Das		Indian Writing in English

Electronics & Telecommunication (ETC)

1.	Year of Establishment	:	2010
2.	Courses Offered	:	M.Sc.
3.	Students Strength	:	60
4.	Faculty	:	
	HOD	:	

Mr. Umakanta Samantasinghar

Lecturer

Sri Manish Ch. Roy
Sri Amiya R. Kanungo
Sri Dipankar Mohapatra
Ms. Priyanka Sahoo

Geology

1.	Year of Establishment	:	1956
2.	Courses Offered	:	B.Sc., M.Sc., and Ph.D.
3.	Student Strength	:	B.Sc. (Hons) – 48; B.Sc.(Pass) – 96; M.Sc. – 16
4.	Faculty	:	

Professor

Dr. Nachiketa Das

Geochemistry, Environmental Geology

Reader

Dr. S Goswami

Palaeontology, Environmental Geology

Dr. S. Khaoash

Ore Geology, Mineral Engineering

Lecturer

Dr. J.K. Tripathy

Groundwater, Remote sensing & GIS

Dr. P. Mishra

Ore Geology, Mineral Engineering

Hindi

1.	Year of Establishment	:	1948
2.	Courses Offered	:	B.A., M.A., M.Phil. and Ph.D.
3.	Student Strength	:	B.A. (Hons) – 80; B.A.(Pass) – 512; M.A. – 64; M.Phil. – 08

Mathematics

1.	Year of Establishment	:	1868
2.	Courses Offered	:	B.Sc., M.Sc., M.Phil. and Ph.D.
3.	Students Strength	:	B.Sc. (Hons) – 32; Pass – 216 M.Sc. – 48; M.Phil – 8
4.	Faculty	:	
	Professor		
	Dr. K. C. Sarangi		Fluid Dynamics and Pure Mathematics
	Reader		
	Dr. (Mrs) M. Das		
	Lecturer		
	Mr. S. K. Pradhan		Applied Functional Analysis and Optimization
	Dr. S. Paikray		Fourier Series, Complex Variable & Wavelet Analysis
	Mrs. S. Panda		

Oriya

1.	Year of Establishment	:	1947
2.	Courses Offered	:	B.A., M.A., M.Phil. and Ph.D.
3.	Student Strength	:	B.A. (Hons) – 32; B.A.(Pass) – 128; M.A. – 64; M.Phil. – 08
4.	Faculty	:	
	H.O.D.		
	Dr. G. C. Mishra		Modern Poetry
	Lecturer		
	Dr. B. L. Dash		Modern Poetry
	Sri R. K. Nayak		Religion

Philosophy

1.	Year of Establishment	:	1995
2.	Courses Offered	:	B.A., M.A., and Ph.D.
3.	Student Strength	:	B.A. (Hons) – 32; B.A.(Pass) M.A. – 32; PH.D. – 05
4.	Faculty	:	
	Reader		
	Dr. Ram Chandra Majhi		Philosophy of Language, Philosophy of Mind, Philosophy of M.K. Gandhi
	Lecturer		
	Dr. Patitapaban Das		Applied Ethics, Socio-Political Philosophy, Post-modern Philosophy

Nandini Mishra
Himansu Sekhar Samal

Applied Ethics, Vedanta, Indian
Philosophy
Philosophy of Science,
Philosophy of Social Science,
Ethics

Physics

1. Year of Establishment : 1914
2. Courses Offered : B.Sc., M.Sc., M.Phil. and Ph.D.
3. Student Strength : B.Sc. (Hons)– 64; B.Sc.(Pass)– 176;
M.Sc. – 56; M. Phil. – 08
4. Faculty :
Professor : Vacant

Reader
Dr. Rita Paikray : Plasma Physics
Dr. R. N. Mishra : Particle Physics
Lecturer
Dr. Birendra Panda : Solid State Physics
Dr. N. R. Jena : Bio-Physics

Political Science

1. Year of Establishment : 1958
2. Courses Offered : B.A., M.A., M.Phil. and Ph.D.
3. Student Strength : B.A. (Hons) –104 ; B.A(Pass) –112 ;
M.Sc. – 64; M.Phil. – 08
4. Faculty :
Professor :
Dr. Niranjana Barik : International Relations
Reader :
Dr. Asima Sahu : Indian Government and Politics
Dr. Sachidananda Mishra : Public Administration

Lecturer :
Dr. P. Majhi : International Relations
Dr. N. Abhinandan : International Relations
Dr. G. R. Swain : Political Theory

Psychology

1.	Year of Establishment	:	1953
2.	Courses Offered	:	B. A; M. A; and Ph. D.
3.	Student Strength	:	B. A. (Hons) – 32; B. A. (Pass) – 64; M. A. – 32.
4.	Faculty	:	
	Reader:		
I	Dr. Habibullah Ansari		Health Psychology, Gerontology, Counselling & Guidance, Applied Social Psychology, Research Methodology etc
II	Dr. (Ms) Shamita Mahapatra		Educational Psychology, Developmental Psy, Cognitive Psy, and Psychology of Disadvantaged Children
	Lecturer:		
I	Dr (Ms) Pubalin Dash		Clinical Psy, Child Psy, Counselling Psy
II	Ms. Sayantani Behura		Clinical Psy, Counselling Psy, Social &Health Psy.
III	Ms Pragma Paramita Priyadarshini Das		Counselling Psy, Clinical Psychology, Research Methodology & Statistics, Drug Addiction Recovery
IV	Dr Pranati Satapathy		Organisational Behaviour, Counselling Psychology, Social Psychology

Rural Development

1.	Year of Establishment	:	2010
2.	Courses Offered	:	M.A. and PG Diploma
3.	Students Strength	:	40
4.	Faculty	:	
	Professor		
	Dr. Mamata Swain		Agricultural Economics
	Reader		
	Dr. Sudhakar Patra		Mathematical Economics
	Dr. Dharmabrata Mohapatra		Environmental Economics
	Lecturer		
	Dr. Lipishree Das		Rural Economics
	Mr. Manoj Kumar Das		Financial Institutions and Markets
	Dr. Chittaranjan Nayak		Econometrics
	Mr. Bikash Ranjan Mishra		Mathematical Economics
	Mr. Atal Bihari Das		Monetary Economics
	Mrs. Minati Sahoo		Agricultural Economics

Sociology

- | | | |
|--------------------------|---|--|
| 1. Year of Establishment | : | 1977 |
| 2. Courses Offered | : | B.A., M.A., and Ph.D. |
| 3. Student Strength | : | B.A (Hons) -56 B.A.(Pass) – 128;
M.A. – 32; |
| 4. Faculty | | |
| Reader | | |
| Dr. A. Dash | | Gender studies |
| Lecturer | | |
| Dr. S. P. Ray | | Rural & Tribal studies |
| Dr. B.K.Mishra | | Theory and Methods |
| Dr. S. Chotaray | | Culture studies |
| Dr. Lagna Ray | | Social Anthropology |

Zoology

- | | | |
|-------------------------------|---|---|
| 1. Year of Establishment | : | 1943 |
| 2. Courses Offered | : | B.Sc., M.Sc., M.Phil. and Ph.D. |
| 3. Student Strength | : | B.Sc. (Hons) – 32; B.Sc.(Pass) – 32;
M.Sc. – 16; M. Phil. – 08 |
| 4. Faculty | : | |
| Professor | | Vacant |
| Reader | | |
| Dr. Luna Samanta | | Biochemistry & Molecular Biology |
| Dr. Lipika Patnaik | | Aquatic Toxicology, Phytoremediation,
Cancer Biology |
| Lecturer | | |
| Dr. Dipti Raut | | Marine Biology-Macrobenthos |
| Dr. Dhananjay Soren | | Biochemistry & Biotechnology |
| Dr. Lekhashree Samantasinghar | | Developmental Biology |

Annexure – I

SUBJECTS FOR POST GRADUATE ENTRANCE TEST

1	Applied Geography	13	History
2	Biotechnology	14	Information Technology Management (ITM)
3	Botany	15	Journalism and Mass Communication (JMC)
4	Chemistry	16	Mathematics
5	Commerce	17	Oriya
6	Computer Science	18	Philosophy
7	Economics	19	Physics
8	Education	20	Political Science
9	Electronics and Telecommunication (ETC)	21	Psychology
10	English	22	Rural Development
11	Geology	23	Sociology
12	Hindi	24	Zoology

SYLLABI FOR POSTGRADUATE ENTRANCE TEST

Applied Geography

- 1. Geomorphology :** Distribution of landmasses and water masses, Continental Drift Theory, Recent Advancements (Plate - Tectonics, Seafloor spreading), Internal Structure of the earth, Isostasy, (Concept of Airy and Pratt). Fold, Faults, Earthquake, Volcanoes, Processes of Mountain Building (Kober and Holmes), Rocks, Soils and Soil forming processes, Major soil groups of World. Weathering, Cycle of erosion (concepts of Davis and Penck), Erosional and depositional features produced by river, ground-water, Glacier, Wind Waves, Poly-cyclic landforms.
- 2. Climatology and Oceanography :** Elements and factors of climate, Structure and composition of Atmosphere, Temperature, Pressure, Wind-system, Moisture, Airmasses and Fronts, Cyclones and anticyclones, Classification of World climate.

General relief features of the oceans and Hypsographic curve, salinity and temperature of sea water, ocean deposits, coral reefs and atolls, marine resources. Waves, tides and ocean currents.
- 3. Environment and Eco-systems:** Meaning, Concepts and types of environment, Environmental changes, Environmental Controls, Major Environmental zones. Concept of Eco-system, Biogeochemical Cycles (Carbon, Oxygen and Nitrogen Cycle), Water and Air Pollution and Global warming.
- 4. Economic Geography :** Resources - Types, Distribution and conservation, Agriculture - Types and problems. Von Thunen's Theory of Agricultural location. Mineral Distribution & uses of Iron-ore, Bauxite, Gold and Limestone. Types of Energy and Energy Crisis. Industries - Factors affecting location of Industries, Industrial location theory of Weber.
- 5. Human Geography :** Contribution of Humboldt, Ritter, Ratzel and Blache to geographical thought, Major ethnic groups of the World. Cultural realms of the World, Concept of Hinterland and Rimlands, Frontiers.

Factors controlling distribution of World population, Population density, structure and composition of population, components of population change, components of population change, World population problems, Population theories (Malthusian and Neo-Malthusian), Migration and Urbanization.

Types of Settlement, Factors affecting growth and distribution of rural and urban settlement, Morphology of Urban Settlement, Central place theory of Christaller.

Concept of Region, Types of Region, Methods of Regionalization and concept of Regional planning.
- 6. Geography of India with special reference to Odisha under the following items :** i) Physiography, Drainage, Climate, Soil and Natural Vegetation., ii) Agriculture, Industry, Transport and Trade, iii) Population and settlement.

7. **Practical Geography:** Histogram and Frequency polygon, Frequency curve. Measures of Central tendencies, measures of dispersion, correlation, Fundamentals of Map projection, Types of Surveys (Instrument & Socio-economic), Use of R.S. & G.I.S. Techniques in Geography.

M. Sc. (Biotechnology)

Cell biology : Microscopy; Ultrastructure of prokaryotic and Eukaryotic cell; Cellular organisation; Structure and function of cell wall, cell membrane, mitochondria, plastids, ribosomes, endoplasmic reticulum, nucleus.

Structure and morphology of chromosomes; nature of genetic material, Gene-concept and Genetic code; Cell division: mitosis, meiosis and cell cycle.

Biochemistry : Properties of water; hydrogen ion concentration and buffers, chemical bonds and concept of free energy; Structure and chemistry of carbohydrates, proteins, amino acids, fats, organic acids, nucleic acids; Enzymes. **Microbiology :** Biogenesis, germ theory of disease, pure culture concept; immunization; Morphology, fine structure, growth, reproduction and economic importance of bacteria and virus.

Genetics: Mendelism, Interaction of factors, Chromosome theory of heredity, Linkage and crossing over, Gene mutation, Chromosomal aberration and Polyploidy.

Botany

1. **Cell Biology :** Ultrastructure of Plant Cell, Cell Wall ; Structure and functions of Cell Organelles. Chromosomes; Cell division: mitosis and meiosis.
2. **Genetics :** Mendelism, Non-mendelian ratios, Point mutation, Chromosomal aberration, Polyploidy.
3. **Plant Breeding :** Techniques of Plant breeding.
4. **Evolution :** Evidence and Theories.
5. **Diversities of Plant Kingdom :**
 - (a) *Microbiology :* Viruses and Bacteria, Microbes in relation to man.
 - (b) *Algae:* Life Cycle and economic importance of *Chlorella*, *Volvox*, *Oedogonium*, *Fucus*, *Batrachospermum*.
 - (c) *Fungi :* Structure, Reproduction and life cycle of *Saprolegnia*, *Puccinia*, *Agaricus*.
 - (d) *Bryophytes:* Structure, reproduction and life cycle of *Riccia*, *Marchantia*, *Anthoceros*.
 - (e) *Pteridophytes:* Structure, Reproduction and life cycle of *Psilotum*, *Lycopodium*, *Selaginella*, *Marsilea*.
 - (f) *Gymnosperms:* Structure, Reproduction and life cycle of *Pinus*, *Gnetum*.
 - (g) *Palaeobotany :* Fossil and fossilisation process.
 - (h) *Angiosperms:* Origin of angiosperms, Classification of angiosperms (Bentham and Hooker; Engler and Prantl ; Hutchinson).

- (i) Type families: Rosaceae, Apiaceae, Apocynaceae, Scrophulariaceae, Acanthaceae, Rubiaceae, Poaceae, Cyperaceae, Amaryllidaceae, Orchidaceae.
6. **Anatomy:** Mechanical tissue, Meristematic tissue, Anomalous secondary growth.
 7. **Embryology:** Microsporogenesis, Megasporeogenesis, Male gametophyte, Female gametophyte, Fertilization, Embryo, Endosperm.
 8. **Physiology and Biochemistry:** Conduction of water, Transpiration, Absorption of minerals, Enzymes, Photosynthesis, Respiration, Nitrogen fixation, Protein synthesis.
 9. **Biostatistics:** Frequency distribution, Central tendency, Dispersion.
 10. **Ecology:** Ecosystem, Energy flow, Trophic levels, Ecological pyramid, Biogeochemical cycles, Plant Succession.
 11. **Biotechnology:** Tissue culture, Protoplast technique, recombinant DNA technology, Concept of transgenics.

Chemistry

Physical Chemistry

1. **Kinetic theory of gases:** Postulates of Kinetic theory and derivation of Kinetic gas equation, Deviation from ideal behaviour, van der Waals' equation of state. Critical phenomena and critical constants. Liquefactions of gases, molecular velocities, Qualitative discussion of Maxwell - Boltzmann distribution of molecular velocities, collision number, mean free path and collision diameter.
2. **Dilute Solutions and Colligative Properties :** Raoult's law, relative lowering of vapour pressure, molecular mass determination, Osmosis and its laws, Osmotic pressure, Determination of molecular mass from osmotic pressure. Elevation of boiling point and depression of freezing point. Thermodynamic derivation of relation between molecular mass and colligative properties. Abnormal molar mass, degree of dissociation and association.
3. **Homogeneous gaseous equilibria :** Law of mass action and the thermodynamic derivation of the expression for the equilibrium constant. Le-chatelier's Principle, The vant Hoff's equation & its integration.
4. **The Chemical Kinetics :** Order & Molecularity. Kinetics of first and second order reactions. Collision theory of reaction rates. Qualitative treatment of transition state theory.
5. **Thermodynamics :** First Law of thermodynamics : Heat content and heat capacity. Isothermal and adiabatic changes. Work done in the expansion of an ideal gas. Joule - Thomson effect. J - T coefficient for ideal and van der Waal's gases. Thermochemistry - Hess's law, Kirchhoff's equation. Second Law of thermodynamics: Carnot's theorem. Efficiency of heat engines, entropy changes in reversible and irreversible processes. Entropy changes in an ideal gas, variation of entropy with temperature, Pressure and Volume. Free energy & work function, Conditions of equilibrium, Clausius - Clapeyron equation. Gibbs - Helmholtz equation, Chemical potential, Gibb's Duhem equation.

6. **Electrochemistry** : Derivation of Onsager's conductance equation for strong electrolytes and its validity. Conductance of weak electrolytes, Debye - Huckel theory, activity and activity coefficients. Applications of conductance measurements. Transport number & its measurement. EMF - Galvanic cells, cell reactions, EMF of reversible cells and expression for single electrode potential, concentration cell with and without transference. Determination of transport numbers, heat of reactions & solubility of a sparingly soluble salt by EMF method.

Inorganic Chemistry

7. **Atomic Structure** : Bohr and Sommer field model, de-Broglie equation. Heisenberg's uncertainty principle, Schrodinger's wave equation, significance of -ve value of energy, quantum numbers, radial and angular wave functions, probability distribution curves, shape of *s*, *p*, *d* and *f*-orbitals. Pauli's exclusion principle, Hund's rule, Auf bau principle, electronic configuration of elements, effective nuclear charge.
8. **Periodic classification of elements**: Atomic and ionic radii, ionisation potential, electron affinity, electronegativity, methods of determination, trends in periodic properties and explaining chemical behaviour.
9. **Chemical Bonding** :
- (a) **Electrovalent bond**: Ionic structure, radius ratio effect, Coordination number, Lattice defects, Lattice energy, Born -Haber Cycle, Solvation energy and Polarisation power and polarisability.
 - (b) **Covalent bond**: VB theory, Heitler - London treatment of H₂ molecule, resonance and resonance energy, Hybridization : sp, sp², sp³, dsp², d²sp³.
VSEPR theory for NH₃, H₂O, SF₄, ClF₃ and ICl₂ , Multicenter bond in electron deficient molecules, percentage ionic character from dipole moment and electronegativity difference. Molecular orbital treatment of H₂, H₂⁺, N₂, O₂ , F₂ and Co.
 - (c) **Other types of Bonds** : Van der Waals' force, Hydrogen bond, metallic bond, metallic bond, insulators, semiconductors and conductors.
10. **Nuclear Chemistry** : Theory of radioactive disintegration, half life period, radioactive series, Group displacement law, Radioactive equilibrium, artificial radioactivity, disintegration by α , β , and γ . Fission and fusion reactions, Radioactive isotopes and their applications.
11. **Coordination Compounds**: Werner's theory, EAN concept, chelates, nomenclature of coordination compounds, Isomerism in coordination compounds. Factors influencing the stability of complexes. Crystal field theory, qualitative idea about d-orbital splitting in octahedral and tetrahedral fields. Preparation, properties and structure of potassium ferrocyanide, sodium nitroprusside, potassium cobaltinitrite and hexamine cobalt (III) chloride.

12. **Bio-inorganic Chemistry** : Essential and trace elements in biological processes, metal porphyrins with special reference to haemoglobin and myoglobin, biological role of alkali and alkaline earth metal ions with special reference to Na⁺, K⁺ and Ca⁺⁺, Nitrogen fixation, Toxicity of Pb, Cd and Hg.

Organic Chemistry

13. Distribution of electrons in Organic molecules :-

- (a) Inductive effect, Resonance and its conditions, Hyperconjugation & Steric effects.
(b) Influence of these effects on acidity, basicity & dipole moment.

14. **Reaction Mechanism** :

Classification of reactions - Substitution, addition and elimination reactions, kinetic terms. Reaction intermediates : Carbocation, carbanion, Free radicals & carbenes - their formation, stability & structure. Mechanistic classification of S_N1, S_N2, S_Ni, S_E1, S_E2, E1_CB, A_dN, A_dE, E1 and E2.

(Full term explanation with examples)

15. **Stereochemistry** :

Sawhorse, Newman & Fischer projection formula of molecules containing C-C bond, Conformation of cyclohexane - calculation of energies of boat & chair conformation of cyclohexane. Conformation of mono and dimethyl cyclohexane. D-L convention for designation of optical isomers. R. S. notation, Resolution of racemic mixtures.

Geometrical Isomerism : Structural requirements, configuration of aldoximes & ketoximes, E, Z-notation.

16. (a) Aromatic hydrocarbons, concept of aromaticity, Electrophilic substitution (Halogenation, sulphonation, nitration and Friedel Craft's reaction), Orientation influence in aromatic substitution (S_{Ar}N1, S_{Ar}N2 & S_{Ar}E2).
(b) Alkyl and aryl halides : Preparation and properties.
(c) Aryl nitrogen compounds : Nitrohydrocarbons, Reduction of nitrobenzene. Amines - separation of amines, Basicity of amines. Diazo reaction, Benzene diazonium salts - structure & synthetic uses.
(d) Aliphatic and aryl oxygen compounds : Alcohols - Distinction. Phenols - Preparation & properties - acidity, electrophilic substitution, Kolbe's synthesis, Reimer-Tiemann reaction, comparison with alcohols.
(e) Aliphatic and aryl aldehydes and ketones - Preparation and their characteristic reaction. Cannizzaro's, Benzoin & Perkin reaction.
(f) Aliphatic and aryl carboxylic acids : Preparation and Properties.
(g) Grignard reagent - Preparation & synthetic applications.
(h) Active methylene compounds : Ethyl acetoacetate : Preparation (Claisen condensation), Keto-enol tautomerism-Synthetic applications. Diethyl malonate - Preparation & synthetic applications.

17. **Name reactions** : Diels-Alder, Fries, Beckmann, Michael, Mannich, Reformatsky (Principle, Mechanism & application).
18. (a) **U, V. Spectroscopy** : Absorption laws, molar absorptivity, Types of electronic transitions : $\sigma - \sigma^*$, $n - \sigma^*$, $\pi - \pi^*$ and $n - \pi^*$ transitions, Effect of conjugation, concept of chromophores and auxochromes, Bathochromic, hypsochromic, hyperchromic and hypochromic shifts, UV spectra of conjugated enes and enones.
- (b) **IR Spectroscopy**: Basic principle, molecular vibrations, Hooke's law, Finger print region, characteristic absorption of various functional groups: Decarbonizes, alcohols, amines, aldehydes, Ketenes, acids and aromatic rings.
- (c) **NMR Spectroscopy**: Proton magnetic resonance, nuclear shielding and deshielding, chemical shift and molecular structure, spin - spin coupling, coupling constants, Areas of signals, interpretation of spectra of molecules like ethyl alcohol, ethyl bromide, acetaldehyde, 1, 3 - di - chloropropane, 1, 1, 2 - tribromo ethane, ethylacetate.
- (d) **Mass Spectroscopy** : Basic principle, determination of molecular formula, parent and metastable peaks, mass spectra of some organic molecules (hydrocarbon, alcohol and amine only)
- (e) Structure determination of simple organic compounds using UV, IR, NMR and Mass spectral data.

Commerce

1. **Financial Accounting** : (a) Concepts and Conventions of Accounting, (b) Partnership Accounts, (c) Company Accounts - Issue, forfeiture, re-issue, redemption of preference shares,
2. **Cost & Management Accounting** : (a) Standard Costing (b) Marginal Costing (Cost Variance Analysis), (c) Ratio Analysis.
3. **Business Law** : Indian Contract Act :
(a) Offer, Acceptance and Consideration, (b) Capacity and free consent of parties, (c) Bailment and Pledge
3. **Quantitative Methods** : (a) collection of Data Correlation Analysis - Simple Correlation, Different methods of measuring degree of correlation (b) Regression Analysis, (c) Theory of Probability, (d) Network Analysis (e) Decision Theory (f) Index Numbers
4. **Business Mathematics** :
Calculus
Differentiation : Partial derivatives up to second order. Homogeneity of functions and Euler's theorem : total differentials , Maxima and Minima
Integration : Integration as anti-derivative process; Standard forms / methods ;

Matrices and Determinants : Definition of a matrix; Types of Matrices : Algebra of Matrices; Properties of determinants

Linear Programming - Formulation of LPP : Graphical method, Simplex Methods

5. **Principles of Management** : Planning, Organizing, staffing, directing & Controlling
6. **Auditing**: Audit Process
7. **Economics**: Law of Demand, Elasticity of Demand, Theory of Firm, Concepts of cost and revenue
8. **Financial Management** : Capital structure, Working Capital Management
9. **General Knowledge on Commerce & Business**

M.Sc. (Computer Science)

1. **Computer Science - (Honours Course)**

Computer Fundamentals, Operating System, DBMS, C & C++ Programming, Data Structure, Networking.

2. **Mathematics - (Pass Course)**

Real Analysis, Modern Algebra, Linear Algebra, Numerical Analysis

Economics

1. **Microeconomics**: Indifference Curve Analysis, Marshallian and Hicksian approaches to Consumer Surplus, Laws of returns and returns to scale, Short-run and Long-run cost curves, Equilibrium of Competitive firm and Industry, Monopoly, Discriminating Monopoly, Monopolistic Competition, Oligopoly, Theories of rent, wage, interest and profit.
2. **Money, Banking and International Trade**: Components of money supply, Quantity theories of Money, Causes, effects and control of inflation and deflation, Credit creation and control, Classical theory of comparative cost advantage, Heckscher-Ohlin theory, Balance of Payment: its structure and disequilibrium.
3. **Macroeconomics**: Concepts and measurement of National Income, Classical and Keynesian theory of output and employment, Consumption function, Investment function, Multiplier theory.
4. **Indian Economy**: Poverty and Unemployment scenario in India, Land reforms and Green revolution, Industrial policies of the Government of India, India's trade and Balance of Payments, objectives and achievements of Indian Planning.
5. **Public Finance**: Public, Private and Merit Goods, Theories of Growth of Public Expenditure, Principles of Taxation, Direct and Indirect taxes, General Principles of shifting and incidence of taxes, Burden of Public debt, Methods of debt redemption.

6. **Development and Environmental Economics:** Concept of Economic Development and Growth, Indicators of Economic Development, Classical, Marxian, Schumpeterian and Harrod-Domar models of economic growth, Balanced and unbalanced growth, sustainable development, Environment and economy linkage, market failure for environmental goods.
7. **Quantitative Economics:** Measures of Central Tendency and Dispersion, Correlation, Regression, Index Number, Time Series, Matrix and Determinants, Derivatives and Integral calculus: their applications in economic analysis.

Education

1. **Concept of Education :** Meaning, Nature and Scope of Education. Aims of Education, Education and Training, Content and Process of Education, Functions of Education, Relationship between Philosophy and Education. Idealism, Naturalism and Pragmatism and their relevance to the present educational system of India.
2. **Education** for National, Emotional and Social Integration. Education for Democracy, Education for Socialism, Education for Secularism. Education for human rights.
3. **Curriculum :** Principles of curriculum construction, Types of curriculum - subject centred, Child-centred and core curriculum.
4. **Concept of Learning :** Definition, Theories, Cognitive approaches to learning, Views of Piaget and Bruner.
Motivation : Meaning, Nature and Techniques.
Transfer of Learning : Its meaning, nature and types of transfer. Theories and principles of transfer of learning.
5. **Concept of Intelligence,** Measurement of intelligence. Types of Intelligence tests.
Creativity : Meaning and nature, characteristics of a creative person, Principles for encouraging creativity.
Personality : Concept, Types and Traits Theories of Personality.
6. **Education in British India :** Macaulay's Minute, Wood's Despatch, Report of Hunter Commission, Movement of Compulsory Education, Gokhale's Bill, University Education Commission, 1902, Calcutta University Education Commission, 1917, Hartog Committee Report - 1929.
7. **National Policy on Education,** 1986 and its Revised Policy Formulations 1992. Challenging issues in Indian Education : Population and development Education, Family Life Education, Sex Education, Vocationalisation of Education, Environmental Education, Education of Minority Communities. Educational Technology - Mass Media, Micro-teaching and Programmed Learning.
8. **Educational Statistics and Evaluation :** Measurement and evaluation, Types of evaluation procedures : Placement, Formative, Diagnostic and Summative.

Characteristics of a good test : Validity, Reliability, Objectivity, Usability, Norms. Concept of Standard Scores - T Score and Z Score. Normal Probability Curve and its use in interpretation of test scores.

Measures of central tendency, Variability. Percentiles and percentile Rank. Concept of correlation.

9. Continuous Comprehensive Evaluation, Evaluation in non-cognitive areas - Various techniques and approaches to evaluation Limitations.
10. **Guidance** : Meaning, Nature, Scope, Types, Educational, Vocational, Personal, Guidance Services.

Electronics and Telecommunication

1. The questions of M.Sc (ETC) entrance exam would be comprised of two parts i.e **Part-I** and **Part-II**. Total no. of questions are 100. Each carries one mark. Part-I contain 50 questions from the following areas:
 - a) General English
 - b) General Knowledge
 - c) Mathematical Reasoning
2. Part-II contains another 50 questions from the following area:
Basic(Analog & Digital) Electronics & IT

English

1. History of English Literature

(i) The Elizabethan Age, (ii) The Restoration Age, (iii) The Neo-classical Age, (iv) The Age of Romantic Revival, (v) The Victorian Age, (vi) The Modern Age.

2. Shakespearean Tragedy & Comedy

(General questions without specific reference to any play).

3. The Growth of the Novel

(From the 18th Century to 1930 with special reference to the Picaresque Novel, the Gothic Novel, the Historical Novel, the Realistic Novel and the Psychological Novel).

4. Forms of Literature

(i) Lyric ; sonnet ; ballad; ode; elegy; epic , (ii) tragedy; comedy, (iii) Short story; Biography.

5. Critical Theory

(i) Wordsworth & Coleridge, (ii) Matthew Arnold, (iii) T. S. Eliot.

6. Critical Terms

Classicism, Romanticism, Hamartia, Catharsis, Metaphor, Irony, Image, Paradox, Symbol, Negative Capability, Dissociation of Sensibility, Stream of Consciousness, Expressionism, Impressionism, Naturalism.

Geology

General Geology: Origin of the Solar system and the earth, age of the earth, interior of the earth, earthquakes and volcanoes. Geological processes, weathering and erosion, geological work of river and wind, glacier, sub-surface water, oceans and landforms produced by them. Elements of Plate tectonics- Isostasy, Sea floor spreading, Mid-Oceanic Ridges, Island Arcs, and Geosynclines.

Mineralogy: Classification of minerals, properties of minerals, isomorphism, polymorphism, pseudomorphism, twinning, structure of silicate minerals. Study of structure, chemistry, physical and optical character of rock forming silicate mineral groups – Olivine, Garnet, Pyroxene, Amphibole, Mica, Feldspar, feldspathoid and Quartz. Nature of light rays; reflection, refraction, refractive index, polarization and interference colour, behaviour of light in isoaxial and uniaxial minerals. Nicol prism, isotropism, anisotropism, pleochroism, birefringence, extinction angle.

Petrology: Concept of magmatism, primary magmas, Bowen's reaction series and its application, Unicomponent system, bicomponent systems – Eutectic, solid solution, incongruent melting, differentiation and assimilation. Form, classification, texture, structure and characteristics of igneous rocks. Metamorphism-agents, types, grades, texture, structure concept of metamorphic facies. Sedimentary rocks- Texture and structure.

Stratigraphy: Principles of stratigraphy, Standard Stratigraphic Time Scale, Stratigraphy and Geology of Odisha, Major stratigraphic units of India- Dharwar, Singhbhum, Cuddapah, Vindhyan and Gondwana, Triassic of Spiti, Jurassic of Kutch, Cretaceous of Trichinopoly, Tertiary of Assam and Siwalik, Deccan Traps.

Palaeontology : Fossils-modes of their preservation and utility, study of important plant fossils, Gondwana flora and their significance, introduction to micro-palaeontology. Morphology, geological history, evolution and Indian distribution of brachiopods, pelecypoda, gastropods, cephalopod, trilobite and echinoidea.

Structural Geology: Concept of Contours, Outcrop patterns, Maps and cross-sections, strike, dip, plunge, pitch. Classification and origin of fold, faults, joints, unconformities foliation, and lineations.

Economic Geology: Process of formation of Mineral deposits, Physical properties of common economic minerals, Origin, Mode of Occurrence and Distribution in India of mineral deposits– Iron, Manganese, Chromium, Aluminium, Copper, and Lead & Zinc, asbestos, mica, Occurrences of Coal and Petroleum in India.

Applied Geology: Ground Water and its occurrence, Mineral Exploration, Elements of Environmental Geology-impact of mining, mineral conservation, Principles of Engineering Geology, Dams, Bridges and Tunnels.

Hindi

हिन्दी साहित्य का उद्भव और विकास (वृष्टभूमि, प्रवृत्तियों और वैशिष्ट्य)

१. काल-विभाजन : आदिकाल, भक्ति काल, रीति काल, आधुनिक काल
२. काव्य - सिद्धान्त : पारिभाषा, स्वरूप, काव्य के लक्षण, काव्य प्रयोजन, गुण-दोष, शब्द-शक्तियाँ ।
अलंकार , रस और छन्द का सामान्य परिचय ।
३. व्यावहारिक समीक्षा: कबीर दास, गौरीवामी तुलसी दास / जयशंकर प्रसाद / प्रेमचन्द
४. विविध साहित्यिक विधाओं का अध्ययन : नाटक, एकांकी, रेडियो नाटक
उपन्यास, कहानी, शस्मरण, रेखाचित्र, निबन्ध, आलोचना ।

History

1. **Ancient India** : (i) Gautam Buddha - Life and Teachings, (ii) Ashoka - Kalinga War, Missionary Activities, Estimate, (iii) Guptas - Administration and Culture.
2. **Medieval India** : (i) Allauddin Khilji - Conquests and administration, (ii) Akbar - Rajput Policy, Religious Policy, Administration, (iii) Shivaji - Conflict with Mughals, Administration.
3. **Modern India** : (i) Robert Clive - Administration in Bengal, (ii) Revolt of 1857: Causes and Consequences, (iii) Socio-Religious Movements in the 19th Century: Raja Ram Mohan Ray - Brahma Samaj, Dayananda Saraswati - Arya Samaj.
4. **Freedom Struggle** : (i) Indian National Congress - Its Foundation, Aims and Objectives, (ii) Mahatma Gandhi - Khilafat, Non-Co-operation and Civil Disobedience Movement, (iii) Mountbatten - Partition and Independence of India.
5. **History of Odisha** : (i) Kharavela - Career and Achievements, (ii) Imperial Gangas - Chodagangadeva, Ananga Bhimadeva - III, Narasinghadeva - I, (iii) Gajapatis - Kapilendradeva, Purusottamadeva & Prataprudradeva, (iv) Buxi Jagabandhu, Surendra Sai, (v) Creation of Odisha as a separate province : Gopabandhu Das, Madhusudan Das, Krushna Chandra Gajapati.
6. **History of Europe** : (i) Revolutions : French Revolution of 1789, July Revolution of 1830, February Revolution of 1848, (ii) Napoleon : First Consul, Conquests, Downfall, (iii) Unification : Italy, Germany.
7. **International Relations** : (i) Treaty of Versailles, (ii) Totalitarian Dictatorship in Europe: Mussolini: Rise and foreign policy, Hitler's Rise and foreign policy, (iii) Causes of the Second World War.

ITM

Basics of Data Communication Networking:

OSI model, TCP/IP protocol suite, LAN, WAN, MAN, Topology, Transmission Media (Guided & Unguided Media), Switching Techniques- (Circuit Switching & Packet Switching). LAN/WAN devices (hub, switch, gateway & router).

Computer Organization

Digital Electronics: K-Map, Logic Gates, Registers & Counters, MUX and DEMUX,

Encoder & Decoder.

Architecture: I/O Devices, Memory Mapping, Memory Addressing, Bus Structure

(Address Bus, Data Bus & Control Bus).

Operating System: Scheduling Techniques (FCFS, SJF, RR, Multilevel Queue),

Deadlock Handling, Virtual Memory.

Computer Language:

C language: Data types, Array, Functions.

C++ : OOPs, Variable Aliasing, Operators Overloading, Inheritance.

Java: Package, Polymorphism Interface.

Computer Application

DBMS: Basics, Normalization, Transaction & Concurrency control.

Data Structure: Sorting (Bubble Sort, Heap Sort, Merge Sort), Searching (Linear, Binary), Application of tree.

English

Report Writing, Grammar, Communication Skill.

J.M.C.

1. **Communicative English :** Report Writing, letter writing, Writing of C.V., Letter to the Editor, Drafting of Condolence messages, Telegrams etc.
2. **Analytical Reasoning**
3. **General Knowledge :** Science & Technology, Sports, Current Affairs, Literature, Historical dates.

Mathematics

1. **Real Analysis**

Algebra of real numbers, lub and glb of a subset of \mathbb{R} , Order, Completeness and density properties of \mathbb{R} , Countability of \mathbb{Q} , Uncountability of $(0,1)$, \mathbb{R} . Convergence of sequences, Weierstrass completeness principle, Cantor's completeness principle, Subsequences, Bolzano - Weierstrass theorem, Cauchy sequence, Convergence of series, Absolute Convergence, Power series, Open sets, Closed sets, Limit points of a set, Analytic properties of \mathbb{R} , Properties of Continuous functions, Differentiability, Rolle's theorem, Mean value theorems and Taylor's Theorem, Uniform Continuity, Riemann integration, Properties of Riemann integral, Fundamental theorem of integral Calculus, Improper integrals.

2. Abstract Algebra

Groups, Subgroups, Lagrange's theorem, Order of an element of a group, Normal subgroups, Quotient group, Homomorphisms and isomorphisms in Groups (excluding Fundamental theorem of Isomorphism), Rings, Integral domain, Field, Homomorphism and isomorphism on rings, Ideals, Quotient ring.

3. Linear Algebra

Vector spaces, Subspaces, Span of a set, linear dependence, basis and dimension of a vector space, Linear transformation, Kernel, Rank and Nullity of a linear transformation, singular and non-singular linear transformation. The space $L(U, V)$, Matrices and linear map, Addition and multiplication of matrices, Singular and non-singular matrices, types of matrices, Inverse and transpose of a matrix, Rank of matrix, Elementary row operation on a matrix, Determinants, Product of determinants, Solution of a system of linear equations, Eigen values and eigen vectors.

4. Advanced Calculus

Functions of several variables, Limits, Continuity, Partial derivatives, Differentiability; Homogeneous functions. Change of variables, Jacobians, Maxima and minima, Lagrange's method of multipliers, Taylor's theorem for functions of two variables.

5. Numerical Analysis

Errors - types of error, floating point arithmetic, significant digits and numerical stability, Numerical solution of transcendental and polynomial equations by bisection, secant and Newton - Raphson methods, Interpolation - Lagrange and Newton's interpolation, finite difference operators, interpolating polynomials using finite differences, Numerical integration - Trapezoidal and Simpson's $\frac{1}{3}$ rd rules.

Odia

୧. ସାହିତ୍ୟ ଚକ୍ର :

ରସ, ରୀତି, କ୍ଲାସିସିଜିମ୍, ରୋମାଣ୍ଟିସିଜିମ୍, ପ୍ରତୀକ, ଚିତ୍ରକଳା

୨. ସାହିତ୍ୟର ଆଙ୍ଗିକ :

କାବ୍ୟ ଓ ମହାକାବ୍ୟ, ସନେଟ୍, ସମ୍ବୋଧନ ଗୀତିକା, ଚଉତିଶା, ଗାଥା କବିତା, କ୍ଷୁଦ୍ରଗଳ୍ପ, ଉପନ୍ୟାସ, ନାଟକ, ଏକାଙ୍କିକା।

୩. ଭାଷା ଓ ବ୍ୟାକରଣ :

ଓଡ଼ିଆ ଶବ୍ଦଭଣ୍ଡାର, କୃଦନ୍ତ, ତତ୍ତ୍ୱ, କାରକ ବିଭକ୍ତି, ପଦ ବିନ୍ୟାସ।

୪. ପ୍ରାଚୀନ ଓ ମଧ୍ୟଯୁଗୀୟ କାବ୍ୟ :

ଚର୍ଯ୍ୟାଗୀତିକା, ପୁରାଣ ସାହିତ୍ୟ, ରୀତି କାବ୍ୟର ବୈଶିଷ୍ଟ୍ୟ, ଗୀତିକବିତା।

୫. ଆଧୁନିକ ସାହିତ୍ୟ :

ପାଶ୍ଚାତ୍ୟ ସାହିତ୍ୟର ପ୍ରଭାବ, ପ୍ରଗତିବାଦୀ କବିତା, ଆଧୁନିକ ଓଡ଼ିଆ କବିତା (ସଚ୍ଚି ରାଉତରାୟ, ଗୁରୁପ୍ରସାଦ, ରମାକାନ୍ତ, ସୀତାକାନ୍ତ), ଓଡ଼ିଆ ଗଦ୍ୟ (ଫକୀର ମୋହନ, ଗୋପୀନାଥ ମହାନ୍ତି, ସୁରେନ୍ଦ୍ର ମହାନ୍ତି), ଓଡ଼ିଆ ନାଟକ (କାଳୀ ଚରଣ, ରାମଚନ୍ଦ୍ର ମିଶ୍ର, ଗୋପାଳ ଛୋଟରାୟ, ମନୋରଞ୍ଜନ ଦାସ)

Physics

1. Differentiation of Vector, Gradient, Divergence, Curl and Laplacian of a Vector, Gauss divergence theorem and Stoke's theorem.

Complex Algebra, Analytic function, Cauchy-Riemann Condition, Cauchy's Integral formula, special theory of relativity, Lorentz transformations, Length contraction, Time dilation, Relativistic addition of velocities, Mass energy relation.

2. Generalised co-ordinates, Lagrange's equation and application, Hamilton's Principle, Conservation theorem, Two body Central force problems, Kepler's laws.

Gravitational field and potential due to a spherical shell and solid sphere.

Relation among elastic constants, Torsion of right circular cylinder, Bending of beams, Vibration of loaded cantilever.

Pressure difference across a curved liquid surface.

Viscosity and Poiseuille's equation. Damped and forced vibration, Resonance, Vibration of strings, Ultrasonics.

3. Vander Waal's equation, Mean free path, Black body radiation, Stefan's law, Wien's law, Raleigh Jean's law, Plank's Law.

First law of thermodynamics and its application, Carnot's theorem, Absolute scale of temperature, Second law of thermodynamics, Entropy and unavailable energy, entropy of an ideal gas, T - S diagram, Entropy and thermodynamic probability, Maxwell - Boltzmann statistics, Law of equipartition of energy.

4. Cardinal points, Combination of two thin lenses, thick lenses, chromatic aberration, condition of achromatism, Huygen's and Ramsden's eye pieces.

Conditions of interference, Biprism, Fringes of equal inclination and equal thickness, Newton's rings, Michelson and Fabryperot interferometers.

Fraunhofer diffraction in single slit, double slit and plane diffraction grating,

Polarization by reflection and double refraction, Brewster's Law, Law of Malus, Nicol Prism, Half and Quarter wave plates, Production, detection and analysis of plane, circularly and elliptically polarized lights.

5. Gauss Law in electrostatics, Spherical, linear and Plane charge distribution, Poisson's and Laplace's equation of potential, Polarisation, Electrostatic energy, Energy density in electric field.

Biot - Savart law, Ampere's circuital law, Self and mutual inductances, Growth and decay of currents in LCR circuits, A.C. in LCR circuit, Impedance, power factor, sharpness of resonance, Q-factor, Ballistic galvanometer.

Maxwell's equation, Displacement current, vector and scalar potentials, Plane waves in dielectric media, Poynting's theorem and Poynting vector.

Half and full wave rectifiers, Circuits details with crystal diodes, effect of filters.

Basic principles of transistor amplifier, voltage gain.

Oscillators, Hartley and Colpitt Oscillators, Bohr-Sommerfeld theory of hydrogen atom, Bohr's correspondence principle.

6. Photoelectric effect, Compton effect, Matter wave Dualism, De Broglie waves, wave packets, Uncertainty principles, Schrodinger's wave equation, Its solution for one dimensional potential barrier and potential steps, Harmonic Oscillator.

Elementary ideas of Crystal structure, Types of Lattices, Unit cell, Miller indices, Crystal diffraction, Bragg's law.

Size, mass and charge of nucleus, Nuclear forces, Binding energy, Nuclear fission and fusion, Radioactive law of growth and decay, linear accelerator, cyclotron.

Philosophy

Western Epistemology and Metaphysics

Plato- Theory of Ideas

Aristotle- Form and Matter

Descartes- Method of Doubt, Mind-Body relations

Spinoza- Modes and Attributes

Leibniz- Concept of Monads

Locke - Theory of Knowledge

Berkley- Esse-est-percipi

Hume- Causation

Indian Epistemology and Metaphysics

Samkhya – Theory of Evolution

Buddhism - Kshnikavada, Pratityasamutpada

Jainism – Syadvada, Anekantavada

Nyaya – Pratyaksa, Anumana

Vedanta - Atman, Brahman and Moksa (Shankara and Ramanuja)

Upanishads - Karma & Rebirth

Ethics

The object of moral judgment and the standard of Moral judgment (Hedonism, Rigorism & Perfectionism), Theories of Punishment.

Purusartha, Svadharma, Varnadharma

Niskamakarma, Ahimsa,

Philosophical Analysis

Word -Meaning, Definition, Analytic- Synthetic distinction and Possibilities

Philosophy of Religion

Proofs for existence of God and The problems of Evil

Modern Indian Philosophy

Vivekananda- Universal Religion, God

Gandhi- Ends & Means, Non-violence

Sri Aurobindo- Sacchidananda

Symbolic Logic

Truth Tables, Kinds of Propositions, Derivation by Substitution, CNF and DNF

Political Science

1. **Political Theory** : Behaviouralism, Post-Behaviouralism, State, Theories of the origin of the State, Sovereignty, Liberty, Equality, Rights, Justice, Liberalism and Marxism, Models of Democracy.

2. **India's Constitutional System:** Executive, Legislature and Judiciary of the Union and the states; Federalism in India ; Preamble, Fundamental Rights, Directive Principles of State Policy, Political Parties, Pressure Groups;
Issues in Indian Politics: Caste, Gender, Region and Religion
3. **Major Governments :** U.K. and USA, China and Switzerland
4. **Indian Political Thought :** Raja Rammohan Roy, Dayananda Saraswati, Gokhale, Tilak, Sri Aurobindo, M. K. Gandhi and J. Nehru, B. R. Ambedkar
5. **Political Sociology :** Power, Legitimacy, Authority, Theories of Political Power, Social Stratification, Political Socialisation, Political Participation, Modernisation, Social change.
6. **Western Political Thought :** Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, J. S. Mill, Hegel & Marx.
7. **Public Administration :** Principles of Organization, Personnel Administration (Recruitment, Promotion & Training of Civil Servants), Civil Service Neutrality, and Financial Administration in India.
8. **International Politics :** Theories of International Relations: Idealism, Realism, Decision-making and Systems; Balance of Power, National Interest, Cold war, Detente ,Post-Cold War International Order, Non-alignment, Nuclear Proliferation and Disarmament ,United Nations, Regional Organisations: SAARC, ASEAN and EU

Psychology

1. **Introduction:** Subject matter of Psychology; Psychology as the science of behaviour and experience.
2. **Methods used in Psychology:** Introspection; objective observation; experimental method.
3. **Physiological basis of behaviour:** Structure; function and types of neurons, synapse, All or Non-principle, Structure and function of the Central Nervous system (Spinal Cord and Brain), Cerebral localization and methods used for studying brain functions, Structure and functions of the Automatic Nervous System, Glands and their significance in behaviour.
4. **Perception:** The nature of perceptual process, Gestalt factors in perception, Role of Need, Past experience and social factors in perception, Errors in perceptual process - illusions and hallucination.
5. **Learning:** The concept of learning process, processes of learning, classical conditioning of Pavlov, Operant conditioning of Skinner, Trial and Error method of Thorndike, Insightful learning of Kohler, Distinction between classical and operant conditioning.
6. **Remembering and forgetting:** Process of remembering, learning, retaining, reproducing (Recall, Recognition, Relearning & Reconstruction), Distinction between Short Term Memory (STM) and Long Term Memory (LTM), Nature of forgetting: A general idea about the curve of forgetting, Theories of forgetting: Theory of Disuse; Interference Theory; Psychoanalytic Theory (Repression).

7. **Thinking:** Thinking as a symbolic problem solving behaviour, Relation between Language and Thought, Stages of Creative Thinking, Theories of Thinking.
8. **Emotion:** Organic Changes in Emotion, Role of hypothalamus and cerebral cortex in emotion, Theories of emotion, James - Lange, Canon Bard and Activation theory.
9. **Motivation:** Concepts of Motivation, Needs, Drive and Incentives, Types of motives, Biological, Social and Personal, Measurement of drives.
10. **Personality:** Meaning and operational definition of personality, types and traits of personality, Assessment of Personality.
11. **Concept of Abnormality:** Methods of studying abnormal behaviour (i) Case history method (ii) Clinical method.
12. Freud's Contributions to Topographical aspects of mind dynamic aspects of personality, Psycho sexual development to personality, Dreams content and mechanisms, Defense mechanism.
13. **Neurosis:** Basic nature of neuroses symptoms, Etiology and treatment of (i) Anxiety neurosis, (ii) Obsessive - compulsive neuroses, (iii) Hysteria.
14. **Psychoses:** General characteristics of psychoses, distinction between psychoses and neuroses, symptoms, etiology and treatment of (i) Schizophrenia, (ii) Manic - depressive Psychoses.
15. **Psychosomatic Disorders:** (a) General cause (b) Gastrointestinal disorders - Peptic Ulcer, (c) Cardiovascular disorder - Hypertension.
16. **Mental Retardation:** (a) Level of Mental retardation, (b) Clinical types (i) Mongolism, (ii) Cretinism, (iii) Cranial anomalies: Hydrocephally, Microcephally, (c) Etiology, Training and Treatment.
17. **Therapeutic Procedures:** (a) Psychoanalytic therapy, (b) Non directive therapy, (c) Behaviour therapy (d) Group therapy.
18. **Concept of Statistics:** (a) Parametric and Non-parametric statistics (b) Scores and data (c) Frequency distribution (d) Frequency Polygon and Histogram.
19. **Measures of Central Tendency:** Mean, Median, Mode and their specific uses.
20. **Measures of Variability:** Quartile deviation, Average deviation, Standard deviation and their specific uses.
21. **Percentile,** Percentile ranks and ogive.
22. **Normal Probability Curve:** General characteristics.
23. **Correlation:** (a) Concept of correlation, (b) Product Moment (c) Rank order.
24. **Reliability of Tests :** (a) Meaning of reliability, (b) Methods of determining test reliability (i) Test retest (ii) Alternate or Parallel form (iii) Spilt half.
25. **Validity of Tests :** (a) Meaning of Validity, (b) Face validity, (c) Content Validity (d) Criterion Validity (e) Relation of validity to reliability.

Rural Development & PG Diploma in Rural Development

1. English Aptitude
2. General Knowledge
3. Mental Ability and Reasoning
4. Numerical Ability/Quantitative Aptitude

Sociology

- Emergence of Sociology and Relationship with other Social Sciences. Society, Social Structure and Social Processes
- Steps in Scientific Method, Formulation of Research Problem, Hypothesis, Research Design, Sampling, Qualitative and Quantitative Methods.
- Karl Marx: Historical Materialism, Mode of Production, Alienation, Class Struggle. Emile Durkheim: Division of Labour, Social Fact, Suicide, Religion and Society. Max Weber: Social Action, Ideal Types, Authority, Bureaucracy, Protestant Ethic and the Spirit of Capitalism
- Bases of Social Stratification, Issues of Inequality: Caste, Class, Gender and Ethnicity, Types and Causes of Mobility.
- Types and Forms of Family and Marriage, Terms and Usages of Kinship
- Caste System in India and its Changing Aspects: Issues and Perspectives
- Power and Authority, Political Parties and Pressure Groups, Caste and Politics, Economic Development; Market Economy and Planned Economy, Secularization
- Social Change: Concepts and Theories, Sanskritization, Westernization, Modernization, Globalization,
- Social Movements- Peasant , Tribal, Backward Class, Dalit, Women and Environment
- Social Justice and Welfare: Protective Discrimination and Weaker Sections, Constitutional Provisions.
- Rural Urban Contrast and Continuum, Local governance of rural and urban communities: Issues and perspectives.
- Human development, Social Development; Sustainable Development
- Patriarchy as ideology and practice, gender roles, private–public dichotomy, sexual division of labour.
- Issues on Migration, Development, Displacement, Relocation and Environment.
- Crime & Delinquency- Concepts and Theories

Zoology

1. **Non-Chordata** : Reproduction in Protozoa, Life Cycle of Plasmodium, Entamoeba, Wuchereria, Fasciola, Taenia and Ascaris, Canal System in Porifera, Coral Reefs, Sacculina, Larval Forms of Crustacea, Torson in gastropoda. Water vascular system and reproduction in Echinoderms.
2. **Chordata**: Ascidian Tadpole (Structure and Metamorphosis), Anatomical peculiarities, affinities and phylogenetic position of Dipnoi, Parental care & Neoteny in Amphibia. Migration in birds, Poisonous Snakes of India, Evolution of heart & Kidney in Vertebrate series, Prototheria and Metatheria.
3. **Cytogenetics**: Mitochondria, Ribosomes, Plasma membrane, ER, Protein targeting & sorting, Spindle apparatus, Polytene chromosomes, Interaction of genes (supplementary and complementary only), linkage, crossing over, chromosomal aberrations, Mendel's laws, Gene mutation, Sex-determination, Sex - Linked Inheritance.
4. **Biochemistry**: Structure & metabolism of amino acids, proteins, lipids and Carbohydrates. pH and Buffers, Bioenergetics: ETC & oxidative phosphorylation, Separation of biomolecules (chromatography, electrophoresis).
5. **Molecular Biology**: DNA (structure, packaging into chromosomes, replication and repair), Transcription, genetic code, Protein synthesis, gene regulation (Operon concept), Biology of cancer cells.
6. **Evolution, Ecology & Biostatistics** : Theory of Natural selection, Modern Synthetic theory of evolution, Adaptation, Species concept, Dating of fossils, Energy flow in Eco system, Ecological Pyramids, Air, Water and Noise Pollution, Standard Deviation and Standard Error, Population growth and Density. Evolution of Horse, Basic principles of toxicology: Lethal doses, types of responses, uptake and distribution of toxicants, biotransformation of toxicants.
7. **Physiology, Endocrinology and Immunology**: Physiology of digestion, circulation, respiration and excretion, Transmission of nerve Impulse, synaptic transmission and Muscle contraction, endocrine glands, mechanism of hormone action, Humoral and cell mediated immune response, antigen-antibody reaction.
8. **Developmental Biology**: Gametogenesis, structure of gametes, fertilization, Cleavage, Gastrulation in Frog and Chick, Organiser concept, embryonic induction and fate map.
9. **Resource Biology, Wild life and Microbiology**: Apiculture, Pisciculture, Sericulture, Tiger, Crocodile, Elephant, Bacteria and Virus..
10. **Biotechnology**: Recombinant DNA technology (Enzymes, vectors, host systems, screening of clones), PCR, FISH.

UNIVERSITY GRANTS COMMISSION

UGC REGULATIONS ON CURBING THE MENACE OF RAGGING IN HIGHER EDUCATIONAL INSTITUTIONS, 2009.

(Under Section 26 (1) (g) of the University Grants Commission Act, 1956)

New Delhi-110002, the 17th June 2009

F.1-16/2007(CPP-II)

PREAMBLE.

In view of the directions of the Hon'ble Supreme Court in the matter of "University of Kerala v/s. Council, Principals, Colleges and others" in SLP no. 24295 of 2006 dated 16.05.2007 and that dated 08.05.2009 in Civil Appeal number 887 of 2009, and in consideration of the determination of the Central Government and the University Grants Commission to prohibit, prevent and eliminate the scourge of ragging including any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student, or indulging in rowdy or indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student, with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student, in all higher education institutions in the country, and thereby, to provide for the healthy development, physically and psychologically, of all students, the University Grants Commission, in consultation with the Councils, brings forth this Regulation.

In exercise of the powers conferred by Clause (g) of sub-section (1) of Section 26 of the University Grants Commission Act, 1956, the University Grants Commission hereby makes the following Regulations, namely;

1. Title, commencement and applicability:

- 1.1 These regulations shall be called the "UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009".
- 1.2 They shall come into force from the date of their publication in the Official Gazette.
- 1.3 They shall apply to all the institutions coming within the definition of an University under sub-section (f) of section (2) of the University Grants Commission Act, 1956, and to all institutions deemed to be a university under Section 3 of the University Grants Commission Act, 1956 to all other higher educational institutions, or elements of such universities or institutions, including its

departments, constituent units and all the premises, whether being academic, residential, playgrounds, canteen, or other such premises of such universities, deemed universities and higher educational institutions, whether located within the campus or outside, and to all means of transportation of students, whether public or private, accessed by students for the pursuit of studies in such universities, deemed universities and higher educational institutions.

2. Objectives:

To prohibit any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student, or indulging in rowdy or indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student, with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student; and thereby, to eliminate ragging in all its forms from universities, deemed universities and other higher educational institutions in the country by prohibiting it under these Regulations, preventing its occurrence and punishing those who indulge in ragging as provided for in these Regulation and the appropriate law in force.

3. What constitutes Ragging: Ragging constitutes one or more of any of the following acts:

- a. Any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other students;
- b. Indulging in rowdy or indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student;
- c. Asking any student to do any which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student;
- d. Any act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or a fresher;
- e. Exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of student.
- f. Any act of financial extortion or forceful expenditure burden put on a fresher or any other student by students;

- g. Any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person;
- h. Any act or abuse by spoken words, emails, post, public insults which would also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student;
- i. Any act that affects the mental health and self – confidence of a fresher or any other student with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student.

4. Definitions:

- 1) In these regulations unless the context otherwise requires, -
 - a) "Act" means, the University Grants Commission Act, 1956 (3 of 1956);
 - b) "Academic year" means the period from the commencement of admission of students in any course of study in the institution up to the completion of academic requirements for that particular year.
 - c) "Anti-Ragging Helpline" means the Helpline established under clause (a) of Regulation 8.1 of these Regulations.
 - d) "Commission" means the University Grants Commission;
 - e) "Council" means a body so constituted by an Act of Parliament or an Act of any State Legislature for setting, or coordinating or maintaining standards in the relevant areas of higher education, such as the All India Council for Technical Education (AICTE), the Bar Council of India (BCI), The Dental Council of India (DCI), the Distance Education Council (DEC), the Indian Council of Agricultural Research (ICAR), the Indian Nursing Council (INC), the Medical Council of India (MCI), the National Council for Teacher Education (NCTE), the Pharmacy Council of India (PCI), etc. and the State Higher Education Councils.
 - f) "District Level Anti-Ragging Committee" means the Committee, headed by the District Magistrate, constituted by the State Government, for the control and elimination of ragging in institutions within the jurisdiction of the district.
 - g) "Head of the institutions" means the Vice-Chancellor in case of a university or a deemed to be university, the Principle or the Director or such other designation as the executive head of the institution or the college is referred.
 - h) "Fresher" means a student who has been admitted to an institution and who is undergoing his/her first year of study in such institution.

- i) "Institution" means a higher educational institution including, but not limited to an university, a deemed to be university, a college, an institute, an institution of national importance set up by an Act of Parliament or a constituent unit of such institution, imparting higher education beyond of 12 years of schooling leading to, but not necessarily culminating in, a degree (graduate, postgraduate and/or higher level) and/or to a university diploma.
 - j) "NAAC" means the National Academic and Accreditation Council established by the Commission under Section 12 (ccc) of the Act;
 - k) "State Level Monitoring Cell" means the body constituted by the State Government for the control and elimination of ragging in institutions within the jurisdiction of the State, established under a State Law or on the advice of the Central Government, as the case may be.
- 2) Words and expressions used and not defined herein but defined in the Act or in the General Clauses Act, 1897, shall have the meanings respectively assigned to them in the Act or in the General clauses Act, 1897, as the case may be.

5. Measures for prohibition of ragging at the institution level:

- a) No institution or any part of it thereof, including its elements, including, but not limited to, the departments, constituent units, colleges, centers of studies and all its premises, whether academic, residential, playgrounds, or canteen, whether located within the campus or outside, and in all means of transportation of students, whether public or private, accessed by students for the pursuit of studies in such institutions, shall permit or condone any reported incident of ragging in any form; and all institutions shall take all necessary and required measures, including but not limited to the provisions of these Regulations, to achieve the objective of eliminating ragging, within the institution or outside,
- b) All institutions shall take action in accordance with these Regulations against those found guilty of ragging and/or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

6. Measures for prevention of ragging at the institution level:

- 6.1 An institution shall take the following steps in regard to admission or registration of students; namely,
- a) Every public declaration of intent by any institution, in any electronic, audio-visual or print or any other media, for admission of students to any course of study shall expressly provide that ragging is totally prohibited in the institution and anyone found guilty of ragging and/or abetting, whether actively or passively, or being a part of a conspiracy to promote ragging, is liable to be punished in accordance with these Regulations as well as under the provisions of any penal law for the time being in force.

- b) The brochure of admission/instruction booklet or the prospectus, whether in print or electronic format, shall prominently print these Regulations in full.

Provided that the institution shall also draw attention to any law concerning ragging and its consequences, as many be applicable to the institution publishing such brochure of admission/instruction booklet or the prospectus.

Provided further that the telephone numbers of the Anti-Ragging Helpline and all the important functionaries in the institution, including but not limited to the Head of the institution, faculty members, members of the Anti-Ragging Committees and Anti-Ragging Squads, District and Sub-Divisional authorities, Wardens of hostels and other functionaries or authorities where relevant, shall be published in the brochure of admission/instruction booklet or the prospectus.

- c) Where an institution is affiliated to a University and publishes a brochure of admission/instruction booklet or a prospectus, the affiliating University shall ensure that the affiliated institution shall comply with the provisions of clause (a) and clause (b) of Regulation 6.1 of these Regulations.
- d) The application form for admission, enrolment or registration shall contain an affidavit, mandatorily in English and in Hindi and /or in one of the regional languages known to the applicant, as provided in the English language in Annexure I to these Regulations, to be filled up and signed by the applicant to the effect that he/she had read and understood the provisions of these Regulations as well as the provisions of any other law for the time being in force, and is aware of the prohibition of ragging and the punishments prescribed, both under penal laws as well as under these Regulations and also affirm to the effect that he/she has not been expelled and/or debarred by any institution and further aver that he/she would he/she would not indulge, actively or passively, in the act or abet the act of ragging and if found guilty of ragging and/or abetting ragging, is liable to be proceeded against under these Regulations or under any penal law or any other law for the time being in force and such action would include but is not limited to debarment or expulsion of such student.
- e) The application form for admission, enrolment or registration shall contain an affidavit , mandatorily in English and in Hindi and/or in one of the regional languages known to the parents/guardians of the applicant, as provided in the English language in Annexure I to these Regulations, to be filled up and signed by the parents/guardians of the applicant to the effect that he/she has read and understood the provisions of these Regulations as well as the provisions of any other law for the time being in force, and is aware of the prohibition of ragging and the punishments prescribed, both under penal laws as well as under these Regulations and also affirm to the effect that his/her ward has not been expelled and/or debarred by any

institution and further aver that his/her ward would not indulge, actively or passively, in the act or abet the act of ragging and if found guilty of ragging and/or abetting ragging his/her ward is liable to be proceeded against under these Regulations or under any penal law or any other law for the time being in force and such action would include but is not limited to debarment or expulsion of his/her ward.

- f) The application for admission shall be accompanied by a document in the form of, or annexed to, the School Leaving Certificate/Transfer Certificated/Migration Certificate/Character Certificate reporting on the inter – personal/social behavioural pattern of the applicant, to be issued by the school or institution last attended by the applicant, so that the institution can thereafter keep watch on the applicant, if admitted, whose behavior has been commented in such document.
- g) A student seeking admission to a hostel forming part of the institution, or seeking to reside in any temporary premises not forming part of the institution, including a private commercially managed lodge or hostel, shall have to submit additional affidavits countersigned by his/her parents/guardians in the form prescribed in Annexure I and Annexure II to these Regulations respectively along with his/her application.
- h) Before the commencement of the academic session in any institution, the Head of the Institution shall convene and address a meeting of various functionaries/agencies, such as Hostel Wardens, representatives of students parents/guardians, faculty district administration including the police, to discuss the measures to be taken to prevent ragging in the institution and steps to be taken to identify those indulging in or abetting ragging and punish them.
- i) The institution shall, to make the community at large and the students in particular aware of the dehumanizing effect of ragging, and the approach of the institution towards those indulging in ragging, prominently display posters depicting the provisions of penal law applicable to incidents of ragging, and the provisions of these Regulations and also any other law for the time being in force, and the punishments thereof, shall be prominently displayed on Notice Boards of all departments, hostels and other buildings as well as at places, where students normally gather and at places, known to be vulnerable to occurrences of ragging incidents.
- j) The institution shall request the media to give adequate publicity to the law prohibiting ragging and the negative aspects of ragging and the institution's resolve to ban ragging and punish those found guilty without fear or favour.
- k) The institution shall identify, properly illuminate and keep a close watch on all locations known to be vulnerable to occurrences of ragging incidents.

- l) The institution shall tighten security in its premises, especially at vulnerable places and intense policing by Anti-Ragging Squad, referred to in these Regulations volunteers, if any, shall be resorted to at such points at odd hours during the first few months of the academic session.
- m) The institution shall utilize the vacation period before the start of the new academic year to launch a publicity campaign against ragging through posters, leaflets and such other means, as may be desirable or required, to promote the objectives of these Regulations.
- n) The faculties/departments/units of the institution shall have induction arrangements, including those which anticipate, identify and plan to meet any special need of any specific section of students, in place well in advance of the beginning of the academic year with an aim to promote the objectives of this Regulation.
- o) Every institution shall engage or seek the assistance of professional counselors before the commencement of the academic session, to be available when required by the institution, for the purposes of offering counseling to freshers and to other students after the commencement of the academic year.
- p) The head of the institution shall provide information to the local police and local authorities, the details of every privately commercially managed hostels or lodges used for residential purposes by students enrolled in the institution and the head of the institution shall also ensure that the Anti – Ragging Squad shall ensure vigil in such locations to prevent the occurrences of ragging therein.

6.2 An institution shall, on admission or enrolment or registration of students, take the following steps, namely:

- a) Every fresh student admitted to institution shall be given a printed leaflet detailing to whom he/she has to turn to for help and guidance for various purposes including addresses and telephone number, so as to enable the student to contact the concerned person at any time, if and when required, of the Anti-Ragging Helpline referred to in these Regulations, Wardens, Head of the institution, all members of the Anti-Ragging Squads and Committees, relevant district and police authorities.
- b) The institution, through the leaflet specified in clause (a) of Regulation 6.2 of these Regulation shall explain to the fresher's , the arrangements made for their induction and orientation which promote efficient and effective means of integrating them fully as students with those already admitted the institution in earlier years.
- c) The leaflet specified in clause (a) of Regulations 6.2 of these Regulations shall inform the fresher's about their rights as bona fide students of the institution and clearly instructing them that they should desist from doing

anything, with or against their will, even if ordered to by the seniors students, and that any attempt of ragging shall be promptly reported to the Anti-ragging Squad or to the Warden or to the Head of the institution, as the case may be.

- d) The leaflet specified in clause (a) of Regulation 6.2 of these Regulations shall contain a calendar of events and activities laid down by institution to facilitate and complement familiarization of fresher's with the academic environments of the institution.
- e) The institution shall, on the arrival of senior students after the first week or after the second week, as the case may be, schedule orientation programmes as follows, namely; (I) joint sensitization programme and counseling of both fresher's and senior students by a professional counselor, referred to in clause (o) of Regulation 6.1 of these Regulations; (ii) joint orientation programme of fresher's and seniors to be addressed by the Head of the institution and the anti-ragging committee; (iii) organization on a large scale of cultural , sports and other activities to provide a platform for the fresher's and seniors to interact in the presence of faculty members ; (iv) in the hostel, the warden should address all students; and may request two junior colleagues from the college faculty to assist the warden by becoming resident tutors for a temporary duration. (v) as far as possible faculty members should dine with the hostel residents in their respective hostels to instill a feeling of confidence among the fresher's.
- f) The institution shall set up appropriate committees, including the course-in-charge, student advisor, Wardens and some senior students as its members, to actively monitor, promote and regulate healthy interaction between the fresher's , junior students and senior students.
- g) Fresher's or any other student(s), whether being victims , or witnesses, in any incident of ragging, shall be encouraged to report such occurrence, and the identity of such informants shall be protected and shall not be subject to any adverse consequence only for the reason for having reported such incidents.
- h) Each batch of fresher's, on arrival at the institution, shall be divided into small groups and each such group shall be assigned to a member of the faculty, who shall interact individually with each member of the group every day for ascertaining the problems or difficulties, if any, faced by the fresher in the institution and shall extend necessary help to the fresher in overcoming the same.
- i) It shall be the responsibility of the member of the faculty assigned to the group of fresher's, to coordinate with the Wardens of the hostels and to make surprise visits to the rooms in such hostels, where a member or members of the group are lodged; and such member of faculty shall

maintain a diary of his/her interaction with the fresher's under his/her charge.

- j) Fresher's shall be lodged, as far as many be, in a separate block, and where such facilities are not available, the institution shall ensure that access of seniors to accommodation allotted to fresher's is strictly monitored by wardens , security guards and other staff of the institution.
- k) A round the clock vigil against ragging in the hostel premises, in order to prevent ragging in the hostels after the classes are over, shall be ensured by the institution.
- l) It shall be the responsibility of the parents/guardians of freshers to promptly bring any instance of ragging to the notice of the Head of the Institution.
- m) Every student studying in the institution and his/her parents/guardians shall provide the specific affidavits required under clauses (d), (e) and (g) of Regulation 6.1 of these Regulations at the time of admission or registration, as the case may be, during each academic year.
- n) Every institution shall obtain the affidavit from every student as referred to above in clause (m) of Regulation 6.2 and maintain a proper record of the same and to ensure its safe upkeep thereof, including maintaining the copies of the affidavit in an electronic form, to be accessed easily when required either by the Commission or any of the Councils or by the institution or by the affiliating University or by any other person or organization authorized to do so.
- o) Every student at the time of his/her registration shall inform the institution about his/her place of residence while pursuing the course of study, and in case the student has not decided his/her place of residence or intends to change the same, the details of his place of residence shall be provided immediately on deciding the same; and specifically in regard to a private commercially managed lodge or hostel where he/she has taken up residence.
- p) The Head of the institution shall, on the basis of the information provided by the student under clause (o) of Regulation 6.2, apportion sectors to be assigned to members of the faculty, so that such member of faculty can maintain vigil and report any incident of ragging outside the campus or en route while commuting to the institution using any means of transportation of students, whether public or private.
- q) The Head of institution shall, at the end of each academic year, send a letter to the parents/guardians of the students who are completing their first year in the institution, informing them about these Regulations and any law for the time being in force prohibiting ragging and the punishment thereof as well as punishment prescribed under the penal laws, and appealing to them

to impress upon their wards to desist from indulging in ragging on their return to the institution at the beginning of the academic session next.

6.3 Every institution shall constitute the following bodies; namely:

- a) Every institution shall constitute a Committee to be known as the Anti-Ragging Committee to be nominated and headed by the Head of the institution, and consisting of representatives of civil and police administration, local media, Non Government Organizations involved in youth activities, representatives of faculty members, representatives of parent, representatives of student s belonging to the fresher's category as well as senior student, non-teaching staff; and shall have a diverse mix of membership in terms of levels as well as gender.
- b) It shall be the duty of the Anti-Ragging Committee to ensure compliance with the provisions of these Regulations as well as the provisions of any law for the time being in force concerning ragging; and also to monitor and oversee the performance of the Anti-Ragging Squad in prevention of ragging in the institution.
- c) Every institution shall also constitute a smaller body to be known as the Anti - Ragging Squad to be nominated by the Head of the Institution with such representation as may be considered necessary for maintaining vigil, oversight and patrolling functions and shall remain mobile, alert and active at all times.

Provided that the Anti-Ragging Squad shall have representation of various members of the campus community and shall have no outside representation.

- d) It shall be the duty of the Anti-Ragging Squad to be called upon to make surprise raids on hostels, and other places vulnerable to incidents of, and having the potential of, ragging and shall be empowered to inspect such places.
- e) It shall be the duty of the Anti - Ragging Squad to conduct an on the spot enquiry into any incident of ragging referred to it by the Head of the institution or any member of the faculty or any member of the staff or any student or any parent or guardian or any employee of a service provider or by any other person, as the case may be; and the enquiry report along with recommendations shall be submitted to the Anti-Ragging Committee for action under clause (a) of Regulation 9.1.

Provided that the Anti - Ragging Squad shall conduct such enquiry observing a fair and transparent procedure and the principles of natural justice and after giving adequate opportunity to the student or students accused of ragging and other witness to place before it the facts, documents and views concerning the incident of ragging, and considering such other relevant information as may be required.

- f) Every institution shall, at the end of each academic year, in order to promote the objectives of these Regulation, constitute a Mentoring cell consisting of students volunteering to be Mentors for fresher's, in the succeeding academic year; and there shall be as many levels or tiers of Mentor as the number of batches in the institution, at the rate of one Mentor for six fresher's and one Mentor of a higher level for six Mentors of the lower level.
- g) Every University shall constitute a body to be known as Monitoring cell on Ragging, which shall coordinate with the affiliated colleges and institutions under the domain of the University to achieve the objectives of these Regulations; and the Monitoring cell shall call for reports from the Heads of institutions in regard to the activities of the Anti-Ragging Committees, Anti-Ragging squads , and the Mentoring cells at the institutions, and it shall also keep itself abreast of the decisions of the District level Anti-Ragging Committee headed by the District Magistrate.
- h) The Monitoring cell shall also review the efforts made by institutions to publicize anti-ragging measures, soliciting of affidavits from parents/guardians and from students, each academic year, to abstain from ragging activities or willingness to be penalized for violations; and shall function as the prime mover for initiating action on the part of the appropriate authorities of the University for amending the Statutes or Ordinances or Bye-laws to facilitate the implementation of anti-ragging measures at the level of the institution .

6.4 Every institution shall take the following other measures, namely;

- a) Each hostel or a place where groups of students reside, forming part of the institution , shall have a full-time Warden , to be appointed by the institution as per the eligibility criteria laid down for the post reflecting both the command and control aspects of maintaining discipline and preventing incidents of ragging within the hostel, as well as the softer skills of counseling and communicating with the youth outside the class-room situation; and who shall reside within the hostel , or at the very least, in the close vicinity thereof.
- b) The Warden shall be accessible at all hours and be available on telephone and other modes of communication, and for the purpose the Warden shall be provided with a mobile phone by the institution, the number of which shall be publicized among all students residing in the hostel.
- c) The institution shall review and suitably enhance the powers of Warden; and the security personnel posted in hostels shall be under the direct control of the Warden and their performance shall be assessed by them.
- d) The professional counselors referred to under clause (o) of Regulation 6.1 of these Regulation shall, at the time of admission, counsel fresher's and /or

any other student(s) desiring counseling , in order to prepare them for the life ahead, particularly in regard to the life in hostels and to the extent possible, also involve parents and teacher in the counseling sessions.

- e) The institution shall undertake measures for extensive publicity against ragging by means of audio-visual aids, counseling sessions, workshops, painting and design competitions among students and such other measures, as it may deem fit.
- f) In order to enable a student or any person to communicate with the Anti-Ragging Helpline, every institution shall permit unrestricted access to mobile phones and public phones in hostels and campuses, other than in classrooms, seminar halls, library, and in such other places that the institution may deem it necessary to restrict the use of phones.
- g) The faculty of the institution and its non-teaching staff, which includes but is not limited to the administrative staff, contract employees, security guards and employees of service providers providing services within the institution, shall be sensitized towards the ills of ragging, its prevention and the consequences thereof.
- h) The institution shall obtain an undertaking from every employee of the institution including all teaching and non-teaching members of staff, contract labour employed in the premises either for running canteen or as watch and ward staff or for cleaning or maintenance of the buildings/lawns and employees of service providers providing services within the institution, that he/she would report promptly any case of ragging which comes to his/her notice.
- i) The institution shall make a provision in the service rules of its employees for issuing certificates of appreciation to such members of the staff who report incidents of ragging, which will form part of their service record.
- j) The institution shall give necessary instructions to employees of the canteens and messing, whether that of the institution or that of a service provider providing these services, or their employers, as the case may be, to keep a strict vigil in the area of their work and to report the incidents of ragging to the Head of the institution or members of the Anti-Ragging Squad or members of the /anti-Ragging Committee or the Wardens, as may be required.
- k) All Universities awarding a degree in education at any level shall be required to ensure that institutions imparting instruction in such courses or conducting training programme for teachers include inputs relating to anti-ragging and the appreciation of the relevant human rights, as well as inputs on topics regarding sensitization against corporal punishments and checking of bullying amongst students, so that every teacher is equipped to handle at least the rudiments of the counseling approach.

- l) Discreet random surveys shall be conducted amongst the fresher every fortnight during the first three months of the academic year to verify and cross-check whether the institution is indeed free of ragging or not and for the purpose the institution may design its own methodology of conducting such surveys.
- m) The institution shall cause to have an entry, apart from those relating to general conduct and behavior, made in the Migration /Transfer Certificate issued to the student while leaving the institution, as to whether the student has been punished for committing or abetting an act of ragging, as also whether the student has displayed persistent violent or aggressive behavior or any inclination to harm others, during his course of study in the institution.
- n) Notwithstanding anything contained in these Regulations with regard to obligations and responsibilities pertaining to the authorities or members of bodies prescribed above, it shall be the general collective responsibility of all levels and sections of authorities or functionaries including members of the faculty and employees of the institution, whether regular or temporary, and employees of service providers providing service within the institution, to prevent or to act promptly against the occurrence of ragging or any incident of ragging which comes to their notice.
- o) The Heads of institutions affiliated to a University or a constituent of the University, as the case may be, shall, during the first three months of an academic year, submit a weekly report on the status of compliance with Anti-Ragging measures under these Regulations, and a monthly report on such status thereafter, to the Vice-Chancellor of the University to which the institution is affiliated to or recognized by.
- p) The Vice-Chancellor of each University shall submit fortnightly reports of the University, including those of the Monitoring cell on Ragging in case of an affiliating university, to the State Level Monitoring cell.

7. Action to be taken by the Head of the institution: On receipt of the recommendation of the Anti Ragging squad or on receipt of any information concerning any reported incident of ragging , the Head of institution shall immediately determine if a case under the penal laws is mad out and if so, either on his own or through a member of the Anti-Ragging Committee authorized by him in this behalf, proceed to file a first Information Report (FIR), within twenty four hours of receipt of such information or recommendation, with the police and local authorities , under the appropriate penal provisions relating to one or more of the following , namely;

- i. Abetment to ragging;
- ii. Criminal conspiracy to rag;
- iii. Unlawful assembly and rioting while ragging;

- iv. Public nuisance created during ragging;
- v. Violation of decency and morals through ragging;
- vi. Injury to body, causing hurt or grievous hurt;
- vii. Wrongful Restraint;
- viii. Wrongful confinement ;
- ix. Use of criminal force;
- x. Assault as well as sexual offences or unnatural offences;
- xi. Extortion;
- xii. Criminal trespass;
- xiii. Offences against property;
- xiv. Criminal intimidation;
- xv. Attempts to commit any or all of the above mentioned offences against the victim(s);
- xvi. Threat to commit any or all of the above mentioned offences against the victim(s);
- xvii. Physical or psychological humiliation;
- xviii. All other offences following from the definition of "Ragging".

Provided that the Head of the institution shall forthwith report the occurrence of the incident of ragging to the District Level Anti-Ragging Committee and the Nodal officer of the affiliating University, if the institution is an affiliated institution.

Provided further that the institution shall also continue with its own enquiry initiated under clause 9 of these Regulations and other measures without waiting for action on the part of the police/local authorities and such remedial action shall be initiated and completed immediately and in no case later than a period of seven days of the reported occurrence of the incident of ragging.

8. Duties and Responsibilities of the Commission and the Councils:

- 8.1 The Commission shall, with regard to providing facilitating communication of information regarding incidents of ragging in any institution, take the following steps, namely;
- a) The Commission shall establish, fund and operate, a toll-free Anti-Ragging Helpline, operational round the clock, which could be accessed by students in distress owing to ragging related incidents.
 - b) Any distress message received at the Anti-Ragging Helpline shall be simultaneously relayed to the Head of the Institution, the Warden of the Hostels, the Nodal Officer of the affiliating University, if the incident reported has taken place in an institution affiliated to a University, the concerned

District authorities and if so required, the District Magistrate, and the Superintendent of Police, and shall also be web enabled so as to be in the public domain simultaneously for the media and citizens to access it.

- c) The Head of the institution shall be obliged to act immediately in response to the information received from the Anti-Ragging Helpline as at sub-Clause (b) of this clause.
- d) The telephone numbers of the Anti – Ragging Helpline and all the important functionaries in every institution, Heads of institutions, faculty members, members of the anti-ragging committees and anti-ragging squads, district and sub-divisional authorities and state authorities, Wardens of hostels, and other functionaries or authorities where relevant, shall be widely disseminated for access or to seek help in emergencies.
- e) The Commission shall maintain an appropriate data base to be created out of affidavits affirmed by each student and his/her parents/guardians and stored electronically by the institution, either on its or through an agency to be designated by it; and such database shall also function as a record of ragging complaints received, and the status of the action taken thereon.
- f) The Commission shall make available the database to a non-governmental agency to be nominated by the Central Government, to build confidence in the public and also to provide information of non compliance with these Regulations to the Councils and to such bodies as may be authorized by the Commission or by the Central Government.

8.2 The Commission shall take the following regulatory steps, namely;

- a) The Commission shall make it mandatory for the institutions to incorporate in their prospectus, the directions of the Central Government or the State Level Monitoring Committee with regard to prohibition and consequences of ragging, and that non-compliance with these Regulations and directions so provided, shall be considered as lowering of academic standards by the institution, therefore making it liable for appropriate action.
- b) The Commission shall verify that the institutions strictly comply with the requirement of getting the affidavits from the students and their parents/guardians as envisaged under these Regulations.
- c) The Commission shall include a specific condition in the Utilization Certificate, in respect of any financial assistance or grants-in-aid to any institution under any of the general or special schemes of the Commission, that the institution has complied with the anti-ragging measures.
- d) Any incident of ragging in an institution shall adversely affect its accreditation, ranking or grading by NAAC or by any other authorized

accreditation agencies while assessing the institution for accreditation, ranking or grading purposes.

- e) The Commission may accord priority in financial grants-in-aid to those institutions, otherwise eligible to receive grants under section 12B of the Act, which report a blemishless record in terms of there being no reported incident of ragging.
- f) The Commission shall constitute an Inter-Council Committee, consisting of representatives of the various Councils, the Non-Governmental agency responsible for monitoring the database maintained by the Commission under clause (g) of Regulation 8.1 and such other bodies in higher education, to coordinate and monitor the anti-ragging measures in institutions across the country and to make recommendations from time to time; and shall meet at least once in six months each year.
- g) The Commission shall institute an Anti-Ragging Cell within the Commission as an institutional mechanism to provide secretarial support for collection of information and monitoring, and to coordinate with the State Level Monitoring Cell and University level Committees for effective implementation of anti-ragging measures, and the Cell shall also coordinate with the Non-Governmental agency responsible for monitoring the database maintained by the Commission appointed under clause (g) of Regulation 8.1.

9. Administrative action in the event of ragging:

9.1 The institution shall punish a student found guilty of ragging after following the procedure and in the manner prescribed herein under:

- a) The Anti-Ragging Committee of the institution shall take an appropriated decision, in regard to punishment or otherwise, depending on the facts of each incident of ragging and nature and gravity of the incident of ragging established in the recommendations of the Anti-Ragging Squad.
- b) The Anti-Ragging Committee may, depending on the nature and gravity of the guilt established by the Anti-Ragging Squad, award, to those found guilty, one or more of the following punishments, namely;
 - i. Suspension from attending classes and academic privileges.
 - ii. Withholding/Withdrawing scholarship/fellowship and other benefits.
 - iii. Debarring from appearing in any test/examination or other evaluation process.
 - iv. Withholding results.
 - v. Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc.
 - vi. Suspension/expulsion from the hostel.

- vii. Cancellation of admission.
- viii. Rustication from the institution for period ranging from one to four semesters.
- ix. Expulsion from the institution and consequent debarring from admission to any other institution for a specified period.

Provided that where the persons committing or abetting the act of ragging are not identified, the institution shall resort to collective punishment.

- c) An appeal against the order of punishment by the Anti-Ragging Committee shall lie,
 - i. in case of an order of an institution, affiliated to or constituent part, of a University, to the Vice-Chancellor of the University;
 - ii. in case of an order of a University, to its Chancellor.
 - iii. in case of an institution of national importance created by an Act of Parliament, to the Chairman or Chancellor of the institution, as the case may be.

9.2 Where an institution being constituent of, affiliated to or recognized by a University, fails to comply with any of the provisions of these Regulations or fails to curb ragging effectively, such University may take any one or more of the following actions, namely;

- i. Withdrawal of affiliation/recognition or other privileges conferred
- ii. Prohibiting such institution from presenting any student or student then undergoing any programme of study therein for the award of any degree/diploma of the university.

Provided that where an institution is prohibited from presenting its student or students, the Commission shall make suitable arrangements for the other students so as to ensure that such students are able to pursue their academic studies.

- iii. Withholding grants allocated to it by the university, if any
- iv. Withholding any grants channelized through the university to the institution.
- v. Any other appropriate penalty within the powers of the university.

9.3 Where in the opinion of the appointing authority, a lapse is attributable to any member of the faculty or staff of the institution, in the matter of reporting or taking prompt action to prevent an incident of ragging or who display an apathetic or insensitive attitude towards complaints of ragging, or who fail to take timely steps, whether required under these Regulations or otherwise, to prevent an incident or incidents of ragging, then such authority shall initiate departmental disciplinary action, in

accordance with the prescribed procedure of the institution, against such member of the faculty or staff.

Provided that where such lapse is attributable to the Head of the institution, the authority designated to appoint such Head shall take such departmental disciplinary action; and such action shall be without prejudice to any action that may be taken under the penal laws for abetment of ragging for failure to take timely steps in the prevention of ragging or punishing any student found guilty of ragging.

9.4 The Commission shall, in respect of any institution that fails to take adequate steps to prevent ragging or fails to act in accordance with these Regulations or fails to punish perpetrators or incidents of ragging suitably, take one or more of the following measures, namely;

- i. Withdrawal of declaration of fitness to receive grants under section 12B of the Act.
- ii. Withholding any grant allocated.
- iii. Declaring the institution ineligible for consideration for any assistance under any of the general or special assistance programmes of the Commission.
- iv. Informing the general public, including potential candidates for admission, through a notice displayed prominently in the newspapers or other suitable media and posted on the website of the Commission, declaring that the institution does not possess the minimum academic standards.
- v. Taking such other action within its powers as it may deem fit and impose such other penalties as may be provided in the Act for such duration of time as the institution complies with the provisions of these Regulations.

Provided that the action taken under this clause by the Commission against any institution shall be shared with all Councils.

Sd/-
(Dr. R. K. Chauhan)
Secretary

ANNEXURE I
AFFIDAVIT BY THE STUDENT

I, _____ (Full name of student with admission/ registration/ enrolment number) s/o d/o Mr. /Mrs./ Ms. _____, having been admitted to _____ (name of the institution), have received a copy of the UGC Regulations on curbing the menace of Ragging in Higher Educational institutions, 2009, (hereinafter called the "Regulations"), carefully read and fully understood the provisions contained in the said Regulations.

- 2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.
- 3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against me in case I am found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.
- 4) I hereby solemnly aver and undertake that
 - a) I will not indulge in any behaviour or act that may be constituted as ragging under clause 3 of the Regulations.
 - b) I will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.
- 5) I hereby affirm that, if found guilty of ragging, I am liable for Punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against me under any penal law for the time being in force.
- 6) I hereby declare that I have not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, I am aware that my admission is liable to be cancelled.

Declare this _____ day of _____ month of _____ year.

Signature of deponent
Name:

Verification

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____ (Place) on this the _____ (day) of _____ (month), _____ year.

Signature of deponent

Solemnly affirmed and signed in my presence on this the _____ (day)
of _____ (month), _____ (year) after reading the contents of this affidavit.

OATH COMMISSIONER

ANNEXURE II
AFFIDAVIT BY PARENT/GUARDIAN

- 1) Mr. / Mrs. / Ms. _____ (Full name of Parent/ guardian) father/ mother/guardian of, _____ (Full name of student with admission/registration/enrolment number), having been admitted to _____ (name of the institution), have received a copy of the UGC Regulations on curbing the menace of Ragging in Higher Educational institutions, 2009, (hereinafter called the "Regulations"), carefully read and fully understood the provisions contained in the said Regulations.
- 2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.
- 3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against my ward in case he/she is found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.
- 4) I hereby solemnly aver and undertake that
 - a) My ward will not indulge in any behaviour or act that may be constituted as ragging under clause 3 of the Regulations.
 - b) My ward will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.
- 5) I hereby affirm that, if found guilty of ragging, my ward is liable for Punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against my ward under any penal law for the time being in force.
- 6) I hereby declare that my ward has not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, the admission of my ward is liable to be cancelled.

Declare this _____ day of _____ month of _____ year.

Signature of deponent

Name:

Address:

Telephone/Mobile No:

Verification

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____ (Place) on this the _____ (day) of _____ (month), _____ (year).

Signature of deponent

Solemnly affirmed and signed in my presence on this the _____ (day) of _____ (month), _____ (year) after reading the contents of this affidavit.

OATH COMMISSIONER