Manoharbhai Shikshan Prasarak Mandal Armori's

**MAHATMA GANDHI ARTS, SCIENCE &**

**LATE NASARUDDINBHAI PANJWANI COMMERCE**

**COLLEGE, ARMORI**

**Dist. Gadchiroli (Maharashtra) 441 208**

**Affiliated to Gondwana University, Gadchiroli.**

**Re-accredited by NAAC 'A' with 3.24 CGPA**

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# ANNUAL QUALITY ASSURANCE REPORT

# AQAR : 2023-2024

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# CRITERION – I

# CURRICULAR ASPECTS

## METRIC NO: ~ 1.3.2.

## METRIC NAME: ~Number of courses that include experiential learning through project work/ fieldwork/ internship during the year.

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**Phone: - 07137-266558**

MANOHARBHAI SHIKSHAN PRASARAK MANDAL ARMORI'S
MAHATMA GANDHI ARTS, SCIENCE &
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# Certificate of Verification

The document herewith is a testimonial of the following specifics;

- AQAR 2023-24
- Criterion - **I (Curricular Aspects)**
- Metric no. – **1.3.2**
- Metric Particular – **Number of courses that include experiential learning through project work/ fieldwork/internship during the year.**

It is affirmed that the attached document pertinent to the above cited specifics are duly verified and approved by the IQAC.

Criterion Head

IQAC Coordinator

IQAC-Co-ordinator

IQAC Chairperson

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# Highlighted Project Work/ Field Work / Internship in the Syllabus

# B.A.III Year Geography

**THEORY PAPER SEMESTER VI**

## GEOGRAPHY OF HEALTH (Elective Paper III)

**UNIT – I -** Introduction to Human Health and Geography – Meaning and Definition in Geography of Health – Objectives – Nature, Scope of Geography of Health – Significance of Geography of Health – Approaches of Study of Geography of Health, Factors Influencing on Human Health.

**UNIT –II -** Nutrition and Food: Meaning of Nutrition and Food – Nutrition Elements of Food – Purpose of Balance Diet – Significance of Nutrition in Food; Epidemiology of Communicable. Disease; Meaning – Classification – Types Causes and Distribution – Prevention and Eradication Programmes in India.

**UNIT –III -** Epidemiology of Non-Communicable disease: Meaning – classification of disease (Congenital and Acquired Disease), Malnutrition: Types of Malnutrition – Classification of Malnutrition – Causes and Symptoms of Malnutrition – Effect of, Malnutrition, Distribution of malnutrition – Prevention and Eradication Programare in India.

**UNIT – IV –** Health care System; Meaning of Health care, different types of Health care system; Health care Planning & Management; Meaning and Objectives of Health care Planning, Health Education, and National Health Policy in India. Health Management, Health Organization. (WHO)


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**PRACTICAL**

**SEMESTER-VI**

**Unit – I :**

Introduction to modern techniques (on theoretical base): Remote sensing as a tool for data generation and mapping, GIS and Computer.

**Unit – II :**

Leveling – use of Dumpy level in the field problem on leveling:-

a) Preparation of field Book ( Collimation and Rise & Fall Methods)
b) Drawing of Profile.

**Unit – III :**

Meaning and Computation of correlation coefficient by Pearson's and Spearman's method ( Atleast two exercise of each)

**Unit - IV:** Field work and Field Report

A Short field study – a sacio-eonomic survey of a small village.

**Unit – V :** Viva-voce & Practical Record.

## Plan of Marks of Practical Examination:

| | |
|---|---|
| **Unit I :** Introduction to Modern Techniques (Any Two) two marks each | 4 marks |
| a) Computer b) Remote Sensing c) GIS | |
| **Unit II:** Problem of leveling. | |
| a. Calculation of Reduced level | 3 marks |
| b. Drawing of Profile | 2 marks |
| **Unit III :** Computation of correlation | 4 marks |
| **Unit IV :** Socio Economics Survey report | 4 marks |
| **Unit V** : Preparation of Maps<br>Representation of population & economics data<br>Choropleth maps & dot methods | 3 marks |
| **Unit VI :** Viva-voice | 3 marks |
| Practical record | 2 marks |
| **Total** | **25 marks** |

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# B.A.III Year Economics, Political Science, Sociology, Economics, and History

## गोंडवाना विद्यापीठ, गडचिरोली

महाराष्ट्र शासन अधिसूचना क्रमांक २००७/(३२२/०७) विशि—४ महाराष्ट्र अधिनियम, १९९४ (१९९४ चा महा. ३५) या कलम ३ च्या पोटकलम (२) अन्वये दिनांक २७ सप्टेंबर, २०११ रोजी स्थापीत राज्य विद्यापीठ

(विद्या विभाग )

एम.आय.डी.सी. रोडकॉम्प्लेक्सगडचिरोली— ४४२६०५ फोन:०७१३२ — २१६५५४, २२३१०४,२२३३२३

जा.क्र/गोविग/विद्या/२७१/२०१९ दिनाक: २१/०८/२०१९

## अधिसुचना

गोंडवाना विद्यापीठाशी संलग्नित महाविद्यालयांना कळविण्यात येते की, बी.ए. भाग III सेमिस्टर V व VI करिता **Generic (Inter-disciplinary) Elective course (GEC)**या अंतर्गत **Generic Research Methodology** या विषयाचा समावेश करण्यात आलेला आहे. विद्यापीठाच्या अध्यादेश क्र. ११९ ऑफ २०१७ नुसार बी.ए. भाग III सेमिस्टर VI करिता **Project** देण्याचे ठरविण्यात आले. सदर विषयाचा अभ्यासक्रम व परिक्षा पध्दती सोबत संलग्नित केलेली आहे. कृपया संबंधित महाविद्यालयांनी नोंद घेवून कार्यवाही करावी.

(दिपक जुनघरे)
उपकुलसचिव
गोंडवाना विद्यापीठ, गडचिरोली

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**Translation in on the next page.**

"RIGHT PLACE FOR BRIGHT FUTURE"
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Letter No. _MGC/_____

Date _____

## Translation

The colleges affiliated with Gondwana University are informed that the subject of Generic Research Methodology has been included in the Generic (Interdisciplinary) Elective Course (GEC) for BA Part III, Semesters V and VI. As per University Ordinance No. 139 of 2017, it has been decided to give a project for BA Part III, Semester VI. The subject is attached to the syllabus and examination method. Please take note and act accordingly.

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# B.Sc. III Year Chemistry

## Skill Enhancement Course (SEC)

## B.Sc. III Semester VI

## (Choose one)

**SEC-III**

**PESTICIDE CHEMISTRY**

General introduction to pesticides (natural and synthetic), benefits and adverse


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effects, changing concepts of pesticides, structure activity relationship, purpose of formulations of pesticides, different types of formulations synthesis andtechnical manufacture and uses of representative pesticides in the following classes:

Organochlorines (DDT, Gammexene,); Organophosphates (Malathion, Parathion );

Carbamates (Carbofuran and carbaryl); Quinones ( Chloranil), Anilides (Alachlor and

Butachlor).

**Practicals**

1 To calculate acidity/alkalinity in given sample of pesticide formulations as per BIS specifications.

2 Preparation of simple organophosphates, phosphonates and thiophosphates

**Reference Book:**

1 R. Cremlyn: Pesticides, John Wiley.

**SEC-IV**

**ANALYTICAL CLINICAL BIOCHEMISTRY**

Basic understanding of the structures, properties and functions of carbohydrates, lipids

and proteins:

Review of concepts studied in the core course

Carbohydrates: Biological importance of carbohydrates, Metabolism, Cellular currency of

energy (ATP), Glycolysis, Alcoholic and Lactic acid fermentations, Krebs cycle.


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Isolation and characterization of polysachharides.

Proteins: Classification, biological importance; Primary and secondary and tertiary structures of proteins: α-helix and β- pleated sheets, Isolation, characterization, denaturation of proteins.

Enzymes: Nomenclature, Characteristics (mention of Ribozymes), Classification; Active site, Mechanism of enzyme action, Stereospecificity of enzymes, Coenzymes and cofactors, Enzyme inhibitors, Introduction to Biocatalysis: Importance in "Green Chemistry" and Chemical Industry.

Lipids: Classification. Biological importance of triglycerides and phosphoglycerides and cholesterol; Lipid membrane, Liposomes and their biological functions and underlying applications.

Lipoproteins.

Properties, functions and biochemical functions of steroid hormones.

Biochemistry of peptide hormones.

Structure of DNA (Watson-Crick model) and RNA, Genetic Code, Biological roles of DNA and RNA: Replication, Transcription and Translation, Introduction to Gene therapy.

Enzymes: Nomenclature, classification, effect of pH, temperature on enzyme activity, enzyme inhibition.

Biochemistry of disease: A diagnostic approach by blood/ urine analysis.

Blood: Composition and functions of blood, blood coagulation. Blood collection and preservation of samples. Anaemia, Regulation, estimation and interpretation of data for blood sugar, urea, creatinine, cholesterol and bilirubin.

Urine: Collection and preservation of samples. 6. Formation of urine. Composition and estimation of constituents of normal and pathological urine.

**Practicals**

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Identification and estimation of the following:

1. Carbohydrates – qualitative and quantitative.
2. Lipids – qualitative.
3. Determination of the iodine number of oil.
4. Determination of the saponification number of oil.
5. Determination of cholesterol using Liebermann- Burchard reaction.
6. Proteins – qualitative.
7. Isolation of protein.
8. Determination of protein by the Biuret reaction.
9. Determination of nucleic acids

**Reference Books:**


1. T.G. Cooper: Tool of Biochemistry.
2. Keith Wilson and John Walker: Practical Biochemistry.
3. Alan H Gowenlock: Varley's Practical Clinical Biochemistry.
4. Thomas M. Devlin: Textbook of Biochemistry.
5. Jeremy M. Berg, John L Tymoczko, Lubert Stryer: Biochemistry.
6. G. P. Talwar and M Srivastava: Textbook of Biochemistry and Human Biology.
7. A.L. Lehninger: Biochemistry.
5. Dean, J. A. Analytical Chemistry Notebook, McGraw Hill.
6. Day, R. A. & Underwood, A. L. Quantitative Analysis, Prentice Hall of India.
7. Freifelder, D. Physical Biochemistry 2nd Ed., W.H. Freeman and Co., N.Y. USA (1982).
8. Cooper, T.G. The Tools of Biochemistry, John Wiley and Sons, N.Y. USA.16 (1977).
9. Vogel, A. I. Vogel's Qualitative Inorganic Analysis 7th Ed., Prentice Hall.



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10. Vogel, A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Prentice Hall.

11. Robinson, J.W. Undergraduate Instrumental Analysis 5th Ed., Marcel Dekker, Inc., New York (1995).

**Distribution Of Marks**

**Skill Enhancement course**

**Theory -15Marks**

**Practiacal -35 Marks**

**For theory examination**

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15 marks multiple choice question paper is to be set by the college and evaluation is done by college.

**For practical Examination:**

1) One practical of 10 marks

2) One survey based project report 20 marks

3) Viva 5 marks

**Total marks =15+35=50**

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# B.Sc. III Year Botany

**B.Sc. BOTANY**
**SEMESTER – III**
**PRACTICAL**
Based on Theory Paper - I & II of Semester – III

**[Time 5 Hours]** **[Max. Marks – 30]**

Que. 1: One experiment **[A]** from **Reproductive Biology of Angiosperms** **05 Marks**

Que. 2: One experiment **[B]** from **Plant Growth and Development** **05 Marks**

Que. 3: One experiment **[C]**from **Plant Biochemistry** **05 Marks**

Que. 4: One experiment**[D]**from **Plant Physiology** **05 Marks**

Que. 5: Identify and comment on given spots: **04 Marks**

**SPOT-E: (Reproductive Biology of Angiosperms)**

**SPOT-F: (Plant Growth and Development)**

**SPOT-G: (Plant Biochemistry)**

**SPOT-H: (Plant Physiology)**

Que. 6: Practical Record (2 Marks) Excursion Report (2 Marks) Viva-voce (2 Marks) **06 Marks**

**NOTE:** Well labeled diagrams are expected wherever necessary.

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## SkillEnhancement Courses (SEC-IV)

## *Theory Examination Pattern*

**TheoryQuestion Paper Pattern**
**For**
**B.Sc. BOTANY CBCS**
**SEMESTER – VI**
**Skill Enhancement Courses (SEC-IV)**

**Time: 02 Hours]** **[Max. Marks- 30**

**Q.1. Long question .....10 Marks**

**Q.2. Short question**
**a) .....5 Marks**
**b) .....5 Marks**

**Q.3. MCQ .....10 Marks**
**(Ten MCQ each of ONE mark)**

## *Practical Examination Assessment Pattern*

Assessment of practical Examination is based on the following fulfillment by the student.

| | | |
|---|---|---|
| 6. | Project Submission | 20 Marks |
| 7. | Project Presentation | 20 Marks |
| 8. | Assignments | 10 Marks |
| 9. | Field Visit | 10 Marks |
| 10. | Overall Performance | 10 Marks |
| **Total Marks** | | **70 Marks** |

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**GONDWANA UNIVERSITY, GADCHIROLI**
**CHOICE BASED CREDIT SYSTEM (CBCS) SYLLABUS**
**PROGRAMME – BACHLOR OF SCIENCE (B.Sc.), SEMESTER – VI**
**SUBJECT – ZOOLOGY PRACTICAL (CREDIT 2)**
**SKILL ENHANCEMENT COURSE (SEC)**
**PRACTICAL**

**Max. Marks: 35**

1. Study of TB, Polio, Malaria, Filariasis, Measles, Chickenpox, Rabies, Leprosy through ICT/charts
2. Preparation of charts or posters related to health
3. Visit to community water purification and treatment plant/ industry to study occupational health hazard and safety of industrial workers/ agricultural fields to study occupational health of farmers and agricultural laborers.

**Practical Question Paper and Distribution of Marks**

**Time: 4 Hrs.** **Max. Marks: 35**

**Practical** **Distribution of Marks**

1. To study of TB, Polio, Malaria, Filariasis, Measles, Chickenpox, Rabies, Leprosy through ICT/charts .....10
2. To prepare the charts or posters related to health .....10
3. Visit tour report .....15

# B.Sc. III Year Mathematics

## B.SC. (MATHEMATICS)

### SEMESTER WISE DISTRIBUTION OF MARKS AND CREDITS

There are two Types of Courses for B.Sc. Sem V and Sem VI
(A)Skill Enhancement Course (SEC)
(B)Discipline Specific Elective (DSE)

**SKILL ENHANCEMENT COURSE (SEC)**

| Sr. No. | Class | Semester | Theory paper Marks | Internal Assessment Marks | Total Marks | Marks for passing out of 50 |
|---|---|---|---|---|---|---|
| 1 | B.Sc. | V | 15 | 35 | 50 | 20(minimum 06 marks in theory examination) |
| 2 | B.Sc. | VI | 15 | 35 | 50 | 20(minimum 06 marks in theory examination) |
| | | | 30 | 70 | 100 | 40 |

| Semester | Papers | College Examination | College Internal Assessment | Total |
|---|---|---|---|---|
| | | Paper-Marks | Paper-Marks | Marks-Credits |
| Sem -V | 1 (SEC) | 1 - 15 | 1 - 35 | 50 - 2 |
| Sem -VI | 1 (SEC) | 1 - 15 | 1 - 35 | 50 - 2 |

DISTRIBUTION OF MARKS FOR SEC INTERNAL ASSESSMENT

| Sr. No. | Activities | Max Marks |
|---|---|---|
| 1 | Attendance | 05 |
| 2 | Seminar on the respective paper | 15 |
| 3 | Project on any topics in Mathematics | 15 |

**Skill Enhancement Course (SEC)**

Note: i) For Skill Enhancement Course (SEC), College will conduct the examination.
ii) For each semester V & VI, SEC Examination is of 50 Marks with 2 credits.
iii) Theory examination is of 15 marks and internal assessment is of 35 marks.
iv) Minimum passing marks is 20 (Including minimum 06 marks in theory + internal Assessment marks).
v) Examination Time period for SEC theory examination is of 01 hour.

**Discipline Specific Elective (DSE)**

For Discipline Specific Elective (DSE), University will conduct the examination.

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# B.Sc. III Year Geology

## B. Sc. Geology Semester VI

### SKILL ENHANCMENT COURSE

### Paper II: (EARTH RESOURCES)

**Unit 1:**

Earth Resources reserve definitions; mineral, energy and water resources in industries Historical perspective and present A brief overview of classification of mineral deposits with respect to processes of formation in relation to exploration strategies

**Unit 2:**

Definition of Energy: Primary and Skill Enhancment Courseondary Energy Difference between Energy, Power and Electricity Renewable and Non-Renewable Sources of Energy The concept and significance of Renewability: Social, Economic, Political and Environmental Dimension of Energy

**Unit 3:**

Major Types and Sources of Energy Resources of Natural Oil and Gas Coal and Nuclear Minerals Potential of Hydroelectric Power, Solar Energy, Wind, Wave and Biomass Based power and Energy

**Unit 4:**

Energy Sources and Power Generation: Nuclear, Hydroelectric, Solar, Wind and Wave- General Principles. Ground water resources and its role in economic development of a country Current Scenario and Future Prospects of Solar Power, Hydrogen Power and Fuel Cells.

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## Practical:

Sedimentary facies; Bio facies; Depth biotopes and estimation of paleodepth of the ocean using benthic foraminiferal assemblages; Identification of modern and ancient surface water mass with the help of planktic foraminiferal assemblages; Identification of benthic foraminifera characteristic of Low oxygen environment; Identification of planktic foraminifera characteristic of warm and mixed layer.

**Books Recommended:**

Kennett, J.P. (1982) Laboratory Excercises in Oceanography Marine Geology, Prentice Hall.
Seibold, E. and Berger, W.H. (1982) The Sea Floor, Springer-Verlag.

## Field work:

Field work shall be treated as a part of practical examination of semester VI and Marks are assigned on it. Every student should attend field work for a short duration and submit field diary, geological specimen and a report. Field report shall be assessed by teacher and Head of the Department

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# B.Sc. III Year Microbiology

**B.Sc. SEM VI Microbiology**

**Discipline Elective Course (DSE)**

| | | |
|---|---|---|
| **Course Code .....DSE-2** | **Marks: 50** | |
| **Credits: 2** | **Total Hours :48** | |
| **Immunology** | | |
| **Objective:** To make the students to understand the fundamentalknowledge of Immunology. | | |
| **UnitNo.** | **Content** | **Hrs** |
| 1 | **Structure and functions of Immune system**<br>**A)** General concept and short history of immunology<br>**B)** Primary Lymphoid organs- Thymus and Bone marrow<br>**C)** Secondary Lymphoid organs- Spleen and Lymph node<br>**D)** Lymphoid tissues- MALT / GALT<br>**E)** Cells of immune system- B Lymphocytes, T Lymphocytes, Comparison, Types of T lymphocytes,<br>**F)** Other immune-competent cells- Monocytes, macrophages, Dendritic cells, Killer cells, Antigen presenting cells, Neutrophil, Eosinophil, basophil, Mast cell | 12 |
| 2 | **Resistance/ Immunity of the host**<br>**A)** Types of immunity.<br>**B)** Non-specific resistance (Natural/ Innate immunity- Species, racial and individual resistance.<br>**C)** Factors influencing Innate immunity- Age, Sex, hormonal and nutritional.<br>**D)** Mechanism of Innate immunity – anatomic and physiologic barriers, phagocytosis, inflammatory response, fever.<br>**E)** Specific/Adoptive resistance(Acquired immunity)- Active and passive immunity, comparison, types,<br>**F)** Humoral immune response, primary and secondary immune response<br>**G)** Cell mediated immunity, mechanism, MHC complex and MHC molecules. | 12 |
| 3 | **Antigens, Antibodies and Antigen-Antibody reactions.**<br>**A)**Definition of antigen, epitope, Hapten, Types of antigen, Factors determining Antigenicity.<br>**B)** Definition of Antibody, general structure, Classes of immunoglobulins, Structure and their functions<br>**C)** Antigen-Antibody reactions. i) Precipitation reaction- precipitation in liquid, immuno-diffusion. ii) Agglutination reaction- Slide and Tube agglutination, Coomb's test. iii) Complement fixation reaction- Wasserman test.<br>**D)** Tagged Antibody test- ELISA, Radioimmunoassay (RIA), Immunofluorescence. | 12 |
| 4 | **Centrifugation and Radioactivity**<br>**A)** Definition of Hypersensitivity, Gell and Coomb's classification-Immediate (Type I, Type II & Type III), Delayedhypersensitivity (Type IV), examples.<br>**B)** Mechanism of hypersensitivity – Type I (Anaphylaxis), Type II (erythroblastosis fetalis), Type III (Arthus reaction, serum sickness), Type IV (Contact dermatitis, Mantaux test).<br>**C)** Immunological tolerance<br>**D)**Autoimmunity, mechanism , causes of autoimmunity, autoimmune disorders (Rheumatic arthritis and Myasthenia gravis) | 12 |

## Practical Course for Semester VI (Paper II) Marks: 30

1. *Blood group and Rh factor
2. *Total Leucocyte count
3. Differential Leucocyte count
4. *Haemoglobin % in Blood.
5 *Detection of Typhoid and Paratyphoid fever by slide/tube agglutination test (WIDAL)
6. *Detection of Syphilis by TRUST antigen test.
7. *Detection of Pregnancy in women by strip method
8. Demonstration of HBsAg by Hepacard test
9. *Estimation of Antigen by Single Radial Immune Diffusion(RIA).
10. Detection of AIDS by ELISA test.
11. Test for Rheumatoid arthritis (RA)

**Note:**

1. Underlined experiments are treated as major experiments.
2. Students should perform at least 4 major and 6 minor experiments
3. Practicals with asteric mark are compulsory.
4. An educational tour (visit to Pharmaceutical, Dairy industry, Research institute) is compulsory in V or VI semester
5. For project a suitable microbial investigation involving laboratory work or survey work may be given to 1-3 students at the beginning of semester
6. Report on project / review work preferably printed should be submitted duly certified by incharge teacher and head of the department

## Distribution of marks of practical examinations of B.Sc. Sem. -VI

| | | |
|---|---|---|
| **1.One major experiment-** | | **08** |
| **2.Two minor experiment-** | **2 X 4=** | **08** |
| **3.Project (lab or review work)** | | **06** |
| **4.Viva voce-** | | **04** |
| **5.Practical record-** | | **04** |
| **Total** | **30** | |

**Duration of Practical examination will be 10hrs., 5 hrs. each for two consecutive days**

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# B.Sc. II Year Botany

**B.Sc. BOTANY**
**SEMESTER – III**
**PRACTICAL**
Based on Theory Paper - I & II of Semester – III

**[Time 5 Hours]** **[Max. Marks – 30]**

Que. 1: One experiment [A] from **Reproductive Biology of Angiosperms** **05 Marks**

Que. 2: One experiment **[B]** from **Plant Growth and Development** **05 Marks**

Que. 3: One experiment **[C]**from **Plant Biochemistry** **05 Marks**

Que. 4: One experiment**[D]**from **Plant Physiology** **05 Marks**

Que. 5: Identify and comment on given spots: **04 Marks**

**SPOT-E: (Reproductive Biology of Angiosperms)**

**SPOT-F: (Plant Growth and Development)**

**SPOT-G: (Plant Biochemistry)**

**SPOT-H: (Plant Physiology)**

Que. 6: Practical Record (2 Marks) Excursion Report (2 Marks) Viva-voce (2 Marks) **06 Marks**

**NOTE**: Well labeled diagrams are expected wherever necessary.

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# B.Sc. II Year Zoology

**GONDWANA UNIVERSITY, GADCHIROLI**

**CHOICE BASED CREDIT SYSTEM (CBCS) SYLLABUS**

**PROGRAMME- BACHELOR OF SCIENCE (B.Sc.), SEMESTER - IV**

**SUBJECT- ZOOLOGY, PRACTICAL (CREDITS 2)**

**CORE COURSE-VII & VIII**

**USZOP04**

**PRACTICAL**

**B.Sc. II (Zoology), Semester-IV**

**DEVELOPMENTAL BIOLOGY & PHYSIOLOGY AND BIOCHEMISTRY-II**

**Section A:** Developmental Biology

Study of the following slides-

1. Frog embryology: T.S. of Tadpole through internal and external gills, V.S. of Blastula, Gastrula and Neurula,
2. Study of permanent slide of Chick embryology : Whole mount of 18 hrs, 24 hrs, 30 hrs, 36 hrs and 72 hrs.

**Section B:** Physiology experiment

1. Detection of urea, albumin, sugar and creatin in urine
2. Sperm count of any domestic animal (Source of semen: Government artificial insemination centre).
3. Study of histological slides of Mammal– T.S. of Kidney, Pituitary, Thyroid and Adrenal glands, Testis, Ovary, Uterus, Placenta, Medulated and Non medulated nerve fibres, Smooth and Striated muscle, Spinal cord.

**Section C:** Biochemistry experiment

1. Preparation of haemin and haemochromogen crystal
2. Quantitative estimation of amino acids using ninhydrin reaction
3. Estimation of glycin by Sorenson formal titration

**Section D :** Permanent stained micro preparation

1. Examination of gametes of Frog – Sperm and Ova through permanent slide or microphotograph

**Section E :** Submission of slides and study tour report

# B.Sc. II Year Geology

**USGEOT08**
GEOLOGY
**SEMESTER IV**
Paper II
**Indian Stratigraphy**

Unit I

Geological time Scale. Methods of collecting stratigraphic data. Principles of Stratigraphy. Stratigraphic Classification: Lithostratigraphic, Chronostratigraphic and biostratigraphic Units, Stratigraphic Correlation.Physical and structural subdivisions of Indian subcontinent and their characterstics. Classification , Geographic distribution, lithological characteristics and economic importance of Dharwar Supergroup of Peninsular India and associated granitic rocks.

Unit II

Classification, geographic distribution, lithological Characteristic, and economic importance of the following :-
Sausar Group, Sakoli Group, Dongargarh Supergroup, Aravalli Supergroup and associated gneissic rocks, Iron Ore Group. Cuddapah Supergroup of Cuddapah basin, Kaladgis, Pakhals, Penganga Formation, Delhi Supergroup, Shimla Formation. Vindhyan Supergroup of Vindhyan basin , Kurnool Supergroup, Chattisgarh Supergroup.

Unit III

Classification, geographic distribution, lithological characteristics, fossil content and economic importance of the following:
Palaeozoic succession of Spiti valley, Gondwana Supergroup. Triassic of Spiti, Jurassic of Kutch, Rajasthan and Spiti.

Unit IV

Classification, geographic distribution, lithological characteristics, fossil content and economic importance of the following.
Cretaceous of Narmada valley, Trichinopoly, Spiti and Lameta Formation. Deccan Traps. Tertiary of Assam and coastal areas of India. Siwalik Group. Karewa Formation of Kashmir. Stratigraphy of Maharashtra

**USGEOP04**
**PRACTICALS**

**PETROLOGY:**

Microscopic study of the following rock types:

**Igneous Rocks:**

Granite, Granodiorite, Diorite, Anorthosite, Lamprophyre,Porphyries, Gabbro, Norite Dolerite, Diabase, Peridotite, Dunite, Pyroxenite, Obsidian, Pitchstone, Pumice, Trachyte Andesite, Phonolite, Tuff, Basalt,Rhyolite,Charnockite

**Megascopic and microscopic Study of the following rock types:**

**Sedimentary Rocks:**

Conglomerate, Breccia, Grit, Arkose, Graywacke, Arenite, Sandstone, Shale, Clay, Marl, Limestone, Bauxite , laterite, Agglomerate, Tufa, Chert, Coal.

**Metamorphic Rocks :**

Hornfels, slate, phyllite, Schist, Gneiss, Granulite, Amphibolite, Quartzite, Marble, Khondalite, Gondite, Kodurite, Mylonite, Eclogite.

**FIELD WORK:**

Every Student should attend field work for one week duration and submit field notes, geological specimens and a report. The field work shall be treated as a part of practical examination of Semester IV and is Compulsory and shall be assessed by teacher and Head of the Department. Marks are assigned on field work.

# B.Sc. I Year Botany

**GONDWANA UNIVERSITY, GADCHIROLI**
**CBCS Semester Pattern Syllabus**
**SEMESTER – I**
**PRACTICAL**
**Based on Theory Paper - I & II of Semester – I**

[Time 5 Hours] [Max. Marks – 30]

**Que. 1:** To stain given **Bacterial** strain/**Cyanobacterial** material **[A]** and identify. **02 M**
[Writing not necessary]

**Que. 2:** To prepare temporary mount of given **Algal** material **[B]** and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. **03 M**

**Que. 3:** To prepare temporary mount of given **Fungal** material **[C]** and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. **03 M**

**Que. 4:** To prepare temporary mount of given **Bryophytic** material **[D]** and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. **03 M**

**Que. 5:** To prepare temporary mount of given **Pteridophytic** material **[E]** and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. **03 M**

**Que. 6:** To prepare temporary mount of given **Gymnospermic** material **[F]** and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. **03 M**

**Que. 7: SPOTTING:** **07 M**

- **SPOT-G:** Algae
- **SPOT-H:** Fungi/ Lichens
- **SPOT I:** Plant Pathology
- **SPOT-J:** Bryophyta
- **SPOT-K:** Pteridophyta
- **SPOT-L:** Gymnosperms
- **SPOT-M:** Fossils

**Que. 8:**

- **Viva-voce.** **02 M**
- **Practical Record.** **02 M**
- **Excursion Report & diseased plant parts submission.** **02 M**

**NOTE:** Well labeled diagrams are expected wherever necessary.

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# B.Sc. I Year Geology

**F.Y. B.Sc. - I (Geology)**

**SEMESTER – II**

**Practical**

**Paper Code: USGEOP02**

**Credits-2**

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## Practical

1. Study of elements of symmetry and description of various forms of crystals from normal classes of six crystal systems.
2. Study of the optical characters of minerals listed for theory course using polarizing microscope.

## Geological field work:

Student will be required to carry out field work of a short duration in an area of geological interest to study the elementary aspects of field Geology (study of Topographic Features, reading of Topographical maps, use of compass clinometer, making location on Toposheet) and submit a report thereon.

# B. Com III Year Commerce

## B.Com - III (SEMESTER – VI) CBCS
## Paper–VI
## Project

[Max. Marks: 50]

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### Guidelines for Project

Instruction:

Towards the end of the Sixth semester of study, a student will be examined in the Course "Project Work".

a. Project Work may be done individually or in groups (Maximum 5 students) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individualstudent.
b. The Project Work should be done using the tools covered inB.Com
c. The Project Work should be of such a nature that it could prove useful or be relevant from the System-oriented/Application/commercial / managementangle.
d. The project work will carry 50marks.
e. The external viva-voce examination for Project Work would be held as per the Examination Time Table of the second year of study, by a panel of one external and one Internalexaminer.
f. Head/Co-ordinator of Computer Dept. must reject any project title which was already carried out in any computer course in the college. He must maintain a Record that lists the projects along with other detail (like Guide, Session, and Number of students working on project etc) that was carried out so far and must be shown to external examiner at the time ofexamination.

Types of Project

As majority of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software export companies, it is suggested that the project is to be chosen which should have some direct relevance in day-today activities of the candidates in his/her institution. The Applications Areas of project – Financial / Marketing / Database Management System/ Relational Database Management System / E-Commerce / Internet / Manufacturing / web Designing /Hardware and Software interaction based etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide. The Project Guide May alter the sequence as given below depending upon the nature of project.

**Guide** :The project guide must be a person having minimum Qualification M.C.M / M.Sc. (Computer Science) / MCA. The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the followingform:

- Title of theProject
- Objectives and Hypothesis of theProject
- Project Category (DBMS/RDBMS/OOPS/Web Designing/Internetetc.)
- Tools/Platform, Languages to be used
-

Project Report Formulation.

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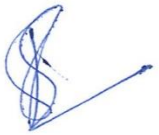
1. TitlePage.
2. CertificatePage.
3. DeclarationPage.
4. AcknowledgmentPage.
5. Index or ContentPage.
6. Documentation.
    a) Introduction/Objectives.
    b) ProjectCategory.
    c) Software RequirementSpecification.
    d) SystemDesign.
        - SourceCode.
        - Input screen & OutputScreen.
7. Future Scope of theproject.
8. Bibliography
9. Appendix *( if any)

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# M.Sc. Zoology II Year

**Semester –IV**
**Paper XIV, Special Group-Aquaculture-III**
**Aquaculture and Management**

**Unit-I**

1.1 Preparation of pond: Liming and manuaring.
1.2 Prestocking management of Nursery, Rearing and stocking ponds.
1.3 Control of aquatic weeds, predatory fishes, weed fishes and insects.
1.4 Post stocking management – stocking density, carrying capacity, enhancement of carrying capacity.

**Unit-II**

2.1 Nutritional requirements of culturable carps. Supplementary feeding. Artificial feed. Use of growth promoting hormones.
2.2 Transport of live fish seed, Brood fish and food fish.
2.3 Effect of dams on fisheries.
2.4 Development of reservoir fisheries in India.

**Unit-III**

3.1 Different systems of aquaculture, Monosex culture, cage culture and pen culture.
3.2 Polyculture of Indian and Exotic carps.
3.3 Culture of air breathing fishes.
3.4 Integrated aquaculture: fish-cum-poultry and fish-cum-paddy.

**Unit-IV**

4.1 Integrated fish farming: fish-cum-duck and fish-cum-pig
4.2 Sewage fed fish culture.
4.3 Cold water fish culture in India.
4.4 Extensive, Intensive, Semi-intensive and super- intensive culture.

**Semester-IV**
**Paper XV, Special Group-Aquaculture-IV**
**Fish Pathology and Fish Genetics**

**Unit-I**

1.1 Biochemical composition of raw fish.
1.2 Nutritional value of raw and preserved fish.
1.3 Fish preservation objective and principles..
1.4 Methods of fish preservation.

**Unit-II**

2.1 Fish decomposition, rigor mortis and fish spoilage.
2.2 Poisoning, Toxicity and allergies from fish as food.
2.3 Effect of water pollution on fishes.
2.4 Fish products and byproducts.

**Unit-III**

3.1 Fungal, bacterial, protozoan diseases of farm fish.

3.2 Nutritional diseases of fish.

3.3 Worm and crustacean diseases of farm fish.

3.4 Diseases caused by aquatic pollutants.

**Unit-IV**

4.1 Fish genetic resources and its application in fisheries management.

4.2 Hybridization, transgenic fish.

4.3 Gene banking and application of genetic engineering in aquaculture.

4.4 Cryopreservation of gametes.

**Semester–IV Practical-VII, Special Group- Aquaculture**

1 Study of feeding habits of herbivorous, carnivorous and omnivorous fish by gut content analysis with the help of ICT tools/ charts/ models / photographs etc.

2 Identification of egg, spawn, fry and fingerlings of Indian carps with the help of already available specimens, permanent slides/ ICT tools/ charts/ models/ photographs etc.

3 Preparation of artificial fish feed.

4 Anatomical observations, demonstration and detailed explanation of the reproductive system of carps with the help of ICT tools/ models/ charts/ photographs etc.

5 Identification and classification of palaemonoid prawns, crabs, bivalves, larvivorous and aquarium fishes using fishes available in the local fish market or with the help of already available specimens, permanent slides ICT tools/ charts/ models/ photographs etc.

6 Short term bioassay and determination of LC50 for fish exposed to pollutant using provided data.

7 Study of pathological changes in gills, liver, kidney and intestine of fish exposed to heavy metals or pesticides with the help of already available permanent slides ICT tools/ charts/ models/ photographs etc.

8 Biochemical estimation of proteins, lipids, glycogen, DNA and cholesterol (Source of Blood/ Tissue: Local recognized fish markets).

9 Preparation of bacteriological media and determination of bacterial plate count for skin and gut.

10 Gram staining of bacteria.

11 Visit to a fish market and collection of fish landing data.

**Distribution of marks**

| | | **Marks** |
|---|---|---|
| 1. | Analysis of gut content / preparation of artificial fish feed | 10 |
| 2. | Study of pathological changes in gills, liver, kidney and intestine | 10 |
| 3. | Biochemical estimation / determination of bacterial plate count. | 10 |
| 4. | Gram staining | 05 |
| 5. | Identification of spots (1 to10) | 20 |
| 6. | Anatomical observation | 05 |
| 7. | Practical record & submission | 10 |

8. Viva – voce 10

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80

**Internal Assessment** 20

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**Total marks** 100

100

- **Project work**

(80 marks project evaluation including viva + 20 marks Internal assessment)

- **Suggested Readings**


1. A textbook of fishery science and Indian fisheries- S. B. L. Srivastava
2. Fish and fisheries – Kamleshwar Pandey and J. P Shukala
3. A textbook of fish biology and fisheries – S.S. Khanna and H. R. Singh
4. A text book of fish biology and Indian fisheries- R.P. Parihar
5. General and Applied Ichthyology- S.K.Gupta and P.C.Gupta
6. An introduction to fishes- S. S. Khanna.
7. Fish processing technology – T. K. Govindon.
8. Hand book of breeding of major carps by pituitary hormones – S. L. Chonder.
9. Aquaculture – T. V. R. Pillay.
10. Diseases of cultivable freshwater fishes and their control – N. M. Chokraborty.
11. Fish and fisheries in India - V. G. Jhingran.
12. Indian fishes (Identification of Indian Teleosts) – T. A. Qureshi.
13. Introduction to tropical fish assessment per share, Erik Ursine and Siberian C. Verma.
14. Fish population dynamics – M. Devaraj.


**Semester –IV**

**Paper-XIV, Special Group-Environmental Biology-III**

**Environmental Pollution and Aquaculture**

**Unit-I**

1.1 Pollution Ecology: definition, sources of pollution, classification of pollutants, primary and secondary pollutants.

1.2 Air pollution: definition, sources, air pollutants and its effects on human health and atmosphere, control of air pollution.

1.3 Water Pollution: definition and sources, water pollutants and its effects, control of water pollution.

1.4 Noise pollution, sources, physiological and psychological effects of noise pollution, control measures of noise pollution.

**Unit-II**

2.1 Land pollution: definition, sources, effects and control of insecticide pollution.

# M.Sc. Geology II Year

**SYLLABUS for M. Sc. GEOLOGY**
**Choice Based Credit System (Semester Pattern)**
**GONDWANA UNIVERSITY GADCHIROLI 2017-18**
**M.Sc. GEOLOGY (Semester IV)**

| Code | Theory / Practical | Teaching Scheme (Hrs/ week) | | | Credits | Examination Scheme | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Th | Pr. | Total | | Duration (Hrs) | Max. Marks | | Total Marks | Min. Passing Marks | |
| | | | | | | | External | Internal | | Th | Pr. |
| Core 11 | PSCGEOT13 **Ore Geology and Ore Microscopy (3+1)** | 4 | | 4 | 4 | 3 | 80 | 20 | 100 | 40 | |
| Core 12 | PSCGEOT14 **Indian Mineral Deposits and Mineral Economics (3+1)** | 4 | | 4 | 4 | 3 | 80 | 20 | 100 | 40 | |
| Core Elective 2 | PSCGEOT15 (Any one) **E2.1 Fuel Geology (Coal, Petroleum & Nuclear)** **E2.2 Exploration Geochemistry (4)** **E2.3 Basin analysis and Sequence Stratigraphy (2+2)** **E2.4 Marine Geology and Oceanography (2+2)** | 4 | | 4 | 4 | 3 | 80 | 20 | 100 | 40 | |
| Founda- tion Course 2 | PSCGEOT16 **Foundation Course 2** **FC-2.1 Paleobiology** **(or)** **FC-2.2 Geodesy and Mapping** | 4 | | 4 | 4 | 3 | 80 | 20 | 100 | 40 | |
| Pract. Core 7 | PSGEOPO7 **Ore Geology, Ore Microscopy, based on Paper 15 and Geological Field Work** (Marks: 55 Pract. + 05 Viva-voce + 20 Field Work + 20 Internal Assessment and Class Record) | | 8 | 8 | 4 | 3 | 80 | 20 | 100 | | 40 |
| Project | PSCGEOP08 **Project** (Marks: 40 Project Evaluation + 20 Project Presentation + 20 Viva-voce + 20 Internal Assessment) | | 8 | 8 | 4 | 3 | 80 | 20 | 100 | | 40 |
| Seminar | Seminar 3 | 2 | | 2 | 1 | --- | | 25 | 25 | 10 | |
| | **Total** | **18** | **16** | **34** | **25** | | **480** | **145** | **625** | **170** | **80** |

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**FIELD WORK:**

Candidate shall attend geological excursion organized by the Department for a period of 10 to 20days. This will include field work, visit to geologically important places, mines, geological and scientific organisations. Candidates should submit the field report at the end of excursion along with the geological specimens collected during the programme. The field work is a part of Practical 7 of Semester IV and field report will be evaluated by the field excursion in-charge.

**PROJECT WORK:**

Every student is required to carry out **Experimental / Field Based Project Work** (this is in lieu of practical 8 of semester IV) on a related research topic of the subject /course. On the basis of this work, student must submit the Project Report (typed and properly bound) in two copies at least one month prior to commencement of the final Practical Examination of Semester IV.

After Semester-II the candidates are required to carry out geological investigation independently approved by the Head of the Department and Project Guide. The area/ topic of the project work shall be assigned to the students at the end of Semester - II depending upon the expertise available in the Department.

The Project report shall comprise of introduction, aims and objectives, short literature review, methodology/ materials and methods, experiments and results, discussion, conclusion and references along with the declaration by the candidate that the work is original and not submitted to any University or Organization for award of the degree, and certificate by the supervisor and forwarded through Head of the Department. The project report will be essentially evaluated by two referees, which includes **Project Guide** as internal referee and one **external referee**.

The Project Work will carry total 100 marks and will be evaluated by both external and internal examiner in the Department.

| | |
|---|---|
| For written Project work | : 40 Marks (Evaluated jointly by External & Internal) |
| Project presentation | : 20 marks (Evaluated jointly by External & Internal) |
| For Viva-Voce | : 20 Marks (Evaluated by External examiner) |
| Internal Assessment | : 20 Marks (Evaluated by Internal examiner) |
| | --- |
| Total | : 100 Marks |

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# M.Sc. Chemistry II Year

## GONDWANA UNIVERSITY, GADCHIROLI

**M.Sc.-II Semester III, IV (Chemistry)**

(Effective from 2017-18) (CBCS)

1. There will be four theory papers in every semester which will carry 80 marks each of 3 hrs. duration.
2. In semester III student will opt for special paper from four options available.
3. In semester IV student will opt for an elective paper out of the five options available.
4. There will be internal assessment of 20 marks per paper per semester.
5. Each paper per semester with total of 100 marks( 80+20 i.e. theory+internal assessment) will carry 4 credits.
6. The internal assessment will be based on Attendance, Home assignment, Unit test Terminal test and participation in departmental activities.
7. There will be two practical examinations in semester III i.e. Pract I( special) and Pract II( Elective) of 6-8 hours duration of 80 marks with 4 credits each.Every practical will be having 20 internal practical marks.
8. In semester IV there will be one practical (Special) and another as Project of 80 marks each.
9. In each semester, the student will have to deliver a seminar on any topic relevant to the syllabus / subject encompassing the recent trends and development in that field / subject. This will carry 25 marks per seminar with one credit.
10. So, the total marks allotted to the Chemistry subject per semester is 625 marks: Theory (320 marks) + Internal assessment (120 marks) + Practicals (160 Marks)+ Seminar (25Marks)= 625marks (total)
11. Each theory paper consists of four units of fifteen hours per unit.

The following syllabi are prescribed on the basis of four hours per week of each paper and nine practical periods per batch per week.

**General scheme for distribution of marks in practical examination**

Time : 6-8 h (One day Examination) Total Marks : 80 )

Exercise-1 - 30 Marks

Exercise-2 - 20 Marks

Viva-Voce -15Marks

Record -15 Marks

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## Scheme of Examination for M.Sc. (Chemistry) SEM III and IV

| **Semester III** | Internal Assessment | Total Marks | Credits |
|---|---|---|---|
| **PSCHT09**: Paper IX (Spectroscopy) | 20 Marks | 80 Marks | 4 Credits |
| **PSCHT10:** Paper X **Special I**-Inorganic/ Organic Chemistry/Physical/Analytical | 20 Marks | 80 Marks | 4 Credits |
| **PSCHT11:** Paper XI **Special II**-Inorganic/ Organic Chemistry/Physical/Analytical | 20 Marks | 80 Marks | 4 Credits |
| **PSCHT12:** Paper XII**Elective** Applied Analytical /Nuclear/ Environmental /Polymer/Medicinal Chemistry) | 20 Marks | 80 Marks | 4 Credits |
| **PSCHP07:** Practical-VII**Special**Inorganic/ Organic Chemistry/Physical/Analytical | 20 Marks | 80 Marks | 4 Credits |
| **PSCHP08:** Practical-VIII**Elective-** Applied Analytical Nuclear/ Environmental /Polymer/Medicinal) | 20 Marks | 80Marks | 4 Credits |
| **PSCHP09:** Seminar-III ---- -- | 25 Marks | | 1 Credit |
| **Total:** | **120 Marks** | **505 Marks** | **25 Credits** |

**Semester IV**

| | | | |
|---|---|---|---|
| **PSCHT13**: Paper XIII (Spectroscopy) | 20 Marks | 80 Marks | 4 Credits |
| **PSCHT14:** Paper XIV**Special I**-Inorganic/ Organic Chemistry/Physical/Analytical | 20 Marks | 80 Marks | 4 Credits |
| **PSCHT15** Paper XV **Special II**-Inorganic/ Organic Chemistry/Physical/Analytical | 20 Marks | 80 Marks | 4 Credits |
| **PSCHT16** Paper XVI**Elective-** Applied AnalyticalNuclear/ Environmental / Polymer/Medicinal Chemistry) | 20 Marks | 80 Marks | 4 Credits |
| **PSCHP10** Practical-XSpecial (Inorganic / Organic/Physical/Analytical) | 20 Marks | 80 Marks | 4 Credits |
| **PSCHP11** Practical-XI Project | 20 Marks | 80 Marks | 4 Credits |
| **PSCChP12** Seminar-IV ---- | 25 Marks | | 1 Credit |
| **Total:** | **120 Marks** | **505Marks** | **25 Credits** |

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# GONDWANA UNIVERSITY, GADCHIROLI

# Syllabus

# for

## Master of Science (M.Sc.) Chemistry

## Based on NEP – 2020

(with effect from 2023-24)

## Board of Studies in Chemistry

## Faculty: Science and Technology

# GONDWANA UNIVERSITY, GADCHIROLI

## M.Sc.-I Semester I, II (Chemistry)

## (NEP 2020, Effective from 2023-24)

### M.Sc. (Chemistry)

| | Scheme of Teaching and Examination for M.Sc. (Chemistry) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **M.Sc. (Chemistry) Semester – I** | | | | | | | | |
| | **Subjects** | **L** | **T** | **P** | **Total Credits** | **UA** | **CA** | **Min** | **Total** |
| **Major** | **01MSCCH01** Paper I (Inorganic Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCH02** Paper II (Organic Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCH03** Paper III (Physical Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| **Major Elective** | **01MSCCH04** Paper IV (Analytical Chemistry) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCH05** Paper IV (Ind. Chem. & Env.) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCH06** Paper IV (Green Chemistry) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCH07** Paper IV (Hetcyc. & Nat. Prod.) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCH08** Paper IV (Pharm. & Cosm. Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| **Practical** | **01MSCCHL1** Practical I (Based on Paper I & II) | -- | -- | 4 | 2 | 75 | 25 | 50 | 100 |
| | **01MSCCHL2** Practical II (Based on Paper III & IV) | -- | -- | 4 | 2 | 75 | 25 | 50 | 100 |
| **RM** | **01MSCCH09** Paper V (Research Methodology) | 3 | | | 3 | 80 | 20 | 40 | 100 |
| | **01MSCCHSI** Seminar I | 1 | | | 1 | - | 50 | | 50 |
| | **Total** | **16** | | **8** | **20** | | | | **750** |

| | **Scheme of Teaching and Examination for M.Sc. (Chemistry)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **M.Sc. (Chemistry) Semester – II** | **L** | **T** | **P** | **Total Credits** | **UA** | **CA** | **Min** | **Total** |
| **Major** | **02MSCCH01** Paper I (Inorganic Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCH02** Paper II (Organic Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCH03** Paper III (Physical Chemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| **Major Elective** | **02MSCCH04** Paper IV (Analytical Chemistry) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCH05** Paper IV (Inorg. Mat. Of Ind. Imp.) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCH06** Paper IV (Polymer Chemistry) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCH07** Paper IV (Mol. Spectroscopy) **or** | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCH08** Paper IV (Front. in Electrochemistry) | 3 | -- | -- | 3 | 80 | 20 | 40 | 100 |
| **Practical** | **02MSCCHL3** Practical III | -- | -- | 4 | 2 | 75 | 25 | 50 | 100 |
| | **02MSCCHL4** Practical IV | -- | -- | 4 | 2 | 75 | 25 | 50 | 100 |
| | **02MSCCH09** Paper V (OJT/FP) | 3 | | | 3 | 80 | 20 | 40 | 100 |
| | **02MSCCHS2** Seminar II | 1 | | | 1 | - | 50 | | 50 |
| | **Total** | **16** | | **8** | **20** | | | | **750** |

# M.Sc. Program (Semester I&II) in Geology

**(Scheme Teaching and examination under semester pattern NEP 2020)**

**SEMESTER I**

| Major and Elective Paper, Code | Theory / Practical | Teaching Scheme | | | Credit | Examination Scheme | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hours/ week | | | | Duration in hrs. | Max. Marks | | Total | Minimum Marks | |
| | | Theory | Practical | Total | | | External | Internal | | Theory | Practical |
| Major I, (PSCGEOT01) | Paper I | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Major II, (PSCGEOT02) | Paper II | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Major III, (PSCGEOT03) | Paper III | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| (Select any one) Elective, PSCGEOE- Papers 01to 05 | Paper IV | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Practical I, PSCGEOP01 | Practical 1 | | 4 | 4 | 2 | 4 | 75 | 25 | 100 | | 50 |
| Practical II, PSCGEOP02 | Practical 2 | | 4 | 4 | 2 | 4 | 75 | 25 | 100 | | 50 |
| Research Methodology, RMGEOT05 | Paper I | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Seminar | Theory | -- | -- | -- | 1 | 1 | -- | 50 | 50 | -- | -- |
| TOTAL | | **20** | **8** | **28** | **20** | **29** | **550** | **200** | **750** | **200** | **100** |

**SEMESTER II**

| Major and elective Paper,Code | Theory / Practical | Teaching Scheme | | | Credit | Examination Scheme | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hours/ week | | | | Duration in hrs. | Max. Marks | | Total | Minimum Marks | |
| | | Theory | Practical | Total | | | External | Internal | | Theory | Practical |
| Major I, PSCGEOT04 | Paper IV | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Major II, PSCGEOT05 | Paper V | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Major III, PSCGEOT06 | Paper VI | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| (Select any one) Elective PSCGEOE- Papers 06 to 10 | Paper V | 4 | | 4 | 3 | 4 | 80 | 20 | 100 | 40 | |
| Practical III, PSGEOP03 | Practical 3 | -- | 4 | 4 | 2 | 4 | 75 | 25 | 100 | -- | 50 |
| Practical IV, PSGEOP04 | Practical 4 | -- | 4 | 4 | 2 | 4 | 75 | 25 | 100 | -- | 50 |
| OJT/FP (On Job Training, Internship/Apprenticeship/Field Project), OJT, GEO-01 | Paper II | 4 | -- | 4 | 3 | 4 | 80 | 20 | 100 | 40 | -- |
| Seminar | Theory | -- | -- | -- | 1 | 1 | -- | 50 | 50 | -- | -- |
| **TOTAL** | | **20** | **8** | **28** | **20** | **29** | **550** | **200** | **750** | **200** | **100** |

**Note-** Internal assessment will be based on actual field work with or without collaborated in GSDA, GSI, other Geological organization and also work with NGO's for the rural development.

## Eligibility to the course

Subject to their compliance with the provisions of this direction and of other ordinances in force from time to time, the following applicant candidates shall be eligible for the admission to Master of Science and examinations thereof.

## Eligibility for Semester I

For M.Sc. Geology for admission to the M. Sc. Semester I in Geology, a candidate shall have offered Geology as one of the subject at the B.Sc. level.

**Basket for the 2 year PG Program (M.Sc. Mathematics) under NEP-2020**

| | Sem - I | Sem - II |
|---|---|---|
| Major (DSC) | • Advanced Abstract Algebra<br>• Topology<br>• Linear Algebra | • Field theory<br>• Measure theory<br>• Classical Mechanics |
| Major Elective (DSE) | • Numerical Analysis<br>• Real Analysis<br>• Ordinary differential Equations<br>• Calculus of Variations<br>• Number Theory<br>• SCILAB Programming<br>• Fuzzy Mathematics<br>• Logic and Set Theory<br>• Elementary Discrete Mathematics | • Operations Research<br>• Differential Geometry<br>• Combinatorics<br>• Graph Theory<br>• Coding Theory<br>• Cryptography<br>• Advanced Topics in Topology<br>• Statistics and Probability<br>• C Programming<br>• Financial Mathematics |
| Research Methodology/OJT/ Field Project | Research Methodology | OJT/Field Project |

**Note:**

1. Students need to do OJT/Field Project as per NEP guidelines and mentors shall be designated by department/colleges for internship/OJT.
2. Maximum 10 students per teacher shall be allocated for mentorship of OJT/Field Project.
3. The students must complete on-the-job training/internship of 04 credits during summer break, after completion of the second semester of the first year in the respective Major Subject.
4. The assessment of OJT/FP shall be conducted by the Department.
5. Teachers may use software's, if required for teaching contents of a course.
6. SCILAB Programming and C Programming are 4 credit courses, where 2 Theory and 2 practicals per week shall be devoted to them.
7. Term end Theory examination of 80 marks and 20 marks internal assessment shall be conducted for those courses which have theory and practical components.

| Semester I for M.Sc. Program in Mathematics | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Course | Teaching Scheme (Hours/ Week) | | | Credits | | | Examination Scheme | | | | |
| | Theory | Practical | Total | Theory | Practical | Total | Duration in Hrs. | Maximum Marks | | | Minimun Passing marks |
| | | | | | | | | External assessment Theory | Internal assessment | Total Marks | External assessment + Internal assessment |
| Major (DSC) 1 | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Major (DSC) 2 | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Major (DSC) 3 | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Elective (DSE) | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Research Methodology | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |

| Semester II for M.Sc. Program in Mathematics | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Course | Teaching Scheme (Hours/ Week) | | | Credits | | | Examination Scheme | | | | |
| | Theory | Practical | Total | Theory | Practical | Total | Duration in Hrs. | Maximum Marks | | | Minimun Passing marks |
| | | | | | | | | External assessment Theory | Internal assessment | Total Marks | External assessment + Internal assessment |
| Major (DSC) 1 | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Major (DSC) 2 | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Major (DSC) 3 | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| Elective (DSE) | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |
| On Job Training /Field Project (OJT/ FP) | 4 | — — | 4 | 4 | — — | 4 | 3 | 80 | 20 | 100 | 40 |

## Guidelines about Internal Assessment for Semester I and II:

The internal assessment marks shall be awarded by the concerned teacher. The internal assessment marks shall be sent to the University.

In case, the candidate fails in Theory Examination, the Internal Assessment marks will be carried forward for his next supplementary Examination.

There shall be no separate / extra allotment of work load to the teacher concerned. He/ She shall conduct the internal assessment activity during the regular teaching days / periods as a part of regular teaching activity.

The concerned teacher / department / college shall have to keep the record of all the internal assessment activities until six months after the declaration of the results of that semester.

# M.Sc. I (Zoology)

## Table 1: M.Sc. Semester II

| Sr No | Course Category | Name of the course(Title of the Paper) | Level | Teaching Scheme (hrs) | | | Total Credit | Evaluation Scheme | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Theory | Tutorial | Practical | | Duration of Examination (Hrs) | End Semester Evaluation(ESE) | Continuous Internal Evaluation (CIE) | Minimum Passing Marks |
| | | | | Th | Tu | P | | | | | |
| 1 | DSC | Paper 1:- Structure and Function of Vertebrates (02MSCZO01) | 6.0 | 4 | -- | -- | 3 | 3 | 80 | 20 | 40 |
| | | Paper 2: Comparative Endocrinology- (02MSCZO02) | | 4 | -- | -- | 3 | 3 | 80 | 20 | 40 |
| | | Paper 3 Molecular Biology and Biotechnology: (02MSCZO03) | | 4 | -- | -- | 3 | 3 | 80 | 20 | 40 |
| 2 | DSE Elective | Paper 1:- Biology of Parasites<br>Paper 2:- Aquaculture and Management<br>Paper 3:- Applied Entomology<br>Paper 4:- General and Applied Ichthyology<br>Paper 5:- Economic Zoology (02MSCZO04) | | 4 | -- | -- | 3 | 3 | 80 | 20 | 40 |
| 3 | OJT / FP | Industrial Training/Survey/ Research Project (02MSCZO05) | | 4 | -- | -- | 4 | 5 | 80 | 20 | 50 |
| 4 | Lab-I | Practical Basis On (C1+ C2) | | -- | -- | 4 | 2 | 5 | 80 | 20 | 50 |
| 5 | Lab-I | Practical Basis On (C3+ EL) | | -- | -- | 4 | 2 | 5 | 80 | 20 | 50 |
| 6 | | Seminar | | --- | -- | | -- | -- | -- | 50 | 20 |
| | | | | 20 | -- | 8 | 20 | | 550 | 200 | -- |
| **Cumulative Credits for : PG Degree in Major Subject Core = 09, Practicals = 04, Electives = 03 OJT / FP= 4 Total = 20 Credits (Sem-1: 20 + Sem-2: 20 = 40 Credits** | | | | | | | | | | | |

# Gondwana University Gadchiroli
# M.A. Marathi - I

**शैक्षणिक सत्र : २०२२–२०२३ पासून पुढे**

**एम. ए. भाग – १ सत्र – दुसरे (NEP) 2020**

Compulsory Paper - 4 **आवश्यक अभ्यासपत्रिका – ४**

Paper Code: S2MAMLC04 – **व्यावसायिक प्रक्षिकण/क्षेत्रीय प्रकल्प** (On Job Training)

(4 Credit)

**प्रशिक्षण कार्याचे स्वरूप** : विद्यार्थ्यांना 4 Credit चे प्रशिक्षण कार्य पूर्ण करण्यासाठी एखाद्या मान्यताप्राप्त संस्थेत किमान ४ आठवडे (4 Week) व कमाल ६ आठवडे (6 Week) प्रत्यक्ष कार्यक्षेत्री जाऊन काम केल्याचे उपस्थिती व कार्य प्रमाणत्र आवश्यक राहील.

**प्रक्षिक्षण कार्यक्षेत्र** : परिसरातील वा शहरातील/गावातील वा महाविद्यालयाशी संलग्न जिल्ह्यातील मान्यताप्राप्त वा शासकीय ग्रंथालये, वाचनालये, वृत्तपत्रांच्या कचेऱ्या, जिल्हास्तरावरील वृत्तपत्रांची केंद्रे, वाहिन्यांची कार्यालये, दूरदर्शन, आकाशवाणी केंद्रे, महाविद्यालयांची ग्रंथालये (स्वत:चे महाविद्यालय सोडून) यापैकी कुठल्याही कार्यकेंद्रावर जाऊन प्रशिक्षणकार्य पूर्ण करावे.

- सत्र संपण्यापूर्वीच हे प्रक्षिणकार्य पूर्ण करणे अनिवार्य राहील.

**क्षेत्रप्रकल्प (Field Project)** : आपल्या 'मरठी साहित्य' या विषयांतर्गत कुठलाही एक क्षेत्रप्रकल्प तयार करून तो लिखित व मुद्रित स्वरूपात (किमान ५० व कमाल १०० पृष्ठे) विभागात सादर करणे अनिवार्य राहील. या प्रकल्पाच्या मूल्यांकनानंतर 4 Credit दिले जातील.

Satelwad

# Gondwana University, Gadchiroli.

**Faculty Name : Humanities** **Name P.G.: M.A. Economics**

**Two Years Regular Post Graduate Program**

**SEM - I**

| Major (Mandatory ) | Credit | Elective | Credit | Research Methodology | Credit | Total Credit |
|---|---|---|---|---|---|---|
| MAECO1001 Micro Economic Analysis - I | (4x3) 12 | MAECO1004 - Agricultural Economics | 4 | MAECO1009 Research Methodology | 4 | **20** |
| | | MAECO1005 - Statistics for Economics - I | | | | |
| MAECO1002 Macro Economic Analysis - I | | MAECO1006 - Environmental Economics | | | | |
| | | MAECO1007 - Rural Development | | | | |
| MAECO1003 Public Economics | | MAECO1008 - Money and Banking | | | | |
| | | **Note:- Student shall select any one from above group** | | | | |

**SEM - II**

| Major (Mandatory ) | Credit | Elective | Credit | On Job Training /Field Project (OJT/FP) | Credit | Total Credit |
|---|---|---|---|---|---|---|
| MAECO2001 Micro Economic Analysis - II | (4x3) 12 | MAECO2004 - Labor Economics | 4 | MAECO2009 OJT Internship, Apprenticeship or Field Projects | 4 | **20** |
| | | MAECO2005 - Statistics For Economics - II | | | | |
| MAECO2002 Macro Economic Analysis - II | | MAECO2006 - Welfare Economics | | | | |
| | | MAECO2007 - Economics of Marketing | | | | |
| MAECO2003 Industrial economics | | MAECO2008 - Financial Institutions and Markets | | | | |
| | | **Note:- Student shall select any one from above group** | | | | |

# GONDWANA UNIVERSITY, GADCHIROLI

## Master of Arts (NEP 20)

## M.A. Sociology

## Examination Scheme

## Semester - II

## Session – 2023-24

| | | | | | Examination Scheme | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Max Marks | | Total Marks | Min. Passing Marks | | |
| | Course Code | Sem - II | Teaching Scheme/Theory | Credit | University Assesment | College Assesment | | Theory Marks | Internal Marks | Total |
| Major( DSC) | MASOC201 | 1) Theoretical Perspectives in Sociology | Th | 4 | 80 | 20 | 100 | 32 | 08 | 40 |
| | MASOC202 | 2) Gender and Society | | 4 | 80 | 20 | 100 | 32 | 08 | 40 |
| | MASOC203 | 3) Sociology of Kinship, Marriage and Family 4×3 | | 4 | 80 | 20 | 100 | 32 | 08 | 40 |
| Major Elective (DSE) | MASOC204 | 1) Social Psychology | | 4 | 80 | 20 | 100 | 32 | 08 | 40 |
| | MASOC205 | 2 ) Women In Indian Society | | | | | | | | |
| | MASOC206 | 3) Social Anthropology | | | | | | | | |
| | MASOC207 | 4) Sociology of Migration | | | | | | | | |
| | MASOC208 | 5) Sociology of Tribal Society | | | | | | | | |
| | MASOC209 | 6) Sociology of Mass Communication | | | | | | | | |
| | MASOC210 | 7) Agrarian Society change in India | | | | | | | | |
| | MASOC211 | 8) Sociology of India | | | | | | | | |
| | MASOC212 | 9) Urban Society In India | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | MASOC213 | 10) Social Problems in Contemporary India | | | | | | | | |
| | MASOC214 | 11) Sociology of Environment and Society 4×1 ( Any Choose One) | | | | | | | | |
| RM | | -- | | -- | -- | | | | | |
| OJT | | 4×1 | | 4 | -- | -- | 100 | | | -- |
| RP | | -- | | | | | | | | |
| | | | | | | | | | | |
| Total Credit:- | | | | 20 | 320 | 80 | 500 | 128 | 32 | 160 |

DSC: Discipline/Department Specific Courses

DSE: Discipline Specific Elective Courses

OJT: On Job Training

RM: Research Methodology

# Gondwana University, Gadchiroli

## Master of Arts (NEP 2020)

## M.A History

## Examination Scheme

### SEMESTER – II

| | Major Papers | | Examinations Scheme | | Internal Assessment | Total | |
|---|---|---|---|---|---|---|---|
| | | | Marks | Credits | Marks | Marks | Credits |
| **Major (DSC) Paper – I (Mandatory)** | Trends and Theories in History | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| **Major (DSC) Paper – II (Mandatory)** | India Under British Rule : 1857-1905 | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| **Major (DSC) Paper – III(Mandatory)** | Contemporary World :1950-2000 | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| **Major (DSE) Elective Paper – IV** | Independent India: 1947-2000 | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| | State, Society and Culture of India 300 B.C.-500 A.D. | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| | Society Economy and Culture Under the Sultans | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| | Society Economy and Culture Under the Mughals | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| | History of Art and Architecture in India: Medieval Period | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| | Nineteenth Century Maharashtra | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| **Minor (OJT) / Field Work – V** | | Full Marks | 80 | 04 | 20 | 100 | 04 |
| | | Pass Marks | 32 | | 08 | 40 | |
| **Total** | | Full Marks | 400 | 20 | 100 | 500 | 20 |
| | | Pass Marks | 160 | | 40 | 200 | |