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## **2.3 Teaching- Learning Process**

*2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences*

### **Experiential learning:**

#### **Practical Work:**

### **Geography**

#### **B.A. Part I**

**Max. Marks: 50**

**SECTION A**  
CARTOGRAPHY AND STATISTICAL METHODS  
(M.M. 25)

**Unit I** Scale: Statement Scale, Representative Fraction (R.F.), and Linear scale – Simple, Diagonal, Comparative, and Time Scales.

**Unit II** Contour: Methods of showing relief; Hachures, Contours; Representation of different landforms by contours.

**Unit III** Graph and Diagram: Line graph, Bar Diagram (Simple and Compound), Circle Diagram, Pie Diagram

**Unit IV** Statistical Technique: Mean, Median and Mode

**SECTION B**  
SURVEYING -  
(M.M. 15)

**Unit V** Chain and Tape Survey. Triangulation method, Open Traverse and Closed Traverse

PRACTICAL RECORD AND VIVA VOCE  
(M.M. 10)

#### **B.A. Part II**

**Max. Marks: 50**

**SECTION A**  
MAP INTERPRETATION, PROJECTIONS AND STATISTICAL METHODS  
(M.M. 25)

**Unit I** Distribution Maps: Dot Map, Choropleth Map and Isopleth Map.

**Unit II** Map Projections: Definition and classification; Conical, Zenithal, and Cylindrical Projections.

**Unit III** Interpretation of Weather Maps: Use of Meteorological Instruments.

**Unit IV** Statistical Methods: Quartile: Mean Deviation, Standard Deviation and Quartile Deviation; Relative Variability and Co-efficient of Variation.

### **SECTION B**

#### **SURVEYING**

(M.M. 15)

**Unit V** Surveying: Whole Circle Bearing and Reduced Bearing, Methods of Prismatic Compass Survey.

#### **PRACTICAL RECORD AND VIVA VOCE**

(M.M. 10)

### **B.A. Part III**

**Max. Marks: 50**

In the practical examination the following shall be allotment of time and marks.

Lab work	-20 Marks
Survey	-10 Marks
Field Report	-10 Marks
Practical Record and viva-voce	-10 Marks

**UNIT-I** Band graph, Hythergraph and Climograph. Square root, cube-root and venire scales.

**UNIT-II** Map Projection: Conical Projection: one standard parallel, two standard parallels, Bonne's, Polyconic, Polar Zenithal Projections; Gnomonic, Stereographic and Orthographic.

**UNIT-III** Study and Interpretation of Indian topographical sheets: classification and numbering system, Interpretation of topographical sheets with respect to cultural and physical features.

**UNIT-IV** Surveying - Plane Table Survey, Basic Principles of plane table surveying, Plane table survey including intersection and resection.

**UNIT-V** Importance of field work in Geography. Field work and field report : physical, social and economic survey of a micro-region.

# Home Science

## BA-I

कुल समय 3 घंटे	प्रायोगिक अंको का विभाजन	कुल अंक-50
	1. स्पेशल	10
	2. प्राथमिक उपचार	10
	3. गृह पत्रिचर्या	15
	4. शरीर रचना एवं स्वास्थ्य विज्ञान	15

## BA-II

प्रायोगिक कार्य :

1. सिलाई — ब्लाऊज, बेबी फ्राक, झबला, बाबा सूट, पंजाबी कुरता, सालवार, पेटीकोट, पुष्प सज्जा।
2. धुलाई— विभिन्न वस्त्रों की धुलाई, धब्बे छुड़ाना, बांधनी का कार्य।
3. पुष्प सज्जा।

वितरण —

सत्रीय :	10
सिलाई :	20
धुलाई :	15 (धुलाई कार्य, बांधनी — 10 , धब्बा छुड़ाना 5)
पुष्प सज्जा :	5

## BA-III

प्रायोगिकपरीक्षाअंकोकाविभाजन

सेशनल	10
योजना	10
तैयारी	10
गणना	10
मैखिकप्रश्न	10
कुलअंक	50

## Practical Work:Physics

### B.Sc. I

EXAMINATION SCHEME:

1. There shall be 2 theory papers of 3 hours duration each and one practical paper of 4 hours duration. Each paper shall carry 50 marks.
2. Numerical problems of at least 30% will compulsorily be asked in each theory paper.
3. In practical paper, each student has to perform two experiments one from each groups as listed in the list of experiments.
4. Practical examination will be of 4 hours duration- one experiment to be completed in 2 hours.  
The distribution practical marks as follows:  
Experiment : 15 + 15 = 30  
Viva voce : 10  
Internal assessment : 10
5. The external examiner should ensure that at least 16 experiments are in working order at the time of examination and submit a certificate to this effect.

## B.Sc. II

### EXAMINATION SCHEME:

1. There shall be 2 theory papers of 3 hours duration each and one practical paper of 4 hours duration. Each paper shall carry 50 marks.
2. Numerical problems of at least 30% will compulsorily be asked in each theory paper.
3. In practical paper, each student has to perform two experiments one from each groups as listed in the list of experiments.
4. Practical examination will be of 4 hours duration- one experiment to be completed in 2 hours.

The distribution practical marks as follows:

Experiment : 15+15=30

Viva voce : 10

Internal assessment : 10

5. The external examiner should ensure that at least 16 experiments are in working order at the time of examination and submit a certificate to this effect.

## B.Sc. III

### Scheme of Examination:

1. There shall be two theory papers of 3 hours duration each and one practical paper of 4 hours duration. Such paper shall carry 50 marks.
2. Each theory paper will comprise of 5 units. Two questions will be in each unit  
**The student will have the choice to answer one out of the two.**
3. Numerical problems of about 30 percent will compulsorily be asked in each theory paper.
4. In practical paper each student has to perform two experiments during examination.
5. Practical examination will be of 4 hours duration. The distribution of practical Marks will be as follows.  
Experiments: 15 + 15 = 30,  
Viva-voce: 10 Internal Assessment - 10.

## Practical Work:

### Chemistry

#### B.Sc.-I

#### PRACTICAL EXAMINATION

05 Hrs. M.M. 50

Three experiments are to be performed

1. Inorganic Mixture Analysis, four radicals two basic & two acid (excluding insoluble, Interfering & combination of acid radicals) OR Two Titrations (Acid-Bases, Redox and Iodo/Iodimetry) 12 marks

2. Detection of functional group in the given organic compound and determine its MPt/BPt.  
8 marks

O R

Crystallization of any one compound as given in the prospectus along with the Determination of mixed MPt.

O R

Decolorisation of brown sugar along with sublimation of camphor/ Naphthlene.

3. Any one physical experiment that can be completed in two hours including calculations.  
14 marks

4. Viva **10 marks**

5. Sessional **06 marks**

In case of Ex-Students two marks will be added to each of the experiments

#### B.Sc.-II

Hrs.5

#### PRACTICAL EXAMINATION

M.M.50

Three Experiments are to be performed.

1. Inorganic – Qualitative semimicro analysis of mixtures. OR 12 marks

One experiment from synthesis and analysis by preparing the standard solution.

2. (a) Identification of the given organic compound & determine its M.Pt./B.Pt. 6 marks

(b) Determination of R<sub>f</sub> value and identification of organic compounds by paper chromatography.

6 marks

3. Any one physical experiment that can be completed in two hours including calculations. 12 marks

4. Viva 10 marks

5. Sessional 04 marks

In case of Ex-Students one marks will be added to each of the experiment

## B.Sc.-III

8 Hrs

### PRACTICALEXAMINATION

M.M.50.

Five experiments are to be performed.

1. Inorganic - Two experiments to be performed.  
Gravimetric estimation compulsory carrying 08 marks.  
(Manipulation 3 marks). Anyone experiment from synthesis and analysis carrying 04 marks.
  2. Organic-Two experiments to be performed.  
Qualitative analysis of organic mixture containing two solid components. Compulsory carrying 08 marks  
(03 marks for each compound and two marks for separation).  
One experiment from synthesis of organic compound (Single step) carrying 04 marks.
  3. Physical-One physical experiment carrying 12 marks.
  4. Sessional 04 marks.
  5. Viva Voce 10 marks.
- In case of Ex-Students one mark each will be added to Gravimetric analysis and Qualitative analysis of organic mixture and two marks in Physical experiment

### Practical Work:

## Botany

### **B.Sc. I      Practical Scheme**

Time: 4hrs

MM:50

- Algae/Fungi/gram staining 10 Mark
- Bryophyta/Pteriophyta 10 Mark
- Gymnosperm 10 Mark
- Spotting 10 Mark
- Viva 05 Mark
- Sessional 05Mark

### **B.Sc. II Practical Scheme**

Time: 4hrsMM: 50

- Anatomy 08 Mark
- Economic Botany 04 Mark
- Physiology 08 Mark
- Ecology 10 Mark
- Spotting 10 Mark
- Viva 05 Mark
- Project work/Field study 05 Mark

## **B.Sc. III PRACTICAL SCHEME**

**M.M. 50**

• Physiology	08
• Ecology	08
• Utilization of Plants	05
• Biochemistry / Biotechnology	05
• Spotting (1-5 spots)	10
• Project work	04
• Viva V.	05
• Sessional	05
	<b>50</b>

## **Practical Work**

### **ZOOLOGY**

#### **B.Sc. I - Practical**

The practical work will, in general be based on the syllabus prescribed in theory and the candidates will be required to show knowledge of the following:-

- Dissection of Earthworm, Cockroach, Palaemon and Pila
- Minor dissection—appendages of Prawn & hastate plate, mouth parts of insects, radula of Pila.

**(Alternative methods: By Clay/Thermacol/drawing/Model etc.)**

- Adaptive characters of Aquatic, terrestrial, aerial and desert animals.
- Museum specimen invertebrate
- Slides- Invertebrates, frog embryology, Chick embryology and cytology,

#### **Scheme of Practical Exam**

**Time: 3hrs**

• Major Dissection	10Marks
• Minor Dissection	05Marks
• Comments on Excercise based on Adaptation	04Marks
• Cytological Preparation	05Marks
• Spots-8 (Slides-4, Specimens-4)	16Marks
• Sessional	10Marks
	<b>50</b>

#### **B.Sc. II -Practical**

The practical work will, in general be based on the syllabus prescribed in theory and the candidates will be required to show knowledge of the following:-

- Study of the representative examples of the different chordates (Classified characters).
- Dissection of various systems of Scoliodon-Afferent and Efferent branchial cranial nerves, internal ear.

**Alternative methods: By Clay/Thermacol/ Drawing/ Model etc.)**

- Simple microscopic technique through unstained or stained permanent mount.
- Study of prepared slides histological, as per theory papers.
- Study of limb girdles and vertebrae of Frog, Varanus, Fowl and Rabbit.

- Identification of species and individual of honey bee.
- Life cycle of honey bee and silkworm.
- Exercise based on Evolution and Animal behavior

<b>Scheme of Practical Exam</b>	<b>Time: 3:30hrs</b>
• Major dissection (Cranial nerves/efferent branchial vessel)	10Marks
• Exercise based on evolution	05 Marks
• Exercise based on applied zoology	05 Marks
• Exercise based on animal behavior	04 Marks
• Spotting-8 (slides-4, bones-2, specimen-2)	16 Marks
• Viva	05 Marks
Sessional marks.	05 Marks

**50**

### **B.Sc. III- Practical**

The practical work will, in general be based on the syllabus prescribed in theory and the candidates will be required to show knowledge of the following:-

#### **SCHEDULE FOR PRACTICAL EXAMINATION**

1.Haematological Experiment: (R.B.Cs./W.B.Cs. Counting/Blood group detection)	8Marks
2.Ecological Experiment:(Estimation of Population Density/Frequency/relative Density)	6Marks
3.Staining of Gram +ve and Gram -ve Bacteria/cytological experiment: Mitosis in onion Root	5Marks
4.Biochemical Experiment:(biochemical detection of carbohydrate/protein lipid)	6Marks
5.Chromatography	5Marks
6.Spotting : Study of permanent slides of Parasites,Comments on working Principles of pH meter / Calorimeter / centrifuge and Microscope	10Marks
7.Viva Voce	5Marks
8.Sessional	5Marks
	<b>50</b>

### **Practical Work:**

#### **PGDCA**

#### **Scheme of Practical Examination**

#### **PGDCA-105: Practical based on PGDCA-102**

Practical examination will be of three hours duration. All programme with flowchart and algorithms. The distribution of practical marks is as follows:-

Question 1 (with flowchart & algorithms) - 20



Question 2 (with flowchart & algorithms)	- 20
Question 3 (with flowchart & algorithms)	- 20
Viva-Voice	- 25
[Practical Copy + Internal Record]	- 15
Total	- 100

### **PGDCA-104: Practical based on PGDCA-103**

Practical examination will be of three hours duration. The distribution of practical marks is as follows:

Question1 (Word)	-	15
Question 2 (Excel/ Power point)	-	15
Question3 (Access)	-	15
Question4 (Tally)	-	15
Viva-Voice	-	20
[Practical Copy +Internal Record]	-	20
Software Demonstration	-	40
Project Report (Hard Copy + Soft Copy)	-	20
Project Demonstration/Presentation	-	20
Project Viva	-	20
Total	-	<b>100</b>
Total	-	<b>100</b>

### **Semester: II Semester:**

### **PGDCA-109: Practical based on PGDCA106, PGDCA107 and PGDCA108**

Scheme of Examination: -Practical examination will be of three hours duration. The distribution of practical marks will be as follows:

**The Project Work should be done by individual student.**

Practical examination will be of three hours duration. The distribution of practical marks will be as follows:-

Question 1(VB) -	15
Question 2(VB) -	15
Question 3(SQL) -	15
Question 4(HTML/Web Design) -	15
Viva -	25
[Practical Copy + Internal Record] -	15
Total -	<b>100</b>

**MA- Geography**

**Semester I**

**PRACTICAL I - ADVANCED CARTOGRAPHY**

**Graphs and Diagrams:** Triangular graph. Logarithmic and semi logarithmic graphs, scatter graphs; climatograph. Proportional circles, spheres and cubes.

**Thematic Maps:** Choropleth maps, isolines, Flow maps, isochrones and class intervals.

**Morphometric Analysis:** Profiles, Slope Analysis; Altimetric, and Clinographic curves; Block Diagrams.

**Semester II**

The M. A./M. Sc. Semester II examination in Geography shall consist of 500 marks.

There shall be four theory papers each of 100 marks and one practical of 100 marks as follows:

Paper VI Economic and Natural Resource Management. Paper VII Oceanography

Paper VIII Regional Development and Planning

Paper IX Social Geography

Paper X Practical-II : Map Projections, Interpretation and Surveying.

2. The theory papers shall be of three hours duration

3. Candidates will be required to pass separately in theory and practical examinations.

4. (a) In the practical examination the following shall be the allotment of time and marks.

(i) Practical record 20%

(ii) Lab work (up to 40%  
three hours)

(iii) Field work (up to 30%  
three hours)

(iv) Viva on i, ii & iii 10%  
above

**SEMESTER III**

1. The M.A. /M. Sc. Semester III examination in Geography shall consist of 500 marks.

There shall be four theory papers each of 100 marks and one practical of 100 marks as follows:

Paper XI : Population Geography

Paper XII : Settlement Geography Paper XIII (A) : Remote Sensing Techniques

**OR**

Paper XIII (B) : Biogeography and Ecosystem Paper XIV : Research Methodology

Paper XV : Practical – III: Remote Sensing and Quantitative Techniques

2. The theory papers shall be of three hours duration.

3. Candidates will be required to pass separately in theory and practical examinations.

4. (a) In the practical examination the following shall be the allotment of time and marks.

(i) Practical record : 20%

(ii) Lab work (up to 70%

Four hours) :

(iii) Viva on i.& ii. 10%

Above :

### **SEMESTER IV**

1. The M.A./M.Sc. Semester IV examination in Geography shall consist of 500 marks.

There shall be three theory papers and one Field Work report each of 100 marks and one practical of 100 marks as follows.

#### **S. No. Paper Title**

1. XVI : Urban Geography

2. XVII : Agricultural Geography

3. XVIII (A) : Geographical Information System

**OR**

4. XVIII (B) : Environmental Geography

5. XIX : Field Work (Physical and Socio- Economic)

6. XX : Practical-IV : Geographical Information System and Quantitative Techniques

2. The theory papers shall be of three hours duration.

3. Candidates will be required to pass separately in theory and practical examinations.

4. Candidates will be required to submit their Field Report in three copies in hard bound at least one hundred pages for Valuation.

5. (a) In the practical examination the following shall be the allotment of time and marks

(i) Practical record 20%

(ii) Lab Work (up to Four Hours) 70%

(iii) Viva on i & ii above 10%

(b) The external and internal examiners shall jointly submit marks.

(c) All the candidates shall present at the time of practical examination their practical record regularly signed by the teacher concerned