

M.Sc. (Previous) DEGREE EXAMINATION, DECEMBER 2008.

First Year

Botany

Paper I — BIOLOGY AND DIVERSITY OF ALGAE, BRYOPHYTES,
PTERIDOPHYTES AND GYMNOSPERMS

Time : Three hours

Maximum : 100 marks

SECTION A — (5 × 8 = 40 marks)

Answer any FIVE questions.

Each question carries 8 marks.

1. Frustule.
2. Myxophyceae.
3. Fossil bryophytes.
4. *Anthoceros*.
5. *Rhynia*.
6. Apospory.
7. Cones of gymnosperms.
8. *Welwischia*.

SECTION B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

9. (a) Write a detailed account on the economic importance of Algae.
Or
(b) Describe different life cycle patterns found in the members of Algae.
 10. (a) Give a comparative account of the gametophyte and sporophyte in Marchantiales and Bryales.
Or
(b) Describe in detail the spore dispersal mechanism in Bryophytes.
 11. (a) Give an account of aquatic Pteridophytes.
Or
(b) What is sorus? Discuss its evolutionary trend in Pteridophytes.
 12. (a) Write an essay on fossil gymnosperms.
Or
(b) What are the salient features of Gnetales? Discuss their evolutionary significance.
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(DBOT 02)

M.Sc. (Previous) DEGREE EXAMINATION, DECEMBER 2008.**First Year****Botany****Paper II — SYSTEMATICS OF ANGIOSPERMS AND PLANT ECOLOGY****Time : Three hours****Maximum : 100 marks****SECTION A — (5 × 8 = 40 marks)****Answer any FIVE questions.****Each question carries 8 marks.**

1. Deciduous forests.
2. Alpha taxonomy.
3. Criteria of plant classification.
4. Plant taxa.
5. Biological magnification.
6. Concept of climax.
7. Alternate energy resources.
8. Edemism.

SECTION B — (4 × 15 = 60 marks)**Answer ALL questions.****Each question carries 15 marks.**

9. (a) Describe the present vegetation types in India.
Or
(b) Give a comparative account on the natural and phylogenetic systems of plant classification.
 10. (a) Give a detailed account of International code of botanical nomenclature.
Or
(b) Discuss the role of cytology and phytochemistry in plant taxonomy.
 11. (a) Describe the succession in plant communities using a suitable example.
Or
(b) Describe the biogeochemical cycle of nitrogen.
 12. (a) What is environmental pollution? Discuss the causes and consequences of water pollution.
Or
(b) Give an account of the conservation of natural resources of energy.
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Paper III — CYTOLOGY, GENETICS AND PLANT BREEDING

Time : Three hours

Maximum : 100 marks

SECTION A — (5 × 8 = 40 marks)

Answer any FIVE questions.

All questions carry 8 marks.

1. Cell cycle.
2. Chromatin.
3. Evolution of crop plants.
4. Structural alteration of chromosomes.
5. Chromosome mapping.
6. Induced mutations.
7. Clonal selection.
8. Hybrid vigour.

SECTION B — (4 × 15 = 60 marks)

Answer ALL questions

Each question carries 15 marks.

9. (a) Describe the meiotic cell division and add note on its importance.

Or

- (b) Give a detailed account of the structural organization of chromosomes.

10. (a) What are special types of chromosomes? Describe their structure and functions.

Or

- (b) Write detailed account on the allopolyploidy.

11. (a) What are multiple alleles? Describe them using suitable example.

Or

- (b) Write an essay on sex-linked inheritance.

12. (a) Explain the applications of bulk and back cross methods in plant breeding programme.

Or

- (b) Describe the applications of pure line and mass selection methods in plant breeding programme.

(DBOT 04)

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Paper IV — PLANT PHYSIOLOGY AND METABOLISM

Time : Three hours

Maximum : 100 marks

SECTION A — (5 × 8 = 40 marks)

Answer any FIVE questions.

Each question carries 8 marks.

1. Plant cell water potential.
2. Structure and function of guard cells.
3. Mechanism of enzyme action.
4. Oxidative electron transport.
5. Biosynthesis of amino acids.
6. β -oxidation.
7. Physiological effect of ABA.
8. Heat shock proteins.

SECTION B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

9. (a) Explain the cohesion — tension theory and its application in water transport through xylem in plants.

Or

(b) What are membrane transport proteins? Describe their role in the transport of inorganic nutrients using suitable examples.

10. (a) What is photorespiration? Describe its pathway and significance.

Or

(b) Describe pentose phosphate pathway and its importance.

11. (a) Describe the mechanism of protein synthesis.

Or

(b) What are fatty acids? Describe their biosynthesis in plants.

12. (a) What is phytochrome? Give an account of phytochrome induced plant responses.

Or

(b) Describe the physiological effects and mechanism of action of auxins in higher plants.
