

First Year

Botany

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

Time : Three hours
100 marks

Maximum :

Answer any FIVE questions from Section A.

Each question carries 8 marks.

Answer ALL questions from Section B.

Each question carries 15 marks.

SECTION A — (5 × 8 = 40 marks)

1. Heterocyst.
2. Auxospore formation.
3. Anthoceras.
4. Archegoniophore.
5. Rhynia.
6. How pteridophytes are more evolved over bryophytes?
7. Caytonia.
8. Wood of coniferales.

SECTION B — (4 × 15 = 60 marks)

9. (a) Describe reproduction and life cycle in Algae.
Or
(b) Write an account on the thallus organisation in phaeophyta.
10. (a) Describe the general characters and range of thallus in bryophytes.
Or
(b) Describe the evolution of sporophyte in bryophytes.
11. (a) Describe heterospory and seed habit in pteridophytes.
Or
(b) Write an account on the classification of pteridophytes.
12. (a) Describe the evolutionary tendencies in the female gametophyte of gnetales.
Or
(b) Write an account on the distribution and classification of gymnosperms.

(DBOT02)
M.Sc. (Previous) DEGREE EXAMINATION, DECEMBER 2007.

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Paper II — SYSTEMATICS OF ANGIOSPERMS AND PLANT ECOLOGY

Time : Three hours
marks

Maximum : 100

SECTION A — (5 × 8 = 40 marks)

Answer any FIVE questions.

Each question carries 8 marks

1. Merits and demerits of Engler and Prantl system of classification.
2. Herbalists.
3. Type concept.
4. Alkaloids.
5. Concept of ecosystem.
6. Population interactions.
7. Conservation of natural resources.
8. Evolution of present day vegetation.

SECTION B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks

9. (a) Describe the vegetation types in India.
Or
(b) Describe the dicta of Hutchinson system of classification. What are its merits and demerits?
10. (a) Write an essay on principles of plant taxonomy.
Or
(b) Describe the role played by cytology in resolving taxonomic disputes.
11. (a) Describe biogeochemical cycles with special reference to phosphorus and sulphur.
Or
(b) Write an essay on succession in plant communities.
12. (a) Give a detailed account of floristic regions of India.
Or
(b) Enumerate the salient features of endemism and continental drift.

(DBOT 03)

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Paper III — CYTOLOGY, GENETICS AND
PLANT BREEDING

Time : Three hours
100 marks

Maximum :

Answer any FIVE questions from Section A.

Each question carries 8 marks.

Answer ALL questions from Section B.

Each question carries 15 marks.

SECTION A — (5 × 8 = 40 marks)

1. Synaptonemal complex.
2. Chromosome banding.
3. Translocation heterozygotes.
4. Meiosis in haploids.
5. Tetrad analysis.
6. Laws of probability.
7. Recurrent selection.
8. Germplasm collections.

SECTION B — (4 × 15 = 60 marks)

9. (a) Bring out the differences between prokaryotes and eukaryotes.
Or
(b) Write an essay on the organization of nucleolus.
10. (a) Give an account of the salient features of polyploids.
Or
(b) Describe the special types of chromosomes.
11. (a) Describe the role of mutations in plant breeding.
Or
(b) Enumerate the salient features of chromosome mapping in eukaryotes.

12. (a) Describe briefly the steps involved in pedigree method of breeding.

Or

(b) Describe the bulk method of breeding and its applications. What are its merits and demerits?

(DBOT 04)

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Paper IV — PLANT PHYSIOLOGY AND METABOLISM

Time : Three hours
100 marks

Maximum :

Answer any FIVE questions from Section A.

Each question carries 8 marks.

Also answer ALL the questions from Section B.

Each question carries 15 marks.

SECTION A — (5 × 8 = 40 marks.)

1. Chemistry of Water.
2. Antitranspirants.
3. Cyanide Resistant Respiration.
4. RUBISCO.
5. Biochemistry of Nitrogen fixation.
6. Glyoxalate cycle.
7. Antigibberellins.
8. Vernalization.

SECTION B — (4 × 15 = 60 marks.)

9. (a) What is meant by water potential? Explain any two methods of measuring the components of water potential in plants.

Or

(b) Explain the Current views on the mechanism of Stomatal opening and closing.

10 (a) Give an account on the recent advances in photochemistry of light with reference to Photosystem II.

Or

(b) Write critical note on the Ultra structure of Mitochondria and discuss the mechanism of oxidative phosphorylation.

- 11 (a) Give brief mechanism of protein synthesis in Prokaryotes. How does it differ from Eukaryotes?
Or
(b) Explain briefly how fats are biosynthesised in plants.
12. (a) Give an account of physiological roles of Gibberellins along with their commercial applications.
Or
(b) Describe and critically evaluate the mechanisms underlying photoperiodic induction of flowering in plants.