

(DBOT 01)
M.Sc. DEGREE EXAMINATION,
DECEMBER 2019.
First Year
Botany

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

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE of the following questions.

1. Classification of cyanophyta
2. Phylogenetic relations in chlorophyta
3. Thallus in hepaticopsida
4. General characters of bryophytes
5. Reproduction in lycopsida
6. Fossil pteridophytes
7. General characters of caytoniales
8. Cones in coniferales

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Describe the structure reproduction and life cycle patterns of charophyta.
Or
(b) Give an account of fossil algae and their evolutionary tendencies.
10. (a) Compare and contrast the reproduction and evolutionary tendencies in Hepaticopsida and Bryopsida.
Or
(b) Give an account of thallus organization, reproduction and evolutionary trends in anthocerotopsida.
11. (a) Describe the structure and reproduction in psilotopsida.
Or
(b) Give an account of fossil pteridophytes.
12. (a) Write an essay on pteridospemales.
Or
(b) Compare and contrast the reproduction and evolutionary trends in coniferales and gnetales.
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(DBOT 02)

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Paper II — SYSTEMATICS OF ANGIOSPERMS
AND PLANT ECOLOGY

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE questions from the following.

1. Natural system of classification.
2. Demerits in Takhtajan system of classification.
3. Types in nomenclature.
4. Minor categories.
5. Hydrological cycle.
6. Biological magnification.
7. Additional energy sources.
8. Endemism.

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Describe the past vegetation types and distribution.

Or

- (b) Compare and contrast the systems of classifications of Cronquist and Bessey.

10. (a) Describe the principles of plant taxonomy.

Or

- (b) Explain the role of phytochemistry in resolving taxonomic disputes.

11. (a) Describe the concept of ecosystem and add a note on food chains.

Or

- (b) Give an account of biogeochemical cycle with reference to carbon.

12. (a) Describe the causes, control and consequences of environmental pollution.

Or

- (b) Describe the floristic regions of India.

(DBOT 03)

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Paper III — CYTOLOGY, GENETICS AND PLANT
BREEDING

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE questions from the following.

1. Telomere
2. Karyotype analysis
3. Lamp brush chromosomes
4. Evolution of wheat
5. Modified dihybrid ratios
6. Multiple alleles
7. Recurrent selection
8. Hybridization

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Describe the significance of mitosis and meiosis.

Or

- (b) Describe the various types of banding techniques studied by you.

10. (a) Give an account of structural alterations in chromosomes.

Or

- (b) Describe the origin, production and melosis of haploids.

11. (a) Describe chromosome mapping in eukaryotes.

Or

- (b) What is mutation? How do you induce them and add a note on mode of action of mutagens.

12. (a) How plant introduction helped plant breeding?

Or

- (b) Distinguish between self and cross pollinated crops breeding methods

(DBOT 04)

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Paper IV — PLANT PHYSIOLOGY AND METABOLISM

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE questions from the following.

1. Hormonal and energy dependent hypothesis
2. Membrane transport proteins
3. Light harvesting complexes
4. ATP synthesis
5. GS-GOGAT
6. Glyoxalate cycle
7. Hormone receptors
8. Abscisic acid.

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Give an account of transpiration.

Or

(b) Describe the criteria of essentiality.

10. (a) Describe C3 and C4 cycles.

Or

(b) Give an account of pentose phosphate pathway.

11. (a) Describe the mechanism of nitrogen fixation.

Or

(b) Classify lipids and describe their structure and functions.

12. (a) Describe the phytochemical and biochemical properties of phytochrome.

Or

(b) Give an account of plant responses to water stress.