A–1205

Total Pages : 4 **Roll No. .....**

MSCBOT-502

M.Sc. Botany (MSCBOT)

Algae and Bryophytes

Examination February, 2026

Time : 2:00 Hrs. Max. Marks : 70

Note* :–** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

Long Answer Type Questions (2×19=38)

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Discuss the modern systems of algae classification and justify the placement of major algal groups based on pigments, storage products, and reproductive structures.

2. Compare the life-cycle and reproductive strategies in Chlorophyta and Phaeophyta.

3. "Economic value of algae is far greater than commonly perceived." Present a detailed account on the industrial, pharmaceutical, and environmental applications of algae with examples.

4. Describe the morphology, anatomy, and reproduction of Marchantia.

5. "Bryophytes prevent soil erosion, regulate hydrology, and act as ecological pioneers." Evaluate any *two* statement with :

   (a) Sphagnum and bog formation

   (b) Bryophytes as primary colonizers

   (c) Role in watershed conservation

   (d) Support with field-based ecological reasoning

Section–B

Short Answer Type Questions (4×8=32)

***Note* :–** Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Distinguish between homothallic and heterothallic reproductive strategies in algae. How do these strategies affect genetic variability ?

2. Justify the statement : "Cyanophyta are considered the pioneers of oxygenic photosynthesis on Earth."

3. Discuss how the ultrastructure of diatom frustules contributes to their ecological success.

4. Explain how the protonema stage in mosses contributes to the spread and regeneration of the plant.

5. Describe the adaptive features of the sporophyte in Andreaea (granite moss) that allow it to grow on rocks.

6. Discuss the structural adaptations of the sporophyte of Polytrichum.

7. Compare the antheridial structures of Marchantia and Anthoceros. How are these structures related to water availability ?

8. Takakia is considered a "living fossil." Discuss unique features that justify this status.

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