

2026

BOTANY — HONOURS**Paper : DSCC-5****(Phycology)****Full Marks : 75***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.***1. Answer *any six* questions :**

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| (a) What is physiological anisogamy? Mention where it is found. | 1+1 |
| (b) Briefly discuss the contribution of G. M. Smith to Phycology. | 2 |
| (c) What is a pyrenoid? State its function. | 1+1 |
| (d) Mention any two distinct shapes of algal chloroplast with examples. | 2 |
| (e) Name the pigments found in Phaeophyceae and Rhodophyceae. | 1+1 |
| (f) What is an algal bloom? | 2 |
| (g) What is a photobioreactor? | 2 |
| (h) Name any two algae used as food. | 2 |

2. Answer *any three* questions :

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| (a) State the role of algae in phytoremediation. | 5 |
| (b) Briefly discuss the relation of Charophyta to land plants. | 5 |
| (c) Distinguish between isomorphic and heteromorphic haplontic life cycles in algae with suitable diagrams. | 3+2 |
| (d) Discuss the role of phytoplanktons in aquatic ecosystems. | 5 |
| (e) Explain the sexual reproduction schemes seen in <i>Chlamydomonas</i> . | 5 |

3. Answer *any four* questions :

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| (a) Briefly discuss the evolution of chloroplast ultrastructure among different groups of algae with suitable diagrams. What are phycobilisomes? | (7+3)+2 |
| (b) Describe algal culture and cultivation in brief. State the role of algae in CO ₂ sequestration. | 8+4 |
| (c) Why is auxospore regarded as a restorative spore? Describe the cell structure of Diatom with suitable diagram. State the differences between Pennate and Centric diatoms in terms of cell structure. | 2+6+4 |

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- (d) Give an outline of the classification of algae by Lee (2018). Write down the salient features of Xanthophyceae with examples. 8+4
- (e) Describe the process of sexual reproduction with proper labelled sketches in both macrandrous and nannandrous species in *Oedogonium*. Name any two algae used as biofuel. (5+5)+2
- (f) Compare the cell structure of Blue-green Algae and Chlorophyceae with special emphasis on cell wall, pigments and reserve food. Describe the structure and function of heterocyst. 6+6
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