

BOTANY (Paper I)

Time Allowed : Three Hours

Maximum Marks : 300

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

All questions carry equal marks.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Answer any three of the following in not more than 200 words each:
 - (a) Bryophytes function as “indicator plants” and as “element indicators”. Justify.
 - (b) Why is Dryopteris called walking fern? Why are Azolla and Marsilea lumped with other ferns in the order Filicales?
 - (c) What are extremophylls? Why are they getting lot of attention now?
 - (d) Despite their similarities with other bacteria, Cyanophyceae share several morphological, biochemical and biological characters with Rhodophyceae. Enumerate these characters and discuss the significance of this similarity.
2. Sexual reproduction in Cystopus as well as Vaucheria is oogamous, yet there are differences in detail. With brief description and appropriate diagrams bring out the differences and also comment upon the mode of nutrition of the two thallophytes.
3. Distinguish between
 - (a) White rust and Black rust
 - (b) Downy mildews and Powdery mildews
 - (c) Root-knot and Root-rot disease
 - (d) Late blight and Early blight of potato
4.
 - (a) Explain why Anthocerotae is considered a synthetic group.
 - (b) Explain, by referring to anatomy of stem, morphology of reproductive parts and biology of reproduction of Gnetum, why this gymnosperm is considered advanced.

SECTION 'B'

5. Attempt any three of the following in not more than 200 words each
 - (a) Explain the difference between somatic embryos and sexual embryos
 - (b) What are subterranean flowers? Name some plants which carry such flowers. What can be the possible advantages and disadvantages of such flowers?
 - (c) Describe the structure and function of medullary rays.
 - (d) With the help of labelled diagram describe the peculiarity in the anatomy of Dracaena stem.
6. Discuss the role of systematic and biosystematics in biodiversity inventorisation. Describe the parameters which are employed for estimation of biodiversity.

7.
 - (a) Describe the phenomenon of pollen-stigma interaction.
 - (b) Write brief account on in vitro fertilization.
 - (c) Describe the procedure of intra-ovarian pollination.
8.
 - (a) By referring to specific examples discuss the role anatomy can play in taxonomy.
 - (b) Give specific differences between: (i) Spring wood and Autumn wood (ii) Cystoliths and Raphides (iii) Tectum and Tapetum (iv) Abscission and Wound healing