

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) What are plasmids? How are they related to bacteria?
 - (b) Discuss the significance of heterospory seen in Selaginella.
 - (c) Briefly describe the physiological changes induced in a host plant by a parasite.
 - (d) With examples discuss how progressive sterilization of sporogenous tissue occurs in bryophytes.
2. Give a concise account of the life cycle of the causative organism, symptoms and control measures of any four of the following:
 - (a) Powdery mildew of Pea
 - (b) White rust of Brassica
 - (c) Blast of rice
 - (d) Little leaf of brinjal
 - (e) Damping off of seedlings
3.
 - (a) Give an account of the structure and mode of reproduction of bacteriophage.
 - (b) Describe the morphological nature of the sporocarp of Marsilea.
 - (c) Describe the alternation of generations in Ectocarpus.
4.
 - (a) Describe the life history of Sphagnum.
 - (b) Discuss the usefulness of microbes in agriculture.
 - (c) Write notes on the following: (i) Mycotoxins (ii) Megasporophyll of Isoetes (iii) Reproductive structures of Chara (iv) Heterothallism in Fungi

SECTION 'B'

5. Answer any three of the following in not more than 200 words each:
 - (a) Give an account of the female cone of Pinus.
 - (b) What is apomixis? What is its significance in plants?
 - (c) Describe the method of producing somatic hybrid plants.
 - (d) Describe the floral structure of Musa along with floral diagram and floral formula.

6. Compare the following
- (a) System of classification of plants by Bentham Hooker and Engler & Prantl.
 - (b) Female gametophyte of *Cycas* and *Gnetum*.
 - (c) Inflorescence of *Euphorbia* and *Gnetum*.
7. (a) Enumerate with brief notes the cytogenetic criteria in biosystematics.
- (b) Describe the characteristic features of the family Cucurbitaceae. Give the floral formula and floral diagram. Write botanical names of five plants of the family having economic importance.
- (c) Write short notes on: (i) Totipotency (ii) Orchid flower (iii) Pollen sterility (iv) Somatic embryo
8. (a) Describe the structure and morphological nature of endosperm in angiosperm.
- (b) Compare the floral structure of Magnoliaceae with that of Ranunculaceae.
- (c) Write a brief account on each of the following: (i) male cone of *Cycas* (ii) Flower of a grass (iii) Leaf anatomy of C_4 plants
- (d) Briefly describe each of the following: (i) Tetrasporic embryo sac (ii) Somaclonal variation (iii) Wood of *Gnetum* (iv) Polarity (v) Flower of Umbelliferae