

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.

The number of marks carried by a question/part is indicated against it.

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. Briefly describe the importance of the following:

10×6=60

 - (a) Somaclonal variation
 - (b) Lichens in environment
 - (c) Polarity
 - (d) Microbes in bioremediation
 - (e) Cryptogams
 - (f) Parasexuality
2. Citing suitable examples, explain the following:

20×3=60

 - (a) What are prions and why is there a need to understand them thoroughly?
 - (b) How are moulds both a bane and boon for human beings?
 - (c) The embryo rescue techniques for successful raising of recombinants.
3. Draw well labelled diagrams of the following:

15×4=60

 - (a) L.S. cone of Selaginella
 - (b) L.S. capsule of Funaria
 - (c) Sex organs of Chara
 - (d) Cleistothecia of Erysiphe and Phyllactinia
4.
 - (a) Discuss the role of amphibious plants in the evolution of land plants.

15
 - (b) Describe to what extent has the technique of micropropagation been successful in achieving our goals.

15
 - (c) What is meant by modelling and how does it help in disease forecasting?

15
 - (d) Giving suitable reasons, describe inter-alia evolutionary status of Psilotum, Selaginella and Marsilea.

15

SECTION 'B'

5. What are the differences between the following:

10×6=60

- (a) Systematics and Classification
 - (b) Fascicular and Cork cambium
 - (c) Megasporogenesis and Megagametogenesis
 - (d) Apiaceae and Umbelliferae
 - (e) Palaeozoic and Coenozoic plants
 - (f) Isotype and Syntype
6. (a) What are Ubisch bodies? How and where are these formed and what is their role? **15**
- (b) What is interxylary phloem? How is it formed? Support your reply with suitable examples and at least one diagram. **15**
- (c) Describe the characteristic features of the component on the basis of which the basic source/s of a sample of honey is/are determined. **15**
- (d) Citing suitable examples, explain how laxity in quarantine procedure can have disastrous effects. **15**
7. (a) Citing suitable examples, defend the statement that “there is need to combine ethnobotany with IPR”. **12**
- (b) Describe various mechanisms employed to raise hybrids between incompatible species. **12**
- (c) Explain the role of macro and micro biomolecules in taxonomy. **12**
- (d) Describe the evolutionary status of Gnetum. **12**
- (e) What is Nemec phenomenon? Comment on its significance. **12**
8. Describe the following:
- 10×6=60**
- (a) Energy plantations
 - (b) Gynoecium in Asclepiadaceae, Brassicacea and Poaceae
 - (c) Stomatal apparatus in Brassica, Dianthus and Poa.
 - (d) Pollinium
 - (e) Retting
 - (f) OTUs