

BOTANY (Paper I)

Time Allowed : Three Hours

Maximum Marks : 250

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.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

SECTION 'A'

1. Briefly describe the following in not more than 150 words each: **10×5=50**
- (a) Role of microbes in soil nutrient cycling
 - (b) Algae as bioindicators
 - (c) Concept of Progymnosperms
 - (d) Chemical nature of viroids and their transmission in plants
 - (e) Evolution of sexual reproduction in fungi
2. (a) Describe the range of vegetative structures with suitable diagrams in volvocales and their phylogenetic relationships. **20**
- (b) Describe the disease symptoms, causal organism and the control measures of the loose smut of wheat. **15**
- (c) Draw well labelled diagram of the L.S. of Anthoceros sporophyte. Discuss the evolutionary significance of Anthoceros also. **15**
3. (a) Draw well labelled diagram of the T.S. of Teleutospore of Puccinia and give a brief description of the same. **15**
- (b) Describe the symptoms, causal organism and the control measures of white rust of crucifers. **15**
- (c) Discuss the distribution of living Gymnosperms in India and their economic importance. **20**
4. (a) Give the name of the causal organism, disease symptoms and disease control measures of the following: Red rot of sugarcane and Late blight of potato **25**
- (b) Give an account of sexual fruiting bodies in Ascomycetes. **15**
- (c) Describe the method of vegetative reproduction in Bryophytes. **10**

SECTION 'B'

5. Describe the following in about 150 words each: **10×5=50**
- (a) Mycotoxins
 - (b) Concept of totipotency in higher plants

	(c)	Dye yielding plants	
	(d)	Ethnobotanical knowledge and beliefs in species conservation	
	(e)	Use of somaclonal variations in crop improvement	
6.	(a)	Write an account of the following families with respect to floral structures. Give the botanical names of three important plant species belonging to each of the families and specify their uses: Ranunculaceae and Fabaceae	20
	(b)	Discuss the components of a full-fledged Botanical garden.	15
	(c)	Give an account of micropropagation and its utility towards ex-situ conservation of rare and endangered plants.	15
7.	(a)	Describe the oil yielding plants of India and their economic importance.	12.5
	(b)	Distinguish the Androecium of Malvaceae, Asteraceae and Asclepiadaceae from each other.	12.5
	(c)	“Somatic hybrids can be characterized by a variety of methods.” Substantiate the above statement.	12.5
	(d)	Compare the floral characters of the family Solanaceae and Malvaceae.	12.5
8.	(a)	Give an account of Vavilov’s “Centres of Origin” of the cultivated plants.	17
	(b)	Describe the method of production of Androgenic haploids.	17
	(c)	Describe the anomalous secondary growth in monocots with suitable diagram.	16