

# Botany

## Paper-I

**Time Allowed: Three Hours**

**Maximum Marks: 300**

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- Note:* 1. The figures in the margin indicate full marks for the questions.
2. Candidate should answer questions No. 1 and 5 which are compulsory and any **three** of the remaining questions, selecting at least **one** from each section.

### SECTION – A

1. Answer any **three** of the following in not more than **250** words each:

20×3=60

- (a) Describe the role of salicylic acid in host-parasite interaction.
- (b) Describe method of replication of TMV.
- (c) Describe different types of apomixis in plants.
- (d) Describe zoospore types in fungi and their significance in fungal classification.
- (e) Describe genetic recombination in bacteria by transformation.

2. Distinguish between following:

12×5=60

- (a) Mycoplasma, phytoplasma and spiroplasma
- (b) Ultra-structure of a typical cell of true fungi and oomycetes.
- (c) Salient features of Asclepiaceae and Malvaceae.
- (d) Clamp connections and ascus development in fungi.
- (e) Phytoalexins and fungal toxins.

3. Answer the following: 15×4=60

- (a) Write a short account of use of microbes in medicines.
- (b) Describe any one plant disease caused by nematode.
- (c) Write about prophylactic measures for control of plant diseases.
- (d) Write about salient features of Cycadales and range of reproductive structures in them.

4. Write short notes on the following: 12×5=60

- (a) Range of thallus structure and reproduction in Cyanophyceae.
- (b) What are Hornworts? Describe their life-cycle by giving suitable examples.
- (c) Write about distinguishing characters of different algal divisions based on pigment distribution in them.
- (d) Write salient features of Psilophyta with special reference to their phylogenetic relationship with other groups.
- (e) Write about the development of male gametophyte in an angiospermic plant.

## SECTION – B

5. Answer any **three** of the following in not more than **250** words each:

20×3=60

- (a) Write about three major plant diseases caused by viruses.
- (b) Write about salient features, morphological diversity and mode of reproduction in Chlorophyta.
- (c) What do you mean by somatic hybridization? What are different methods of somatic hybridization? Describe its applications by giving suitable examples.
- (d) What is micropropagation? How it is achieved using plant cell, tissue or organ culture. Give suitable examples.
- (e) Write about the economic importance of gymnosperms by giving suitable examples.

6. Answer the following questions:

12×5=60

- (a) Describe range of floral structures in family Brassicaceae by giving suitable examples.
- (b) Write about the salient features of family Orchidaceae. Give detailed account of its economic importance by giving suitable examples.
- (c) Write a detailed account of Indian spices giving suitable examples. Cite their economic importance.
- (d) Describe atleast ten gum and resin yielding plants of India and their economic importance.
- (e) What is biofuel? How oil yielding plants can be used to obtain biofuel? Describe economic importance of biofuel.

7. Write explanatory notes on following: 12×5=60

- (a) Microbes as decomposers and agents of nutrient recycling.
- (b) AM fungi and their role as biofertilizers.
- (c) Anomalous secondary growth in monocots.
- (d) Palynology in plant taxonomy.
- (e) Parasexuality in fungi.

8. Distinguish between the following: 6×10=60

- (a) Primary and dolipore septum.
- (b) Monoplanetic and diplanetic behaviour of zoospores in fungi.
- (c) Necrotrophs and biotrophs.
- (d) Animal and plant viruses.
- (e) Placentation in Malvaceae and Solanaceae.
- (f) Somatic hybrids and cybrids.
- (g) Botanical Gardens and Biosphere Reserves.
- (h) Coniferales and Gnetales
- (i) Archaeobacteria and Eubacteria
- (j) Drugs and Narcotics