Botany
Paper-I

Time Allowed: Three Hours
Maximum Marks: 300

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) Salients features of Asclepiaceae and Malvaceae.

(d) Clamp connections and ascus development in fungi.

(e) Phytoalexins and fungal toxins.
3. Answer the following: 15\times4=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\times5=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 at least 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: 12x5=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: 6x10=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) Archaeabacteria and Eubacteria
   (j) Drugs and Narcotics