



**CSM – 14 / 15**

**Botany**

**Paper – I**

*Time : 3 hours*

*Full Marks : 300*

*The figures in the right-hand margin indicate marks.*

*Candidate should attempt Q. No. 1 from Section – A and Q. No. 5 from Section – B which are compulsory and **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 **200** words each : **20×3 = 60**
  - (a) Briefly discuss the applications of microbes in industry.
  - (b) Explain the structure of a typical bacterial cell with the help of well-labelled diagram.

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- (c) Describe the system of classification given by Takhtajan. Discuss its merits and demerits.
- (d) Write an account of reproduction in viruses.
2. (a) Describe the evolution of stele in pteridophytes. 20
- (b) Discuss briefly the economic importance of gymnosperms. 20
- (c) Write characteristic features of the family Asteraceae and its economic importance. 20
3. (a) Explain the different modes of reproduction in algae with the help of suitable diagrams. 20
- (b) Name the pathogen, write the symptoms and control measures for white rust of crucifers. 20
- (c) With the help of suitable diagrams, describe different methods of gene transfer in bacteria. 20
4. (a) Discuss the mode of infection of fungal disease and state the molecular basis of infection. 20

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(2)

Contd.

- (b) Write a short note on fungal toxins. 20
- (c) State the salient features of Asclepiadaceae family. 20

## Section – B

5. Answer any **three** of the following : 20×3 = 60
- (a) Write a short note on totipotency.
- (b) Explain different types of probability distributions.
- (c) Describe floral mechanisms favouring cross-pollination.
- (d) Describe different types of stomata found in dicots giving suitable examples and diagrams.
6. (a) List Vavilov's 'centres of origin of crop plants' with examples of any two plants from each centre. Name any two crops where centre of origin and centre of world production are far apart. 30
- (b) What do you understand by ethnobotany ? Explain its importance in Indian context. 30

7. (a) What is an embryo ? With the help of suitable diagrams, explain the patterns of embryo development in dicots. Discuss the differences in embryo development in monocots and dicots. 30
- (b) Write an account on the development of male gametophyte in angiosperms. 30
8. Write short notes on the following :  $20 \times 3 = 60$
- (a) Protoplast culture
- (b) Plants as source of spices
- (c) Compare anatomy of the leaves of  $C_3$  and  $C_4$  plants

