

CSM – 14/21
Botany
Paper – I

Time : 3 hours

Full Marks : 300

The figures in the right-hand margin indicate marks.

*Candidates should attempt Q. No. 1 from Section – A and Q. No. 5 from Section – B 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 : $20 \times 3 = 60$
 - (a) Give a detailed account of the life cycle patterns of algae with suitable diagrams.
 - (b) Describe types of fructifications found in different groups of fungi with suitable examples.
 - (c) Schematically represent the system of classification proposed by Cronquist (1957) and compare it with Bentham and Hooker's natural system of classification.

- (d) Give an account of structural variation of megasporophylls in different species of *Cycas* and add a note on distribution of *Cycas* species in India.

2. Answer the following : $20 \times 3 = 60$

- (a) Describe the stages of generalised and specialised transduction in bacteria.
- (b) Write the diagnostic features of Euphorbiaceae with floral diagrams and floral formulae.
- (c) Discuss the evolution of bryophytes in the lights of 'regressive evolution theory'.

3. Answer of the following : $20 \times 3 = 60$

- (a) On the basis of Zimmerman's 'Telome theory', describe how the elementary processes help in explaining the evolution of the vegetative and reproductive structures in different groups of pteridophytes.
- (b) Write about the disease cycle, symptoms and control of Rice Tungro Virus (RTV).
- (c) Describe the characteristic features and economic importance of Apiaceae.

4. Write explanatory notes on the following :

$20 \times 3 = 60$

- (a) Homothallism and heterothallism in fungi

- (b) Mechanisms of dissemination of plant diseases
- (c) Reproduction in Bacillariophyceae

SECTION – B

5. Answer any **three** of the following : $20 \times 3 = 60$
- (a) Give an account of the cultivation and uses of major spice and condiment yielding plants of India.
 - (b) Describe different types of permanent tissues with suitable illustrations and examples.
 - (c) Give a comparative account of developmental stages of dicot- and monocot-embryo with illustration.
 - (d) State the principle of chi-square test and its significance.
6. Answer the following : $20 \times 3 = 60$
- (a) Give an account of different types of endosperm development with suitable diagrams.
 - (b) Write an essay on different types of dye obtained from plants mentioning its source and uses.

- (c) Briefly describe the methods of protoplast isolation and its culture.

7. Answer the following : $20 \times 3 = 60$

- (a) Discuss the role of Botanical Gardens adding a brief note on major botanic gardens of India.

- (b) Characterize different types of stomata in angiosperms with suitable illustration and example.

- (c) State the importance of spore-pollen morphology in modern scientific research.

8. Write explanatory notes on the following :

$20 \times 3 = 60$

- (a) Ethnobotany in India
- (b) Essential components of culture medium to support in vitro plant growth
- (c) Probability distribution

