

<b>CSM – 14/16</b>
<b>Botany</b>
<b>Paper – I</b>

*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**

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1. Answer any **three** of the following :  $20 \times 3 = 60$ 
  - (a) Discuss the role of microbes in the control of environmental pollution.
  - (b) Describe, with suitable examples, the range of thallus structure in algae.
  - (c) Give an account of the economic importance of Bryophytes.

(d) Describe, with diagram, the diagnostic features of the family Apiaceae.

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2. (a) Discuss the characteristic features and significance of plasmids in bacteria.

(b) What is meant by disease resistance ? Describe the molecular basis of disease resistance in plants.

(c) Point out the differences between artificial, natural and phylogenetic systems of classification. Give an outline of any one of them.  $20 \times 3 = 60$

3. (a) What are heterosporous pteridophytes ? Give an illustrated account of their alternation of generations.

(b) Describe, with suitable example, the various methods by which fungal pathogens are disseminated.

(c) Describe the advanced features of the family Orchidaceae and comment on their economic importance.  $20 \times 3 = 60$

4. Write explanatory notes on the following :

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- (a) Phytoimmunology and its application in plant pathology
- (b) Biology of Mycoplasma
- (c) Distribution of Gymnosperms in India

### SECTION – B

5. Answer any **three** of the following : 20×3 = 60

- (a) Give an account of the structure and functions of endosperms.
- (b) Write a concise account of the constituents of the conducting tissue system in plants.
- (c) Describe the nutritional and environmental conditions required for plant tissue culture.
- (d) Explain Chi-square test and its relation to testing goodness of fit.

6. (a) Give an illustrated account of mechanical tissues found in plants and comment on their distribution in different plant organs.
- (b) Discuss the role of botanical gardens in the conservation of biological diversity and taxonomic studies.

(c) Name two important drug yielding plants. Describe their chemical constituents and uses.  $20 \times 3 = 60$

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7. (a) What are anomalous secondary structures of stems and roots of angiosperms? Describe how they are formed.

(b) What is suspension cell culture? How is it induced? Describe the different methods followed for cell suspension culture.

(c) Write an account of the development of female gametophyte in angiosperms.

$20 \times 3 = 60$

8. Write explanatory notes on the following :

$20 \times 3 = 60$

(a) Formation and applications of somatic hybrids

(b) Correlation and correlation coefficient

(c) Palynology and its applications

