

CSM – 14/19

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 in not more than **200** words each : 20×3 = 60
- (a) Differentiate between Gram-positive and Gram-negative bacteria in terms of their cell wall structure.
- (b) Give a detailed account on Bentham and Hooker's system of classification of plants. Also describe its merits and demerits.

(c) Why are viruses considered to represent borderline between living and non-living organisms ?

(d) Enumerate the characteristic features of Gymnosperms. How do they resemble and differ from Pteridophytes ?

2. Write notes on the following : $20 \times 3 = 60$

(a) Alternation of generation in bryophytes.

(b) Characteristic features and economic importance of family Ranunculaceae with examples.

(c) Applications of microbes in agriculture.

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

(a) Why do fungi produce toxins ? Explain. How are these fungal toxins classified according to their source of origin ?

(b) Write a comparative account of the distinguishing features of families Solanaceae, Fabaceae (Leguminosae) and Liliaceae.

- (c) What is heterospory ? Comment on its evolutionary significance in pteridophytes.
4. Write notes on the following : $20 \times 3 = 60$
- (a) General characters of the most advanced family in monocots
 - (b) Types of ascocarp found in fungi
 - (c) Plasmids and their significance

SECTION – B

5. Answer any **three** of the following in not more than **200** words each : $20 \times 3 = 60$
- (a) Describe the process of development of male gametophyte in flowering plants.
 - (b) Explain Student's t-test. How does one evaluate data and analyse its significance using Student's t-test ?
 - (c) Describe the method of preparation of culture medium and its sterilization for any tissue culture technique.
 - (d) How are fibres classified on the basis of their origin, source and location ? Give examples of each.

6. Write explanatory notes on the following : 30×2 = 60
- (a) Models of probability distribution
 - (b) Embryo culture and its application
7. Answer the following : 30×2 = 60
- (a) What are the different types of polyembryony in angiosperms ? Discuss its causes and significance.
 - (b) Describe secondary growth in a dicot stem. How does it differ from primary growth ?
8. Discuss the following : 30×2 = 60
- (a) Plants used as source of spices
 - (b) Xylem and its elements

