

This question paper contains 4 printed pages]

Code No. : 04(I)

Roll No.

0(CCEM)9

BOTANY

Paper : I

Time Allowed : 3 hours]

[Maximum Marks : 300

Note : (i) Answers must be written in English.

(ii) Number of marks carried by each question are indicated at the end of the question.

(iii) Part/Parts of the same question must be answered together and should not be interposed between answers of other questions.

(iv) Each question or part thereof should begin on a fresh page.

(v) Your answers should be precise and coherent.

(vi) Candidates should attempt Q. No. 1 and 5 which are compulsory and three of the remaining questions selecting at least one question from each Section.

(vii) Provide diagrams in the answer-book wherever necessary.

P. T. O.

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SECTION - A

1. Write short notes on any *six* of the following :

- (a) Aeroallergens
- (b) Plasmid
- (c) Phytoplasma
- (d) Epidemiology
- (e) Kranz Anatomy
- (f) Cybrid
- (g) Totipotency
- (h) Phyllotaxy

6 × 10 = 60

2. (a) Illustrate the range of vegetative structures in Algae.
- (b) Describe various modes of nutrition in bacteria.
- (c) Enumerate Koch's postulates and elucidate the stages of disease cycle. 3 × 20 = 60

3. (a) Explain the roles of biogeochemical cycles in making a balance of mineral nutrients in living organisms and the environment.
- (b) Give a detailed classification of phytophages on the basis of their morphology and genomic constitution.
- (c) Exemplify 'apple scab' describing its symptoms, causal organism and methods of control. 3 × 20 = 60

(2)

4. (a) Discuss about progressive and retrogressive theories of evolution of Bryophytes.
- (b) For enhancement of food production microbial bio-fertilizers are more significant than chemical fertilizers. Justify the opinion.
- (c) Describe sexual reproduction and development of sporophyte in Pteridophytes with special reference to *Dryopteris*. $3 \times 20 = 60$

SECTION – B

5. Write detailed notes on any *four* of the following :
- (a) Bioremediation of soil
- (b) Somatic embryogenesis
- (c) Mycorrhiza
- (d) Apomixis
- (e) Telome theory $4 \times 15 = 60$
6. (a) Describe, step wise, the mechanism of induction of secondary growth in the roots of Dicotyledonous plants.
- (b) Give a detailed account of Micro propagation.
- (c) Explain palynology and discuss its applications. $3 \times 20 = 60$

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7. (a) Give an outline of Bentham and Hooker system of classification; also enumerate its merits and demerits. $1 \times 20 = 20$
- (b) Give a detailed account of the diagnostic characteristics, systematic position and economic importance of the following families.
- (i) Ranunculaceae
 - (ii) Euphorbiaceae
 - (iii) Poaceae
 - (iv) Musaceae $4 \times 10 = 40$
8. (a) Write a detailed account of the development of endosperm.
- (b) Describe various methods of protoplast isolation and mechanisms of somatic hybridization.
- (c) How are androgenic haploids obtained and what is their significance in Plant Breeding? Discuss. $3 \times 20 = 60$