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.

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 $6 \times 10 = 60$

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. $3 \times 20 = 60$

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.

$3 \times 20 = 60$

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. $3 \times 20 = 60$

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. $3 \times 20 = 60$
