

**1(CCEM)0**

**Botany**

**(04)**

**Paper—I**

Time : Three Hours]

[Maximum Marks : 300

- Note** :— (i) Answers must be written in English.  
(ii) The 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 to other questions.  
(iv) The answer to each question or part thereof should begin on a fresh page.  
(v) Your answers should be precise and coherent.  
(vi) Candidates should attempt Question No. **1** and **5** which are compulsory and any **three** out of the remaining questions, selecting at least **one** question from each Section.  
(vii) Provide diagrams in the answer-book wherever necessary.  
(viii) If you encounter any typographical error, please read it as it appears in the text-book.

**SECTION–A**

1. Write short notes on any **six** of the following :
- (a) Plectostele
  - (b) Lysogeny
  - (c) Kelps
  - (d) Archegonia
  - (e) Microbes in air

- (f) Distribution of ferns  
 (g) Plasmids  
 (h) Bryophytes as indicators of pollution.  $10 \times 6 = 60$
2. (a) Do bacteria have sexual reproduction ? Discuss.  
 (b) Describe the structure of a  $T_4$  virus.  
 (c) Describe the role of microbes in controlling pollution.  $20 \times 3 = 60$
3. (a) Describe the nature, production and importance of fungal toxins.  
 (b) Describe the epidemiology, symptoms and (life) cycle of a fungal disease.  
 (c) Describe the methods of control for diseases caused by nematodes.  $25, 25, 10$
4. (a) What are cryptogams ? Describe the evolution of sporophyte among these plants.  
 (b) Describe the economic importance of algae with special reference to agriculture and industry.  
 (c) What do you understand from eusporangiate and leptosporangiate development of sporangia among Pteridophytes ?  $25, 25, 10$

#### SECTION—B

5. Attempt any **four** of the following :
- (a) Apomixis  
 (b) Double fertilization  
 (c) Totipotency  
 (d) Cereals  
 (e) Annual rings  
 (f)  $C_4$  plants.  $15 \times 4 = 60$

6. (a) Describe variations in arrangement of stomatal and guard cells.  
 (b) Discuss various barriers to sexual incompatibility among angiosperms.  
 (c) Define palynology and discuss its importance.  $20 \times 3 = 60$
7. (a) What do you understand from phellem, phellogen and phelloderm ? Discuss.  
 (b) Describe the merits and demerits of Bentham and Hooker system of plant classification.  
 (c) Write diagnostic features and economic importance of any **two** of the following families :  
 (i) Leguminosae  
 (ii) Cucurbitaceae  
 (iii) Cycadaceae  
 (iv) Rosaceae.  $20 \times 3 = 60$
8. (a) Describe the methods and applications of protoplast culture.  
 (b) Write a note on somatic hybrids.  
 (c) Define morphogenesis and differentiation. Describe major factors influencing morphogenesis.  $20 \times 3 = 60$