

M.C.S. (Ex.) 2003

5

Code—03

BOTANY

Time Allowed : 3 Hours

Maximum Marks : 150

Note : Attempt any *Five* questions. All questions carry equal marks. Q. No. I is compulsory. Answer *two* questions from Part I and *two* questions from Part II. The parts of the same question must be answered together and must not be interposed between answers to other questions.

1. Write critical notes on any *four* of the following : (4×7½=30)
- (a) One-step multiplication curve of T2 phage
 - (b) Development of rhizophore in *Selaginella*
 - (c) Role of Phytoalexins in disease resistance in plants

P.T.O.

- (d) Protoplast isolation and its culture
- (e) Application of growth regulators in plant development
- (f) Mechanisms of transport of organic solutes in phloem.

Part I

- 2. (a) Describe the life-cycle of *Batrachospermum*.
 - (b) Discuss the role of microbes in Medicine.
 - (c) Write the causal organism, symptoms and methods of control of black-stem rust of wheat. (30)
-
- 3. (a) Describe the development of female cone of *Pinus*.
 - (b) Discuss the significance of heterospory in Pteridophytes.
 - (c) Explain with suitable example the difference between embryogeny in dicotyledons and monocotyledons. (30)

- 6
4. (a) Write in brief the economic importance of *Atropa* and *Cinchona*.
- (b) Discuss the concept of various floristic regions of India.
- (c) Why is Compositae regarded as the most highly evolved family ? (30)

Part II

5. (a) Mention different types of Mutations ? Comment upon their significance in evolution and crop improvement.
- (b) What is Genetic Drift ? How does gene recombination take place in populations ?
- (c) Write a short account on male sterility and its significance in plant breeding. (30)
6. (a) Photosynthesis helps in nitrogen metabolism of plants. Justify.
- (b) Describe in brief the biosynthetic pathway of Gibberellin synthesis.
- (c) Describe the *Agrobacterium* mediated gene transfer in plants. (30)

7. (a) Write a short note on Endangered Plants.
- (b) What is the concept of Biodiversity ?
Explain why temperate forests are less productive than tropical forests.
- (c) What are transgenic plants ? Discuss their role in agriculture. (30)