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Code—03

BOTANY

Time : 3 Hours

Maximum Marks : 150

Note : Attempt *Five* questions in all. All questions carry equal marks. Q. No. 1 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) Economic importance of fungi
 - (b) Male sterility in plants
 - (c) Role of phytochrome in photoperiodism
 - (d) Use of apomixis in plant breeding
 - (e) Seed habit and its significance in Sillageneales
 - (f) Biostatistics and its application.

P.T.O.

Part I

2. (a) Write different mode of preservation of microorganisms. (10)
- (b) Describe in brief the reproductive behaviour of Lichens. (10)
- (c) Describe the life-cycle of lytic bacteriophage. (10)

3. (a) Explain the mechanisms of dispersal of spores in moss. (10)
- (b) What are medullary vascular bundles ? Describe with reference to anomalous secondary growth in *Boerhaavia*. (10)
- (c) Role of phosphate solubilizing bacteria in agriculture. (10)
4. (a) Write about the endemic plants of India. (10)
- (b) Explain diagrammatically the floral features of Solanaceae and Compositae. (10)

- (c) Write the botanical name and its economic importance of the following :

- (i) Opium
(ii) Ginger
(iii) Cinchona
(iv) Turmeric
(v) Cardamom. (5×2=10)

Part II

5. (a) Define euchromatin and heterochromatin. Discuss the chemical composition of chromosomes found in higher plants. (10)
- (b) What is allopolyploid ? Discuss the method of development of *Triticales* on commercial scale. (10)
- (c) How does operon regulate the metabolic processes in prokaryotes ? Explain with suitable example. (10)
6. (a) Explain the process of oxidative phosphorylation for the synthesis of ATP. (10)
- (b) Auxin-Cytokinin ratio affects root-shoot development in callus. Justify. (10)

- (c) What is Heterosis ? How does physical basis of gene transfer help in crop improvement ? (10)

- 7. (a) What is the concept of Biodiversity ? Describe the different strategies used for biodiversity conservation. (10)
- (b) What are the impacts of global warming on plant community ? Discuss their causes and remedies. (10)
- (c) How can we produce Recombinant DNA ? Describe their applications in producing transgenic plants. (10)