

Time – 3 hr.

Marks - 100

- N.B.**
1. All questions are compulsory.
 2. Draw neat labelled diagrams wherever necessary.
 3. All questions carry equal marks.

Q.1 Attempt any two

20

- a Describe with examples, any three features of the genetic code.
- b What is translation with reference to protein synthesis? Explain the process of the formation of the initiation complex during translation.
- c Describe the structure and explain the different functions of the nucleolus.
- d Describe the process of addition of adenines as a step of pre mRNA processing

Q.2 Attempt any two

20

- a With the help of examples, explain the role of pumps in transport of solutes across membranes in a plant cell.
- b Define water potential. What are its components? Explain in detail each component.
- c What is Munch's hypothesis of passive transport? Explain with an experiment. Add a note on its demerits.
- d Define transpiration. What are the various modes of transpiration in plants?

Q.3 Attempt any two

20

- a What is meant by bioremediation? Discuss the principles involved in bioremediation.
- b Describe the process of *in situ* bioremediation with examples.
- c Define plant succession. Explain any three stages of a Hydrosere citing examples of plants in each stage.
- d What is the process of succession observed in Lithosere?

Q.4 Attempt any two

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- a What is somatic Embryogenesis? Explain the technique involved in it.
- b Explain the steps involved in micropropagation with reference to cultivation of Orchids.
- c What are artificial seeds? Describe the procedure for the production of artificial seeds.
- d Describe the steps involved in Shikonin production.

Q.5 Attempt any four

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- a Osmosis and its types
- b Phloem loading
- c Sequestration of toxic compounds
- d Phytostabilisation
- e Monoclimax theory
- f Importance of cell suspension culture