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 20

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 20

a Osmosis and its types

b Phloem loading

c Sequestration of toxic compounds

d Phytostabilisation

e Monoclimax theory

f Importance of cell suspension culture
