

(3 Hours)

[Total Marks : 100]

- N.B.:** 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat labeled diagrams wherever necessary.

- Q.1** Answer any **Two** of the following:- 20
- A) Describe the structure and functions of the nuclear envelope and nucleolus.
 - B) Give a detailed account of the type of Giant chromosome studied by you.
 - C) Explain in detail the formation of peptide bonds during elongation of the protein chain.
 - D) Describe the process of termination of translation in both prokaryotes and eukaryotes.
- Q.2** Answer any **Two** of the following:- 20
- A) Define Osmosis. State its significance in transport of water in plants.
 - B) What are the various factors which contribute to water potential? Explain each in detail.
 - C) Describe the process of phloem loading and unloading.
 - D) State the significance of any two micronutrients in plants.
- Q.3** Answer any **Two** of the following:- 20
- A) What is bioremediation? Discuss the factors affecting bioremediation.
 - B) With respect to phytoremediation explain the following terms
 - i) Phytoextraction
 - ii) Rhizofiltration
 - C) What is plant succession? Explain two stages of a Hydrosere. Give examples of at least two plants of each stage.
 - D) What are the causes of succession? Distinguish between primary and secondary succession.
- Q.4** Answer any **Two** of the following:- 20
- A) How are Orchids cultivated by micropropagation? Explain.
 - B) What is protoplast fusion? Explain Chemofusion with an example.
 - C) What are synthetic seeds? Give the methods of their synthesis by encapsulation.
 - D) What is suspension culture? How is it used in the production of the secondary metabolite Shikonin?
- Q.5** Answer any **Four** of the following:- 20
- a) Role of Vacuoles in pH and ionic homeostasis
 - b) Universality of the genetic code
 - c) Ecesis
 - d) Plasmolysis
 - e) Direct and indirect somatic embryogenesis
 - 1) Factors affecting transpiration
