

(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**
- Give an account of structure of vacuole in plant cells. Add a note on its contents.
 - Describe the process of termination of translation.
 - Describe the process of initiation of translation in eukaryotes.
 - Describe in detail the morphology of Polytene chromosomes.
- Q.2 Answer any **Two** of the following:- **20**
- State the various modes of transpiration in plants and comment on the significance of transpiration in relation to maintaining the leaf temperature in plants.
 - “Water potential is a diagnostic tool that enables the plant scientist to assign a precise value to the water status in plant cells and tissues”. Explain.
 - Describe the role of carriers in transport of solutes across membranes.
 - What are macronutrients? Describe the role and deficiency symptoms of any three macronutrients.
- Q.3 Answer any **Two** of the following:- **20**
- What is bioremediation? Add a note on microbial population in bioremediation.
 - What is phytoremediation? Discuss the various processes involved in phytoremediation of organic pollutants.
 - Define plant succession. Explain any three stages of a lithosere citing examples of plant in each stage.
 - What is bioaccumulation? Describe the process of bioaccumulation in an ecosystem.
- Q.4 Answer any **Two** of the following:- **20**
- What are artificial seeds? Describe the procedure for the production of artificial seeds.
 - Write a detailed note on aspects of micropropagation in orchid cultivation.
 - What is plant cell suspension culture? Discuss its application for the production of secondary metabolites.
 - Give a detailed account of Somatic hybridization.
- Q.5 Answer any **Four** of the following:- **20**
- Degeneracy of genetic code
 - Concept of source and sink
 - Osmosis
 - Monoclimax theory
 - Ecesis
 - Advantages of somatic embryogenesis