(3 Hours) **(Total Marks : 100)**

Please check whether you have got the right question paper.

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

Q.1 Attempt **any two** of the following **20**

a) Describe the structure and function of nucleolus.
b) Give a detail account of giant chromosomes
c) Give an account of RNA Polymerases and promoters involved in eukaryotic transcription.
d) Describe the process of initiation of translation in eukaryotes.

Q.2 Attempt **any two** of the following **20**

a) Differentiate between imbibition and osmosis. State the significance of osmosis in absorption of water in plants.
b) State the various modes of transpiration in plants and comment on its significance.
c) What is meant by passive transport? Describe the various modes of passive transport of solutes in plants.
d) Explain Munch hypothesis to explain process of sieve tube translocation.

Q.3 Attempt **any two** of the following **20**

a) What is bioremediation? Discuss about the factors involved in bioremediation.
b) Describe the process of bioaccumulation of pollutants in the ecosystem.
c) With respect to phytoremediation explain the following terms a) Phytoextraction b) Phytodegradation c) Phytostabilization d)Rhizofilteration
d) Define plant succession. Explain any three stages of a hydrosere citing examples of plants in each stage.

Q.4 **20**

a) Explain techniques and factors affecting somatic embryogenesis.
b) Explain the steps involved in micropropagation with reference to cultivation of Orchids.
c) Explain the technique of isolation of protoplast. Add a note on its applications.
d) Describe the methodology for preparation of synthetic seeds.

Q.5 Attempt **any four** of the following **20**

a) Functions of vacuole
b) Capping
c) Aminoacylation of t-RNA molecule
d) Applications of somatic hybridization in agriculture
e) Monoclimax theory
f) Phytodegradation
