

**VIT**

Vellore Institute of Technology

Final Assessment Test – November 2024

Course: BBIT307L - Plant Biotechnology

Class NBR(s): 4177

Time: Three Hours

Slot: C1+TC1

Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
➤ DON'T WRITE ANYTHING ON THE QUESTION PAPER

Answer ALL Questions

(10 X 10 = 100 Marks)

1. a) Write a brief summary on the DNA methylation process in epigenetic regulation. [8]
b) Why is it important to regulate gene expression why not just express all the genes throughout the development? [2]
2. a) Illustrate the different stages of micro-propagation. [8]
b) Name the commercial crops that are propagated through micro-propagation. [2]
3. a) Describe haploid production in plants with an example. [6]
b) Enumerate its applications in crop improvement. [2]
c) Comment on contributions of eminent scientist Guha and Maheshwari. [2]
4. Elaborately write the method to develop marker-free transgenic plants with suitable diagrams and example.
5. Alfalfa is an important source of cattle in many countries. One major challenge for farmer is that if harvested late, alfalfa can contain high levels of lignin (Animals are unable to digest lignin) You have been asked to decrease the lignin production through transgenic approaches.
6. Explain the process of T-DNA transfer from *Agrobacterium* to the brinjal plant for resistance against Lepidoptera and diptera. Draw diagrams.
7. Discuss sustainable approaches to weed management in modern farming and write the non-chemical weed management methods that can be used to prevent the spreading of herbicide-resistant weeds.
8. Discuss the sequence of process associated with the particle bombardment-gene transfer method for indica rice lines (IR 64).
- 9.a) During the stress condition, reactive oxygen species are produced in oil crops. By applying transgenic approaches how different reactive oxygen species are removed from the plant cell. Illustrate the process.

OR

9.b) Propose novel approaches to improve *sesasum indicum linn* oil quality with omega 3 fatty acid.

10.a) What are edible vaccine? Elaborate their methods of production and give their advantages.

OR

10.b) Define molecular markers. Discuss types of molecular markers and their applications in crop improvement.

BI/K/TX