

10810

LMDQ/D-23
PLANT BIOTECHNOLOGY
Paper : BT-301

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *five* questions in all. Q. No. 1 is compulsory question. Four others selecting *one* question from each Unit. All questions carry equal marks.

Compulsory Question

1. (a) What is the significance of fructans production in transgenic plants? 2
- (b) Describe the limits and types of patents. 2
- (c) Describe the binary and co-integrate vectors with examples. 4
- (d) Discuss the advantages and limitations of antibodies production in plants. 4
- (e) Describe the techniques of permeabilization of cells and removal of secreted products. 4

UNIT-I

2. (a) What are the disadvantages of direct gene transfer methods? Describe the ArF excimer laser method of gene transfer. 8

- (b) Write an account on molecular characterization of transformants. 8
3. (a) Discuss gene silencing in transgenic plants. 6
- (b) Write a note on organization of mitochondrial genome. 8
- (c) What is the significance of multiple gene engineering in plants? 2

UNIT-II

4. (a) Describe various strategies to develop insect resistance development in crop plants. 8
- (b) Write an account on abiotic stress tolerance development via transgenic approach. 8
5. (a) Write an account on industrial enzymes production in transgenic plants. 8
- (b) Discuss the glufosinate and 2,4-D resistance development in plants. 4
- (c) Discuss the oleosin partitioning purification technology for production of therapeutic proteins. 4

UNIT-III

6. (a) Discuss in details different types of cell cultures used for secondary metabolites production with their advantages and disadvantages over each other. 12

(b) Write a note on biotransformation with suitable example. 4

7. Discuss strategies for high yielding of secondary metabolites through plant cell cultures. 16

UNIT-IV

8. (a) Write a note on marker free methodologies of production of transgenic plants. 8

(b) What do you understand with IPR? Discuss in brief Trade secrets and Copyrights with suitable examples. 8

9. What are the risks and benefits of transgenic plants? Explain. 16
