

10208**LMDE/M-24****PLANT CELL AND TISSUE CULTURE****Paper : BT-203****Time : Three Hours]****[Maximum Marks : 40**

Note : The candidates are required to attempt Question No. 1 (Compulsory) and *four* others, selecting *one* question from each unit. All questions carry equal marks.

Compulsory Question

1. (a) What are the gametoclonal variations? 1
- (b) Describe the browning of the media and how it can be overcome? 2
- (c) Discuss in brief the difference between shoot apical meristem and shoot tip explants. 2
- (d) Describe the Bergmann's cell plating technique and its importance. 3

UNIT-I

2. (a) Write an account on initiation and maintenance of suspension cultures. 4
 - (b) Discuss the Microdrop culture technique used for cell culture and its importance. 4
-
3. (a) Describe the various components and their importance in synthetic seeds. 4

- (b) Write the process of somatic embryos production and their importance in plant breeding and propagation. 4

UNIT-II

4. Describe in detail the production and methods of verification of virus free plants. 8
5. (a) Describe the selection of somaclones at cellular and plant levels and significance of selection at both levels. 4
- (b) Describe the molecular basis of somaclonal variations. 4

UNIT-III

6. Write a note on wide hybridization and embryo rescue technique. 8
7. Write note on the following :
- (a) Diploidization of haploid plants and its significance. 4
- (b) Factors affecting androgenesis. 4

UNIT-IV

8. (a) Write the applications of protoplasts culture and somatic hybridization. 6
- (b) What are the fusogens? Briefly explain their role in protoplast fusion. 2

9. Write note on the following :
- (a) Methods of assessment of hybridity of somatic hybrid plants. 4
 - (b) Fusion of protoplasts. 4
-

