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**25-BO-41**

**M.Sc. IV SEMESTER [MAIN/ATKT] EXAMINATION  
MAY - JUNE 2025**

**BOTANY**

Paper - I

**[Plant Cell, Tissue and Organ Culture]**

*[Max. Marks : 75]*

*[Time : 3:00 Hrs.]*

*[Min. Marks : 26]*

**Note :** Candidate should write his/her Roll Number at the prescribed space on the question paper.  
Student should not write anything on question paper.  
Attempt all five questions. Each question carries an internal choice.  
Each question carries **15 marks**.

- Q. 1 a)** Write definition and history of Tissue culture. (05 Marks)  
**b)** Write in detail the importance of Tissue Culture. (10 Marks)

**OR**

- a)** What is meant by Totipotency in plant cells ? Give a general account of the expression of Totipotency of cells in culture. (10 Marks)  
**b)** Mention the importance of Totipotency in Plant Science. Why are all cells not totipotent in culture. (05 Marks)

- Q. 2 a)** Give an outline of a plant tissue culture laboratory. (10 Marks)  
**b)** What are the measures that must be taken in order to prevent the contamination of plant tissue culture. (05 Marks)

**OR**

- a)** What is Culture Medium ? State the basic composition of a general plant tissue culture medium. (10 Marks)  
**b)** Name growth regulators which are important in tissue culture. How they affect tissue culture. (05 Marks)

- Q. 3** What is Meristem Culture ? Give a detail account of procedure and importance of Meristem culture. (15 Marks)

**OR**

Describe the method of culturing embryo and its uses in different fields of plant sciences. (15 Marks)

- Q. 4** Write stages which are required for in vitro clonal propagation. (15 Marks)

P.T.O.

**OR**

- a)** Comment upon Artificial Seeds. **(05 Marks)**
- b)** Write a note on Cryopreservation. **(05 Marks)**
- c)** Write practical application of somatic hybridization. **(05 Marks)**

**Q. 5** Write an essay on importance of Tissue culture in Agriculture. **(15 Marks)**

**OR**

What are GM Crops ? Write their merit and demerits. **(15 Marks)**

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