

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

**CLASS: M. PHARM  
BRANCH: PHARMACY**

**SEMESTER: II  
SESSION: SP 25**

**SUBJECT: MPG201T MEDICINAL PLANT BIOTECHNOLOGY**

**TIME: 3.00 Hours**

**FULL MARK: 75**

**INSTRUCTIONS:**

1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
5. Answer any five questions.

- Q1a. What is protoplast fusion? Explain the process in detail with the help of a labelled diagram. [7.0]  
Q1b. What is organogenesis and somatic embryogenesis? Explain both processes in detail with diagrams. [8.0]
- Q2a. Describe synthetic seeds and explain the process of micropropagation. [7.0]  
Q2b. What is somaclonal variation? Discuss its causes, significance, and applications in plant biotechnology. [8.0]
- Q3a. Discuss the genetic code in detail. [7.0]  
Q3b. Discuss the significance and process of recombinant DNA technology in detail. [8.0]
- Q4a. Discuss various steps of the translation process in detail. [7.0]  
Q4b. Discuss the regulation of gene expression with suitable examples. [8.0]
- Q5a. Explain briefly about the production of Ergot alkaloids [7.0]  
Q5b. What is Biotransformation? Enlist the types of Biotransformation reactions [8.0]
- Q6a. Discuss the various application of Fermentation. [7.0]  
Q6b. Write in brief about enzymes of pharmaceutical interest. [8.0]
- Q7a. What do you mean by the term immobilization. Discuss methods of enzyme immobilization. [7.0]  
Q7b. Define Bioreactor. Give a diagrammatic representation of a typical bioreactor [8.0]

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