

**SUPPLEMENTARY**  
**MASTER OF PHARMACY (M. PHARM.) (CBCS-2019 COURSE)**  
**M.Pharm. Sem-II PHARMACOGNOSY :SUMMER- 2022**  
**SUBJECT : MEDICINAL PLANT BIOTECHNOLOGY**

Day : Wednesday

Time : 10:00 AM-01:00 PM

Date : 14-09-2022

**S-20764-2022**

Max. Marks : 75

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**N.B.**

- 1) **Q.No. 1 and Q.No. 5** are **COMPULSORY**. Out of remaining questions answer **ANY TWO** from **each** section.
  - 2) Answers to both sections should be written in **SEPARATE** answer books.
  - 3) Figures to the **RIGHT** indicate **FULL** marks.
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**SECTION – I**

- Q.1** Explain the steps and requirements to grow plant cells under *in vitro* conditions. **(08)**
- Q.2** Describe different plant biotechnological strategies to enhance secondary metabolites from *in vitro* cultures. **(15)**
- Q.3** Explain DNA recombinant technology with respect to its concept, methodology, advantages and application in Pharmacy. **(15)**
- Q.4** Write notes on **ANY TWO** of the following : **(15)**
- a) Role of elicitation in secondary metabolites production
  - b) Protoplast fusion
  - c) Fermentation method for ergot alkaloid production

**SECTION – II**

- Q.5** Give role of growth hormones and explain various growth parameters. **(07)**
- Q.6** Explain Biotransformation. Illustrate your answer with appropriate examples of biotransformation using *in vitro* plant cells. **(15)**
- Q.7** Write a detailed note on Fermentation technology and give its advantages and applications. **(15)**
- Q.8** Write notes on **ANY TWO** of the following : **(15)**
- a) Hairy root cultures and its application in secondary metabolite production
  - b) Different phases of growth cycle and their significance
  - c) Compare plant cell and microbial cells in context to large scale cultivation

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