

QP Code: 625006

Reg. No.....

**Sixth Semester B. Pharm Degree Supplementary Examinations  
October 2023**

**Pharmaceutical Biotechnology**

**(2017 Scheme)**

**Time: 3 Hours**

**Max. Marks: 75**

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw diagrams wherever necessary*

**Essays**

**(2x10=20)**

1. Discuss in detail about types of enzyme immobilization techniques and their advantages and disadvantages.
2. Write in detail about structure and parts of a fermentor, its controls with a neat labelled diagram.

**Short Notes**

**(7x5=35)**

3. Production of Lipase.
4. Explain in brief about protein engineering.
5. Applications of biosensors in pharmaceutical industry.
6. Structure and role of MHC complex in immunity.
7. Discuss about the general preparation methods of toxoids with examples.
8. Write in detail about Gene transfer mechanism by conjugation.
9. Differentiate between humoral and cell mediated immunity with examples.

**Answer Briefly**

**(10x2=20)**

10. Antitoxins
11. PCR
12. ELISA
13. DNA ligase
14. Dried plasma
15. Define hypersensitivity
16. Immunoglobulins
17. Mutations
18. Define microbial biotransformation
19. Name one microorganism used for production of glutamic acid and griseofulvin

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