

QP Code: 625006

Reg. No.....

**Sixth Semester B. Pharm Degree Supplementary Examinations  
December 2022**

**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. Define enzymes. Describe the general consideration to be followed for industrial production of enzymes. Write about production of amylase.
2. Write in detail about the method of collection, production, storage and uses of whole human blood and dried plasma.

**Short Notes**

**(7x5=35)**

3. Differentiate between Humoral immunity and Cell mediated immunity.
4. Recombinant Hepatitis B vaccine.
5. Explain briefly the western and southern blotting techniques.
6. Explain the method in the production of monoclonal antibody by hybridoma technology.
7. Different types of Immuno stimulants.
8. Plasma substitutes.
9. Explain the different methods of protein engineering.

**Answer Briefly**

**(10x2=20)**

10. Define MHC. (Major Histocompatibility Complex).
11. Give an example for attenuated and killed bacterial vaccine.
12. Applications of biosensors.
13. Name microorganisms used for production of citric acid.
14. Cloning vectors with an example.
15. Classify fermentation methods.
16. Explain PCR (Polymerase Chain Reaction)
17. Types of hypersensitivity reactions.
18. Gene expression.
19. Define Transposons.

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