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Total No. of Printed Pages: [01]

Total No. of Questions: [13]

B. Pharmacy (Semester: 6th)
PHARMACEUTICAL BIOTECHNOLOGY (Theory)

Subject Code: BP605T

Paper ID: [17170133]

Time: 03 Hours

Maximum Marks: 75

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 9 questions of 5 marks each. The student has to attempt any 7 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) Define biotechnology and its relevance to pharmaceutical sciences.
- b) What are biosensors? Mention one of their applications in the pharmaceutical industry.
- c) Name two methods of enzyme immobilization.
- d) List any two enzymes produced using microbial biotechnology.
- e) Define a cloning vector and provide one example.
- f) What is the role of DNA ligase in genetic engineering?
- g) Differentiate between humoral and cellular immunity.
- h) What is ELISA, and where is it commonly used?
- i) Briefly explain microbial transformation.
- j) List two blood products commonly used in medicine.

Section – B

(5 marks each)

- Q2. Describe the process and applications of enzyme immobilization in pharmaceutical biotechnology.
- Q3. Explain the principle and applications of Western blotting and its role in immunological studies.
- Q4. Outline the general steps involved in the production of insulin using recombinant DNA technology.
- Q5. Discuss the types of cloning vectors and their role in genetic engineering.
- Q6. Describe the structure and function of immunoglobulins and their role in immune response.
- Q7. Explain the general method of preparation for bacterial vaccines and the factors affecting their stability.
- Q8. Discuss microbial genetics, focusing on conjugation and transduction as gene transfer mechanisms.
- Q9. Explain the fermentation process and describe the essential equipment and media used.
- Q10. Describe the production, collection, and storage of whole human blood and plasma substitutes.

Section – C

(10 marks each)

- Q11. Discuss the process and applications of PCR and its significance in the field of biotechnology.
- Q12. Explain hybridoma technology, detailing the production, purification, and applications of monoclonal antibodies.
- Q13. Describe large-scale fermentation methods, including the design of a fermenter and controls required for the production of antibiotics like penicillin.