

B. Pharmacy Third Year, Second Semester Examination, 2025

Time: 3Hrs.

F.M: 75

Subject: Pharmaceutical Biotechnology

Answer any **FIVE** of the following questions

1. With the help of a proper diagram elaborate the steps of gene cloning. Write down its applications in pharmaceutical industry. 10+5=15
2. Define immunoglobulins and its types. Draw and explain the structure of an immunoglobulin. 7+8=15
3. Describes the steps in PCR with diagram. How many strands of DNA will be synthesized after 15 cycles of PCR? 12+3=15
4. What is strain improvement? Write a brief note on submerged culture method of penicillin production. Why sterile air is required during fermentation? 4+8+3=15
5.
 - a. What is penicilloic acid?
 - b. Write a note on bacterial resistance to antibiotics.
 - c. Why clavulanic acid is used along with amoxicillin? 2+8+5=15
6. Write short note on (any **three**) 5×3=15
 - a. Folate antagonist
 - b. Innate and acquired immunity
 - c. Alkaline phosphatase enzyme
 - d. Hypersensitivity
7. Describe primary and secondary immune response. Discuss in brief about immunotolerance and vectors in RDT. 5+5+5=15