Roll No…….. **Total No. of Printed Pages: [01]**

Total No. of Questions: [13]

B. Pharmacy (Semester-6th)

PHARMACEUTICAL BIOTECHNOLOGY

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 09 questions of 05 marks each. The student has to attempt any 07 questions out of it.
3. Section C consist of 03 questions of 10 marks each. The student has to attempt any 02 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a) What are restriction endonucleases? Give examples?

b) Write some applications of biosensors in pharmaceutical industry?

c) Define transformation and transduction process?

d) What is immunoblotting?

e) Mention *any two* examples for viral vaccines?

f) Give industrial applications of peroxidases?

g) Classify types of immunity?

h) Define immunostimulants and immunosuppressants with examples?

i) Define point mutation with example?

j) Define plasma substitutes with examples?

Section – B **(5 marks each)**

Q2. Enumerate various applications of western blotting technique?

Q3. Write various methods of conversion of toxin to toxoids?

Q4. Write a brief note on transposable elements with examples?

Q5. Write a brief account on microbial biotransformation and mention its applications?

Q6. Outline briefly on the storage and stability conditions for vaccines?

Q7. Describe a large scale production fermenter design and its various controls?

Q8. Write a brief note on ELISA?

Q9. Discuss various structure and function of MHC?

Q10. Write a brief account on Recombinant DNA technology? Mention its applications?

Section – C **(10 marks each)**

Q11. Describe in detail about the production of penicillin by fermentation method?

Q12. Discuss in detail about Hybridoma technology with production and applications?

Q13. Define polymerase chain reaction (PCR)? Write detailed steps involved in PCR?