

**B. PHARM.
SIXTH SEMESTER
PHARMACEUTICAL BIOTECHNOLOGY
BP605T**

**SET
A**

Duration : 3 hrs.

Full Marks : 75

[PART-A: Objective]

Time : 30 min.

Marks : 20

Choose the correct answer from the following:

1×20=20

1. The first Restriction nuclease was discovered by,
 - a. Hamilton Smith in 1980
 - b. Hamilton Smith in 1960
 - c. Hamilton Smith in 1970
 - d. Hamilton Smith in 1950
2. The first experiment on r-DNA technology was performed by,
 - a. Alexander Fleming
 - b. Boyer and Cohen
 - c. Watson and Crick
 - d. Southern
3. PBR-322 was propped by,
 - a. James Watson and Crick
 - b. James Smith
 - c. Bolivar and Rodriguez
 - d. Hamilton Smith
4. The molecular weight of RES-I enzyme is,
 - a. 8 lakh daltons
 - b. 6 lakh daltons
 - c. 10 lakh daltons
 - d. 4 lakh daltons
5. Restriction endonuclease enzymes are suitable for
 - a. Cutting a DNA
 - b. joining a DNA
 - c. Cutting and joining a DNA
 - d. None of the above.
6. The production of insulin by r-DNA technology was first started in the year
 - a. 1960
 - b. 1940
 - c. 1980
 - d. 1970
7. The term biotechnology was introduced by
 - a. Karl ereky
 - b. Hammilton Smith
 - c. Walksman
 - d. Leuispastuer
8. Immobilization technique is suitable for
 - a. Proteins
 - b. Amino acids
 - c. Enzymes
 - d. Steroids
9. Biosensor is an
 - a. Analytical device
 - b. Physical device
 - c. Chemical device
 - d. All of the above

10. The cell mediated immune response depends on
 - a. Basophils
 - b. Monocytes
 - c. Lymphocytes
 - d. Chromocytes
11. Immunoglobulin is also called as
 - a. Antigen
 - b. Antibody
 - c. Antigen and antibody
 - d. None of the above
12. The major histocompatibility complex is a special group of
 - a. Enzymes
 - b. proteins
 - c. Amino acids
 - d. Glycosides
13. Class-II molecules are involved in
 - a. Passive immunity
 - b. Cell mediated immunity
 - c. Active immunity
 - d. All of the above
14. BCG vaccine can be obtained from
 - a. Fungi
 - b. Bacteria
 - c. Virus
 - d. Actinomyces
15. Western blotting technique is used to identification of
 - a. DNA
 - b. RNA
 - c. Protein
 - d. None
16. In electrophoresis, DNA will migrate towards
 - a. Positive electrode
 - b. Negative electrode
 - c. Both
 - d. None
17. Loss or deletion of single nucleotide or nucleotide pair, then this type of mutations are called
 - a. Point mutation
 - b. Multiple mutation
 - c. Spontaneous mutation
 - d. others
18. The agents which cause mutation is called as
 - a. Micribial biotransformation
 - b. ELISA
 - c. Mutagens
 - d. None
19. A small, circular and extra chromosomal DNA which can replicate independently called as
 - a. Plasmid
 - b. Gene
 - c. Nucleus
 - d. Chromosome
20. The cell which doesn't contain nucleus membrane
 - a. Eukaryotic cell
 - b. Prokaryotic cell
 - c. Both
 - d. None

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(PART-B : Descriptive)

Time : 2 hrs. 30 min.

Marks : 35

[Answer any seven (7) questions]

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| 1. What is Protein engineering? What are the main approaches of protein engineering? | 1+4=5 |
| 2. Describe in brief about cloning vector? | 5 |
| 3. Write application of genetic engineering in medicine. | 5 |
| 4. Write about cellular and humoral immunity. | 5 |
| 5. Classify and describe about the classes of immunoglobulin. | 5 |
| 6. What is fermentation? Explain the different types of fermentation. | 1+4=5 |
| 7. Discuss the principle involves in ELISA. Write about indirect ELISA. | 2.5+2.5
=5 |
| 8. What are the blood products? Write about whole human blood. | 2+3=5 |
| 9. Write about southern blotting technique. | 5 |

(PART-C: Long type questions)

[Answer any two (2) questions]

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|---|--------|
| 1. What is DNA shuffling? Explain different steps involved in DNA shuffling? | 2+8=10 |
| 2. Explain in detail about preparation, description, labelling, and standards of BCG vaccine? | 10 |
| 3. Define mutation. Write the Types of mutation. Write about point mutation. | 10 |