

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

**SET  
B**

[USE OMR SHEET FOR OBJECTIVE PART]

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. Immunoglobulin is also called as
  - a. Antigen
  - b. Antibody
  - c. Antigen and antibody
  - d. None of the above
2. The major histocompatibility complex is a special group of
  - a. Enzymes
  - b. proteins
  - c. Amino acids
  - d. Glycosides
3. Class-II molecules are involved in
  - a. Passive immunity
  - b. Cell mediated immunity
  - c. Active immunity
  - d. All of the above
4. BCG vaccine can be obtained from
  - a. Fungi
  - b. Bacteria
  - c. Virus
  - d. Actinomyces
5. Western blotting technique is used to identification of
  - a. DNA
  - b. RNA
  - c. Protein
  - d. None
6. In electrophoresis, DNA will migrate towards
  - a. Positive electrode
  - b. Negative electrode
  - c. Both
  - d. None
7. 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
8. The agents which cause mutation is called as
  - a. Micribial biotransformation
  - b. ELISA
  - c. Mutagens
  - d. None
9. A small, circular and extra chromosomal DNA which can replicate independently called as
  - a. Plasmid
  - b. Gene
  - c. Nucleus
  - d. Chromosome

10. The cell which doesn't contain nucleus membrane
  - a. Eukaryotic cell
  - b. Prokaryotic cell
  - c. Both
  - d. None
11. 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
12. The first experiment on r-DNA technology was performed by,
  - a. Alexander Fleming
  - b. Boyer and Cohen
  - c. Watson and Crick
  - d. Southern
13. PBR-322 was propped by,
  - a. James Watson and Crick
  - b. James Smith
  - c. Bolivar and Rodriguez
  - d. Hamilton Smith
14. The molecular weight of RES-I enzyme is,
  - a. 8 lakh daltons
  - b. 6 lakh daltons
  - c. 10 lakh daltons
  - d. 4 lakh daltons
15. 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.
16. The production of insulin by r-DNA technology was first started in the year
  - a. 1960
  - b. 1940
  - c. 1980
  - d. 1970
17. The term biotechnology was introduced by
  - a. Karl ereky
  - b. Hammilton Smith
  - c. Walksman
  - d. Leuispastuer
18. The cell mediated immune response depends on
  - a. Basophils
  - b. Monocytes
  - c. Lymphocytes
  - d. Chromocytes
19. Immobilization technique is suitable for
  - a. Proteins
  - b. Amino acids
  - c. Enzymes
  - d. Steroids
20. Biosensor is an
  - a. Analytical device
  - b. Physical device
  - c. Chemical device
  - d. All of the above

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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<br>=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     |
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