B. PHARM
SIXTH SEMESTER
PHARMACEUTICAL BIOTECHNOLOGY
BP605T

(USE SEPARATE ANSWER SCRIPTS FOR OBJECTIVE & DESCRIPTIVE)

Duration: 3 hrs. **Full Marks: 75**

(PART-A: Objective)

Time: 20 min. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. Every Immunoglobulin composed of _____basic chain structure unit.
   a. 4 b. 2
   c. 5 d. 3

2. T-lymphocytes mature in _____; and B-lymphocytes mature in_____.
   a. bone marrow; thymus gland b. thymus gland; bone marrow
   c. thyroid follicles; bone marrow d. yellow bone marrow; red bone marrow

3. _____has no apparent role in defense mechanism.
   a. IgM b. IgE
   c. IgG d. IgD

4. Biotechnology in relation to pharmaceutical sector usually involves_____.
   a. Fabrication of protein derived products b. Exploiting rDNA techniques
   c. Preparation monoclonal antibodies d. All the above

5. _____based sensor cast-off by individual suffering from diabetes to observe glucose levels in blood.
   a. Glucose isomerase b. Glucose oxidase
   c. Glucose peroxidase d. None of the above

6. _____Imaging probes, for usage in cancers therapy and biosensing.
   a. Potentiometric biosensor b. Thermometric biosensor
   c. Optical biosensor d. Amperometric biosensor

7. Northern blotting examines_____.
   a. RNA b. DNA
   c. Proteins d. All the above

8. _____ is a technique exploited in, molecular biology to split and categorize fragments (like protein, RNA, DNA) through size?
   a. Polymerase chain reaction b. Protein transfer
   c. Gel Electrophoresis d. Northern blotting

9. Hypersensitivity Type III, is commonly referred as_____.
   a. Delayed type hypersensitivity b. Cell mediated hypersensitivity
   c. Immune complex hypersensitivity d. All the above

10. _____ is utilized to yield a hybrid cell.
    a. rDNA technology
    b. Hybridoma technology
    c. Combination therapy
    d. All the above

11. Microbes used in the oxidation reaction in biotransformation_____.
    a. *Bacillus subtitis*
    b. *Saccharomyces cerevisiae*
    c. *Streptomyces aureofaciens*
    d. *Streptomyces griseus*

12. _____based anticoagulants are expended for the gathering of blood for transfusion.
    a. Folate
    b. Citrate
    c. Calcium
    d. All the above

13. The immobilized biological material is closely linked with_____.
    a. Transducer
    b. Analyte
    c. Signal
    d. All the above

14. The concerned DNA segment which is to be cloned is selected in first step of genetic engineering is known as_____.
    a. Foreign DNA
    b. DNA insert
    c. Cloned DNA
    d. All the above

15. The first step of Hybridoma Technology is _____.
    a. Addition of genetic marker
    b. Isolation of B-lymphocytes from the animal spleen
    c. Mixing of B-lymphocytes with the certain myeloma cells
    d. All the above

16. _____includes molecules having ß1 and ß2 subunits and can be identified by CD4 co receptors.
    a. Class I MHC
    b. Class II MHC
    c. Both a and b
    d. None of above

17. _____is utilized to quantitatively estimate the quantity of Ag in the specified sample.
    a. Direct ELISA
    b. Competitive ELISA
    c. Indirect ELISA
    d. Sandwich ELISA

18. A systematic defense against antigens initiated by lymphocytes is called _____.
    a. Inflammation
    b. An immune response
    c. Septicemia
    d. A cross-reaction

19. _____techniques used in protein engineering.
    a. Designed divergent evolution
    b. Flow cytometry
    c. Rational design
    d. All the above

20. _____ technique used to analyze the frequency of recombination among definite gene, in order with DNA sequencing.
    a. Polymerase chain reaction
    b. Protein transfer
    c. Gel Electrophoresis
    d. Northern blotting

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(PART-B : Descriptive)

Time: 1 hr. 40 minutes **Marks : 35**

[*Answer any seven (7)*]

1. Write a note on Southern blotting. 5
2. Write briefly about transduction and conjugation of microbial genetics. 5
3. Write details about types I and II of hypersensitivity reaction. 5
4. What is enzyme immobilization? Write the basic principles of genetic engineering. 5
5. Write the definitions, principles and applications of biosensor. 5
6. Write briefly about cellular immunity and humoral immunity. 2.5+2.5=5
7. Write briefly about immune stimulation and immune suppression. 2.5+2.5=5
8. Write a note on Western blotting. 5
9. Define Pharmaceutical Biotechnology.Write the various applications of pharmaceutical biotechnology. 1+4=5

Time : 1 Hr. **Marks : 20**

[*Answer any two (2)*]

1. Write in details about Enzyme-Linked Immunosorbent Assay (ELISA) with diagrams. 10
2. What is genetic engineering? Write details about Polymerase Chain reaction, their steps and applications? 2+8=10
3. Write in details about different types of immunoglobulins with diagrams. 10