



## BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Pharm-2020/B.Pharm-2021

Course Name – Pharmaceutical Biotechnology Theory

Course Code - BP605T

( Semester VI )

Full Marks : 75

Time : 3:0 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 20=20

1. Choose the correct alternative from the following :

- (i) Identify the person who is known as the father of biotechnology.
  - a) Louis Pasteur
  - b) Robert Koch
  - c) Karl Erkey
  - d) Robert Brow
- (ii) Name the genetic technique which is used in forensic science.
  - a) Genetic fingerprinting
  - b) In vivo culture
  - c) Hybridoma technology
  - d) Gene transfer
- (iii) Identify which of the following is not a physical method of immobilization.
  - a) Adsorption
  - b) Entrapment
  - c) Ionic bonding
  - d) None of these
- (iv) Recall the exact characteristic of a calorimeter biosensor.
  - a) Detects the change in light adsorption
  - b) Detects the photon out for luminescent
  - c) Detects the movement of electron between electrodes
  - d) Detects the angle at which Electrons are emitted
- (v) Identify the characteristic of an electrochemical biosensor among the following.
  - a) Detects the change in light adsorption
  - b) Detects the photon out for luminescent
  - c) Detects the movement of electron between electrodes
  - d) Detects the angle at which Electrons are emitted
- (vi) Select the type of hypersensitivity reaction which occurs via IgE reaction.
  - a) Type IV hypersensitivity reactions
  - b) Type III hypersensitivity reactions
  - c) Type II hypersensitivity reactions
  - d) Type I hypersensitivity reactions
- (vii) Recognize the disease which is not an example of type III hypersensitivity reaction?
  - a) Systemic lupus erythematosus
  - b) Rheumatoid arthritis
  - c) Good pasteurs syndrome
  - d) Down syndrome
- (viii) Write the pH required for the production of penicillin.
  - a) 8
  - b) 7.5
  - c) 6.5
  - d) 5

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- (ix) Explain the process of penicillin storage
- |                 |                    |
|-----------------|--------------------|
| a) Filtration   | b) Crystallization |
| c) Distillation | d) Sublimation     |
- (x) Choose the correct precursor of penicillin among the following options
- |                      |                                  |
|----------------------|----------------------------------|
| a) Benzylpenicillin  | b) Isopenicillin N               |
| c) Phenylacetic acid | d) L- $\alpha$ amino adipic acid |
- (xi) Write the basic function of fermenter.
- |   |                           |
|---|---------------------------|
| a) To sterilize the medium  | b) To recover the product |
| c) To provide optimum growth conditions to organisms and obtain the desired product | d) To purify the product  |
- (xii) Write the name material which is preferred for the construction of small-scale fermenter
- |               |          |
|---------------|----------|
| a) Quartz     | b) Glass |
| c) Iron steel | d) Wood  |
- (xiii) While constructing the fermenter, choose the correct option from the following which is not required.
- |   |                               |
|---|-------------------------------|
| a) High-speed Agitation and Aeration system | b) Temperature control system |
| c) pH control system                        | d) Sample facilities          |
- (xiv) Identify the correct option : Bacteriophage lambda is a major cloning vector.
- |         |          |
|---------|----------|
| a) True | b) False |
| c) Both | d) None  |
- (xv) Identify which portion of the antibody structure is occupied by variable chains
- |                          |                  |
|--------------------------|------------------|
| a) Lower region          | b) Upper region  |
| c) In between the chains | d) Middle region |
- (xvi) Predict the types of antibodies that are present?
- |      |      |
|------|------|
| a) 2 | b) 4 |
| c) 5 | d) 6 |
- (xvii) Select the cell which is responsible for mediation of cellular immune response
- |                 |                     |
|-----------------|---------------------|
| a) B cells      | b) T cells          |
| c) Both a and b | d) Epithelial cells |
- (xviii) Select the pathogen Pasteur developed the vaccination for
- |                    |                 |
|--------------------|-----------------|
| a) Rabies          | b) Anthrax      |
| c) Chicken cholera | d) All of these |
- (xix) Identify the serum hepatitis among the following options?
- |        |        |
|--------|--------|
| a) HAV | b) HBV |
| c) HCV | d) HIV |
- (xx) indicate the immunity in which lymphocytes recognizes the antigen and microorganisms
- |                    |                           |
|--------------------|---------------------------|
| a) Phagocytosis    | b) Cell mediated immunity |
| c) Tissue grafting | d) Humoral immunity       |

### Group-B

(Short Answer Type Questions)

5 x 7=35

2. Define hypersensitivity reaction along with examples and treatment regimen. (5)
3. Discuss about fermentation and it's applications. (5)
4. Describe ELISA along with diagram of any one of ELISA. (5)

5. Discuss briefly about the method of screening of monoclonal antibodies in hybridoma technology. (5)
6. Explain in detail the different method for culturing the microorganisms and their applications in pharmaceutical biotechnology. (5)
7. Explain batch culture in fermentation technique. (5)

**OR**

- Explain Fed-Batch culture. (5)
8. Explain the steps involve in amylase production. (5)
- OR**
- Explain the role of agitator in fermentation process. (5)

**Group-C**

(Long Answer Type Questions)

10 x 2=20

9. Describe about production, purification and applications of hybridoma technology. (10)
10. Explain different types of microbial biotransformation reaction with examples. (10)
- OR**
- Explain production of citric acid by fermentation technology with a neat labelled flow chart. (10)

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