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Pharmaceutical Technology
Brainware University
Bareilly, Kolkata-700125

BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022/B.Pharm-2023

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) Name the genetic technique which is used in forensic science.

a) Genetic fingerprinting	b) In vivo culture
c) Hybridoma technology	d) Gene transfer
- (ii) Identify the molecule which is used for pregnancy detection.

a) Baby's urine test	b) Blood test
c) HCG test	d) Amniotic fluid test
- (iii) State the most common procedures for irreversible enzyme immobilization are covalent coupling, entrapment or microencapsulation and _____.

a) Hydrophilic linkage	b) Di sulphate bonding
c) Covalent bonding	d) Cross linking
- (iv) Select the natural mineral polymer among the following.

a) Cellulose	b) Dextran
c) Agar	d) Silica
- (v) State the reason behind enzymes being active over small range of pH.

a) It's enzymes property	b) Due to non-active site functional group charges
c) Due to active site functional group charges	d) It prevents structure destruction.
- (vi) Name the person who is the inventor of PCR.

a) Kary Mullis	b) James Watson
c) John Hopkins	d) Hargobind Khorana
- (vii) State which type of polymerase is Taq polymerase.

a) Heat stable	b) Buffering
c) Denaturant	d) Large
- (viii) Select the type of hypersensitivity reaction which occurs via IgE reaction.

a) Type IV hypersensitivity reactions	b) Type III hypersensitivity reactions
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- c) Type II hypersensitivity reactions d) Type I hypersensitivity reactions
- (ix) Choose the correct source of production of Antibiotics
- a) Bacteria b) Algae
c) Fungi d) Fungi and bacteria
- (x) Choose the option which pH is required for the production of penicillin.
- a) 8 b) 7.5
c) 6.5 d) 5
- (xi) Choose the correct precursor of penicillin among the following options
- a) Benzylpenicillin b) Isopenicillin N
c) Phenylacetic acid d) L- α amino adipic acid
- (xii) 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
- (xiii) Indicate the technique which is used in DNA finger printing
- a) Western blotting b) Southern blotting
c) Northern blotting d) Eastern blotting
- (xiv) Illustrate the appropriate function of labelled antibodies
- a) Detect the presence of a particular DNA molecule in southern blotting b) Detect the presence of a particular RNA molecule in southern blotting
c) Detect the presence of a particular protein molecule in southern blotting d) Detect the presence of a particular protein molecule in western blotting
- (xv) Select the event that occurs during Point mutation
- a) Deletion b) Insertion
c) Duplication d) Change in single base pair
- (xvi) Identify the mutational event, when adenine is replaced by guanine
- a) Transition b) Transcription
c) Transversion d) Frame shift mutation
- (xvii) Report the event when UV radiation is treated on DNA to induce mutation
- a) Formation of thymine dimers b) Methylation of base pairs
c) Deletion of base pairs d) Addition of base pairs
- (xviii) Select the organism in which Muller first induced mutations by exposing them on x-rays.
- a) Paramecium b) Arabidopsis
c) Drosophila d) Xenopus
- (xix) Establish the correct raw material which is used for the production of alcohol?
- a) Waste liquor b) Molasses
c) Starch d) Alkanes
- (xx) Predict the compound which is produced by using Cyanide as a precursor
- a) Carotenoids b) Vitamin B12
c) Riboflavin d) Vitamin B2

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Group-B

(Short Answer Type Questions)

5 x 7=35

2. Define hypersensitivity reaction along with examples and treatment regimen. (5)
3. Define mutation with their types and examples. (5)
4. Define rDNA technology and it's goals. (5)
5. Describe the principle and application of blotting technique in pharmaceutical biotechnology. (5)

6. Write down the production process of glutamic acid. (5)
7. Explain some factors which affects in fermentation process. (5)

OR

Explain types of fermenters. (5)

8. Explain the steps involve in amylase production. (5)

OR

Explain aeration process for fermentation. (5)

Group-C

(Long Answer Type Questions)

10 x 2=20

9. Explain in details about the restriction endonuclease and DNA ligase along with its applications in recombinant DNA technology. (10)

10. Explain production of citric acid by fermentation technology with a neat labelled flow chart. (10)

OR

Explain in detail the process of transformation, conjugation, and transduction in understanding microbial genetics in developing biotechnological tools. (10)
