



## BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**  
**Programme – Bachelor of Pharmacy**  
**Course Name – Pharmaceutical Biotechnology**  
**Course Code - BP605T**  
**( Semester VI )**

Time allotted : 1 Hrs.30 Min.

Full Marks : 75

[The figure in the margin indicates full marks.]

### Group-A

(Multiple Choice Type Question)

1 x 75=75

Choose the correct alternative from the following :

- (1) The first synthetic antibiotic was?
 

|                    |               |
|--------------------|---------------|
| a) Tetracycline    | b) Nystatin   |
| c) Chloramphenicol | d) Ampicillin |
- (2) Using genetic techniques in forensic science is also called
 

|                           |                    |
|---------------------------|--------------------|
| a) Genetic fingerprinting | b) In vivo culture |
| c) Hybridoma technology   | d) Gene transfer   |
- (3) The most commonly employed cross-linked polymer is
 

|                       |                          |
|-----------------------|--------------------------|
| a) Collagen           | b) Cellulose             |
| c) Polyacrylamide gel | d) Cation exchange resin |
- (4) Glucose biosensor is an example of \_\_\_\_\_ biosensor.
 

|                |                   |
|----------------|-------------------|
| a) Thermal     | b) Optical        |
| c) Amperometry | d) Conductometric |
- (5) Highest percentage of starch present in
 

|            |                  |
|------------|------------------|
| a) Amylase | b) Amylopectin   |
| c) Both    | d) None of these |
- (6) Who is the inventor of biosensor?
 

|                       |                       |
|-----------------------|-----------------------|
| a) Robert Hooke       | b) Thomas Alva Edison |
| c) Leland C Clark, Jr | d) Einstein           |
- (7) In a pregnancy kit, which molecule does the kit actually test for?
 

|                      |                        |
|----------------------|------------------------|
| a) Baby's urine test | b) Blood test          |
| c) HCG test          | d) Amniotic fluid test |
- (8) Which of the following is a characteristic of a photometric 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
- (9) Which of the following is a characteristic of DNA biosensor?
- a) Detects the change in light absorption      b) Detects the photon out for luminescent
- c) Detects the movement of electron between electrodes      d) Formation of DNA recognition layer
- (10) Which of the following are natural mineral polymers?
- a) Cellulose      b) Dextran
- c) Agar      d) Silica
- (11) What is the name of the method used to attach stationary solids by weak physical forces?
- a) Absorption      b) Adsorption
- c) Cross linking      d) Capillary action
- (12) What is the suitable form of ionic group of enzymes?
- a) Acidic      b) Basic
- c) Both a or b      d) Neutral
- (13) If the substrate contains ionic groups, what happens to the pH of the medium?
- a) pH of the medium increases      b) pH of the medium decreases
- c) pH remains same      d) pH of the medium affects the affinity of the substrate to the enzyme
- (14) A short peptide region fused to a protein of interest is known as \_\_\_\_\_.
- a) Tag      b) Oligonucleotide
- c) Fragment      d) Dime
- (15) Proteins at times are not soluble in the cell and form aggregates known as \_\_\_\_\_.
- a) Coagulation      b) Aggregated mass
- c) Inclusion bodies      d) Insoluble mass
- (16) The reporter gene in enhancer trap system is preceded by \_\_\_\_\_.
- a) Intron      b) Exon
- c) Promoter      d) Origin of replication
- (17) Plasmids that cannot be transferred between bacteria through a pilus, then it is called as \_\_\_\_\_.
- a) Non-transmissible      b) Non-mobilizable
- c) Non Transferrable      d) Immobilizer
- (18) PCR was invented by
- a) Kary Mullis      b) James Watson
- c) John Hopkins      d) Hargobind Khorana
- (19) Taq polymerase is a \_\_\_\_\_ polymerase.
- a) Heat stable      b) Buffering
- c) Denaturant      d) Large
- (20) DNA libraries are collection of \_\_\_\_\_.
- a) RNA      b) Cloned DNA fragments
- c) Bacteriophages      d) Viral particles
- (21) c- DNA libraries are produced from
- a) RNAs      b) Messenger RNAs
- c) Transfer RNAs      d) Ribosomal RNAs
- (22) Viral mediated gene transfer is called \_\_\_\_\_.

- a) Conjugation  
c) Transformation
- b) Transduction  
d) Transversion
- (23) The temperature cycles in a PCR are in the order
- a)  $95^{\circ}$  ,  $55^{\circ}$  ,  $72^{\circ}$   
c)  $72^{\circ}$  ,  $55^{\circ}$  ,  $95^{\circ}$
- b)  $55^{\circ}$  ,  $72^{\circ}$  ,  $95^{\circ}$   
d)  $95^{\circ}$  ,  $72^{\circ}$  ,  $55^{\circ}$
- (24) Which enzyme is active at  $72^{\circ}$  in the polymerase chain reaction \_\_\_\_\_
- a) Isomerase  
c) Polymerase
- b) Exonuclease  
d) Endonuclease
- (25) The vaccines prepared through recombinant DNA technology are
- a) Third generation vaccines  
c) Second generation vaccines
- b) First generation vaccines  
d) None
- (26) The DNA fragments have strictly ends due to \_\_\_\_\_
- a) Endonuclease  
c) Calcium ions
- b) Unpaired bases  
d) Free methylation
- (27) Which bacterium is used in the production of insulin by genetic engineering?
- a) Saccharomyces  
c) Escherichia
- b) Rhizobium  
d) Mycobacterium
- (28) The trade name of human insulin is \_\_\_\_\_
- a) Humatrope  
c) Intron
- b) Humulin  
d) Activase
- (29) Recombinant plasmids are added to a bacterial culture that has been pretreated with \_\_\_ ion  
s
- a) Iodine  
c) Calcium
- b) Magnesium  
d) Ferric
- (30) Which enzyme is used to join together two different types of DNA molecules?
- a) Ligase  
c) Exonuclease
- b) Endonuclease  
d) Protease
- (31) Which of the following enzymes in bacteria are responsible for restricting the growth of viruses?
- a) Restriction endonuclease  
c) Gyrase
- b) Topoisomerase  
d) Protease
- (32) All of the following are applications of rDNA technology except
- a) Treatment of human genetic disorders  
c) Using bacteria to detect the presence of carcinogens
- b) Production of human proteins in bacterial cells  
d) Altering plants to make them resistant to pests
- (33) Which molecules move faster in gel electrophoresis?
- a) Longer  
c) Positively charged, negatively charged
- b) Smaller  
d) Heavier, lighter
- (34) Which of the following techniques involves molecules of single stranded DNA bound to glass slides or silicon chips?
- a) DNA microarrays  
c) PCR
- b) Southern blots  
d) Electroporation
- (35) The source DNA for interferon production was isolated from



- a) mRNA of host  
b) dsDNA of host  
c) Chemical synthesis  
d) Mutated cell
- (36) Which type of hypersensitivity reaction occurs via IgE reaction?  
a) Type IV hypersensitivity reactions  
b) Type III hypersensitivity reactions  
c) Type II hypersensitivity reactions  
d) Type I hypersensitivity reactions
- (37) Which of the following drug induce all the four types of hypersensitivity reactions?  
a) Penicillin  
b) Sulfonamides  
c) Local anaesthetic  
d) Salicylates
- (38) Type I hypersensitivity requires which of the following initial priming events to occur  
a) Sensitization  
b) Secondary immune response  
c) Cellular trauma  
d) Degranulation
- (39) Which of the following is main mediator/initiator for type II hypersensitivity reactions?  
a) Antibodies  
b) Mast cells  
c) Erythrocytes  
d) Histamines
- (40) Which of the following is a common treatment for type III hypersensitivity reactions?  
a) Anti inflammatory steroid treatment  
b) Anti histamine treatment  
c) Hyposensitization injection  
d) rhoGAM injection
- (41) Which one of the following is not an example of type IV hypersensitivity reaction?  
a) Latex allergy  
b) Contact dermatitis  
c) Hemolytic disease of the new born  
d) A positive tuberculin skin test
- (42) Cancer results when a mutation leads to which of the following?  
a) Cell death  
b) Apoptosis  
c) Loss of cell cycle control  
d) Shutdown of cell cycle
- (43) What kind of defense barrier is provided by the mucous membrane?  
a) Physical  
b) Mechanical  
c) Chemical  
d) Biological
- (44) Antibodies disappears very quickly in which immunity?  
a) Active  
b) Passive  
c) Auto immune  
d) Natural induced
- (45) How many types of antibody are present?  
a) 2  
b) 4  
c) 5  
d) 6
- (46) Which of the following produces monoclonal antibodies?  
a) Fermentation technology  
b) Hybridoma technology  
c) Genetic engineering  
d) None of these
- (47) Which of the following is predominant immunoglobulin in the body?  
a) IgA  
b) IgE  
c) IgM  
d) IgG
- (48) Which of the following IgG is targeted against polysaccharides of encapsulated bacteria?  
a) IgG1  
b) IgG2  
c) IgG3  
d) IgG4
- (49) Which of the following is serum hepatitis?  
a) HAV  
b) HBV  
c) HCV  
d) HIV

- (50) Immunity in which lymphocytes recognizes the antigen and microorganisms is called as
- Phagocytosis
  - Cell mediated immunity
  - Tissue grafting
  - Humoral immunity
- (51) Western blotting is the technique for the detection of
- Specific DNA in a sample
  - Specific RNA in a sample
  - Specific protein in a sample
  - Specific glycolipid in a sample
- (52) Arrange the following in correct order\_\_ 1. Southern blotting -----a. Alwine 2. Western blotting-----b. EM Southern 3. Northern blotting-----c. A.Jeffrey 4. DNA fingerprinting--d. Towbin
- 1-a, 2-c, 3-d, 4-b
  - 1-b, 2-d, 3-a, 4-c
  - 1-b, 2-a, 3-d, 4-c
  - 1-b, 2-c, 3-a, 4-c
- (53) Which of the following technique is used in DNA finger printing?
- Western blotting
  - Southern blotting
  - Northern blotting
  - Eastern blotting
- (54) Labelled antibodies are used to detect
- Detect the presence of a particular DNA molecule in southern blotting
  - Detect the presence of a particular RNA molecule in southern blotting
  - Detect the presence of a particular protein molecule in southern blotting
  - Detect the presence of a particular protein molecule in western blotting
- (55) DNA finger printing was developed by
- Francis Crick
  - Khorana
  - Alec Jeffrey
  - James Watson
- (56) Which is a typical feature of a prokaryotic cell?
- DNA is absent
  - Cell wall is absent
  - Nucleus is absent
  - RNA is absent
- (57) Which ribosome is present in prokaryotic cell
- 80S
  - 70S
  - 50S and 40S
  - 60S and 30S
- (58) Genetic mutation occurs at the time of
- DNA repair
  - DNA replication
  - Cell division
  - RNA transcription
- (59) Ultimate source of genetic variation is?
- Mutation
  - Sexual reproduction
  - Meiosis
  - Evolution
- (60) Mutation is generally due to
- Lethal gene
  - Dominant gene
  - Recessive gene
  - Complementary gene
- (61) In mutational event, when adenine is replaced by guanine, it is
- Transition
  - Transcription
  - Transversion
  - Frame shift mutation
- (62) Muller was first to produce induced mutations in by exposing them x rays.
- Paramecium
  - Arabidopsis
  - Drosophila
  - Xenopus
- (63) Mutation is
- Change which affects the offspring's of F2 ge
  - Change that is inherited



- neration
- c) Change in parents not inherited
- d) Plant growth controlling factor
- (64) X ray causes mutation by
- a) Deletion
- b) Transition
- c) Transversion
- d) Base substitution
- (65) The induction of mutation by X rays was discovered by
- a) Muller
- b) Hugo de Vries
- c) Weismann
- d) Morgan
- (66) A mutation that does not alter the protein production is called a
- a) Deletion mutation
- b) Inversion mutation
- c) Silent mutation
- d) Transverse mutation
- (67) Original: ATCCAT mutation: ATCGCAT which type of mutation is occurred?
- a) Deletion
- b) Inversion
- c) Insertion
- d) Transverse
- (68) Who first isolated citric acid?
- a) Thomas Edison
- b) Carl Wilhelm
- c) Charles Darwin
- d) Francis Crick
- (69) Which of the following organisms is not used for the production of citric acid?
- a) *Aspergillus wentii*
- b) *Bacillus licheniformis*
- c) *Candida oleophila*
- d) *Saccharomyces cerevisiae*
- (70) Citrate is the feedback inhibitor of \_\_\_\_\_
- a) Hexokinase
- b) Phosphofruktokinase
- c) Pyruvate dehydrogenase
- d) Malate dehydrogenase
- (71) Who discovered the citric acid cycle?
- a) Hans Krebs
- b) Carl Wilhelm
- c) Wehmer
- d) Adam
- (72) How inoculum is prepared in the production of antibiotics?
- a) On solid media
- b) On liquid media
- c) First on solid media than on liquid media
- d) On suspension
- (73) pH required for the production of penicillin will be \_\_\_\_\_
- a) 8.0
- b) 7.5
- c) 6.5
- d) 5.0
- (74) The doubling time of *Penicillium notatum* is \_\_\_\_\_
- a) 6 hrs
- b) 5 hrs
- c) 4 hrs
- d) 3 hrs
- (75) What is the precursor of penicillin?
- a) Benzylpenicillin
- b) Isopenicillin N
- c) phenylacetic acid
- d) L- $\alpha$  amino adipic acid