

Time: 3 Hrs

Marks: 75

N.B. : 1. All questions are compulsory
2. Figures to right indicate full marks

Q. 1 MCQ

20 M

- 1) Vector is required in rDNA technology to
 - a) amplify the foreign gene
 - b) transfer a gene from animal to another
 - c) isolate the foreign gene
 - d) join the foreign gene
- 2) Salk polio vaccine is type of
 - a) Inactivated vaccine
 - b) Live attenuated vaccine
 - c) Recombinant DNA vaccine
 - d) Toxoid vaccine
- 3) Which of the following hypersensitivity occurs via IgE antibody?
 - a) Type I
 - b) Type II
 - c) Type III
 - d) Type IV
- 4) Restriction enzymes are used for
 - a) Cutting DNA
 - b) Joining genes
 - c) Isolation of proteins
 - d) Isolation of enzymes
- 5) Which of the following role is performed by a bacteriophage in transduction?
 - a) vector
 - b) donor
 - c) recipient
 - d) Eepisome
- 6) Enzyme immobilization is done
 - a) to reduce the activity of the enzyme
 - b) to protect the enzyme
 - c) to degrade the enzyme at a faster rate
 - d) to deactivate the enzyme
- 7) The extension temperature in the PCR is
 - a) 25⁰c
 - b) 44⁰c
 - c) 65⁰c
 - d) 72⁰c
- 8) In a Biosensor the bioreceptor cannot be _____
 - a) enzyme
 - b) cell
 - c) antigen
 - d) a non biochemical substance
- 9) Air-lift is a _____ type of fermentor.
 - a) Mechanically stirred
 - b) Forced convection
 - c) Pneumatic
 - d) Tray
- 10) Which of the following is not correct sentence about protein engineering
 - a) It is the study of structure of proteins
 - b) It is the study of amino acid sequence
 - c) It is the study of nucleotide sequence
 - d) It is the study of function of proteins
- 11) Function of MHC molecule is
 - a) to kill the antigen.
 - b) to produce antibodies against antigen.
 - c) to present the antigenic determinant peptide to immunological cells.
 - d) to neutralize the antigenic material

- 12) Active immunity is induced by
- a) Infection
 - b) Placental transfer of antibodies
 - c) injection of antibodies
 - d) Injection of gamma- globulins
- 13) Sera are _____ types of Immunity
- a) Naturally acquired active
 - b) Naturally acquired passive
 - c) Artificially acquired active
 - d) Artificially stimulated passive
- 14) Applications of southern blotting include
- a) RFLP and DNA Fingerprinting
 - b) Identification of proteins
 - c) Separation of amino-acids
 - d) Isolation of proteins
- 15) _____ mutants show a change in the surface structure and composition of the microbial cell.
- a) Metabolic mutants
 - b) Antigenic mutants
 - c) Regulatory mutant
 - d) Cryptic mutant
- 16) While naming the RE the first letter use of _____ name
- a) strain
 - b) Genus
 - c) Species
 - d) Scientist
- 17) Shelf life of Whole human blood is _____
- a) 3 days
 - b) 5 years
 - c) 3 months
 - d) 21 days
- 18) Microorganism used for the production of Vitamin B12 by fermentation method is
- a) Penicillium chrysogenum
 - b) Aspergillus niger
 - c) Pseudomonas denitrificans
 - d) Saccharomyces cerevisiae
- 19) _____ is used as a monitoring device in the fermenter to measure agitator speed.
- a) Flow meter
 - b) Rota meter
 - c) Pressure gauze
 - d) Tachometer
- 20) _____ prevents vortex formation in fermenter
- a) Baffles
 - b) Impellers
 - c) Propeller
 - d) Shaft

Q.2 Answer any two of the following

(10X2 =20 M)

- 1) Enlist and explain methods of Enzyme immobilization with suitable diagrams and examples.
- 2) Explain the detail process of insulin production by recombinant DNA technology
- 3) Define fermentation, draw a neat labeled diagram of the ideal fermentor and write a short note on Penicillin production by fermentation.

Q.3) Answer any seven out of nine of the following

(7X5=35 M)

- 1) Explain the method of production of Monoclonal antibodies and write its applications.
- 2) Explain in detail any one method of DNA sequencing
- 3) Write a note on transgenic plants
- 4) Draw and explain structure of MHC class-I and Class-II molecules.
- 5) What do you mean by Plasma Substitutes? enlist their properties.
- 6) Enlist the types of mutation and explain any one in detail.
- 7) Explain the process of production of Sera.
- 8) Differentiate between Humoral and Cellular immunity.
- 9) Define Biotransformation and Explain types of microbial biotransformation with suitable examples.
