UNIT-I BIOCHEMISTRY

1. The carbohydrate insoluble in water is
   a. Glucose
   b. Maltose
   c. Sucrose
   d. Cellulose
2. In an α-helix hydrogen bonds are
   a. within a single chain
   b. between chains that run side by side
   c. between polar amino acids and water
   d. only between amino acids of opposite charge
3. Prosthetic groups are
   a. required by all enzymes in the cell
   b. loosely bound to enzymes via hydrogen bonds
   c. sites on the enzyme molecule that permit allosteric modification of enzyme activity
   d. tightly bound to enzymes and are required for their activity
4. In the pentose phosphate pathway
   a. only the C-1 carbon of glucose is oxidised to CO_2
   b. all the carbons of glucose are oxidised to CO_2
   c. no decarboxylation occurs
   d. C-4 and C-5 of glucose are oxidized to CO_2
5. Starting from a glucose residue in glycogen, how many net ATP molecules will be formed in the Glycolysis of the residue to pyruvate?
   a. 1
   b. 2
   c. 3
   d. 4

UNIT-II MOLECULAR BIOLOGY AND GENETIC ENGINEERING

6. According to the RNA-world theory
   a. RNA molecules were the first organic molecules formed on earth
   b. life evolved on another planet called RNA world
   c. all RNA molecules in cells are ribozymes
   d. primitive RNA molecules evolved before protein and DNA
7. Purified duplex DNA molecules cannot exist in which one of the following forms?
   a. linear
   b. circular and supercoiled
   c. linear and supercoiled
   d. circular and relaxed
8. Intact duplex DNA is a substrate for
   a. DNA pol I
   b. DNA pol III
   c. RNA polymerase

d. DNA pol IV

9. miRNA based silencing of genes is a type of
    a. transcription gene silencing
    b. post transcription gene silencing
    c. translation gene silencing
    d. post translation gene silencing
10. The ribosome is involved in all of the following except
    a. peptide bond formation
    b. aminoacylation of tRNA
    c. binding of protein factors during elongation
    d. binding of aminoacyl tRNA to mRNA

UNIT-III MICROBIOLOGY AND IMMUNOLOGY

11. Which is the most modern method of classification of microorganisms?
    a. Morphology
    b. Gram staining
    c. Biochemical characterization
    d. 16s rRNA sequence
12. A prophage is
    a. anauxotropic mutant
    b. a gene
    c. a phage DNA incorporated into the host genome
    d. the DNA of the lytic phage
13. Somatic mutation of immunoglobulin genes accounts for
    a. allelic exclusion
    b. class switching from IgM to IgG
    c. affinity maturation
    d. increased expression of the Ig gene
14. An MHC class I molecule was run on an SDS polyacrylamide gel. How many protein bands will be observed in the gel?
    a. 4
    b. 2
    c. 1
    d. 3
15. An IgG molecule after treatment with an enzyme generated a disulfide linked antigen binding fragment which could agglutinate cells. The enzyme is
    a. trypsin
    b. papin
    c. pepsin
    d. V_8 protease

UNIT-IV BIOTECHNIQUES AND BIOPROCESS TECHNOLOGY

16. In a bioreactor, baffles are incorporated to
    a. prevent vortex and improve aeration efficiency
    b. maintain uniform suspension of cells
    c. minimize the size of air bubbles for generator aeration
    d. maintain uniform nutrient medium
17. Which of the following method is used to separate insoluble particles?
    a. dialysis
    b. centrifugation
    c. electrophoresis
    d. adsorption
18. Rate of heat transfer in case of forced convection when compared with natural convection is
    a. higher
    b. lower
    c. almost equal
    d. nothing in particular
19. Autoclaves are routinely used in laboratories for sterilization. It acts by
    a. disrupting cell membranes
    b. denaturing proteins
    c. changing physically membrane lipids
    d. all of the above
20. Which one of the following statements is true?
    a. all microarrays are DNA microarrays
    b. complete genome sequence should be known to make a microarray
    c. all the microarrays use radioisotope
    d. microarrays can be used to measure mRNA levels

UNIT-IV ANIMAL, PLANT AND ENVIRONMENTAL BIOTECHNOLOGY

21. Cybrids are produced
    a. by *in vitro* fusion of gametes
    b. by fusion of two cells and contain full nuclear genomes of the two parents
    c. by fusion of two cells and contain full nuclear genome of one and partial nuclear genome of the other parent
    d. by fusion of two cells and contain nuclear genome of one parent and cytoplasmic genome of the other parent
22. Border sequences need to be incorporated into the design of plasmid vectors for *Agrobacterium* mediated transformation to ensure
    a. greater promoter efficiency
    b. oncogene deactivation
    c. efficient replication of the plasmid
    d. integration of the genes of interest into the host gene

23. Monoclonal antibodies are secreted by hybridomas which are generated by
    a. fusion of immune spleen cells with any type of cells capable of growing in tissue culture
    b. fusion of immune spleen cells with plasmacytoma cells
    c. growing immune spleen cells in the presence of HAT
    d. growing immune spleen cells in the presence of B cell growth factors
24. With reference to biotechnology, microinjection is a method of
    a. injecting a solution of DNA into the nucleus of a cell
    b. injecting nutrients into a cell culture media
    c. injecting microbes into a cell culture media
    d. injecting medicine to human beings
25. POMATO, is
    a . A transgenic plant
    b. A plant obtained through protoplast hybridization
    c. A plant obtained by organ culture
    d. A plant developed by plant breeding method

ANSWER

1.d 2. a 3. d 4. a 5. c 6.d 7. c 8.c 9.b 10. b 11.d 12.c
13.c 14.b 15. c 16.a 17. b 18.a 19.d 20.d 21. d
22. d 23. b 24. a 25.b