

2

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, ALLAHABAD

2nd Quiz for Engineering Biology

B. Tech. IT-VI Sem.

Max Marks: 30

Duration: 20 min

Answer all the questions. Put a ✓ against the correct answer. Each question carries 1 mark.
Each wrong answer will reduce 0.25 mark

1. Which among the following is a non-essential amino acid?

- (a) Serine
- (b) Threonine
- (c) Lysine
- (d) Histidine

2. Which of the following is an essential amino acid?

- (a) Cysteine
- (b) Asparagine
- (c) Glutamine
- (d) Phenylalanine

3. Which one of the following is not a part of amino acid structure?

- (a) Amine(-NH₂) group
- (b) Nitro group (-NO₂) group
- (c) Side chain (R)
- (d) Carboxylic acid group (COOH)

4. Q is the one letter code for the following amino acid:

- (a) Phenylalanine
- (b) Aspartic acid
- (c) Glutamine
- (d) Tryptophan

5. Which of the following is a non-polar amino acid ?

- (a) Lysine
- (b) Valine
- (c) Aspartate
- (d) Glutamate

6. Which of the following has a positively charged side group ?

- (a) Glycine
- (b) Serine
- (c) Threonine
- (d) Lysine

7. Formation of peptide bond involves which of the following chemical reaction?

- (a) Combustion
- (b) Neutralization
- (c) Precipitation
- (d) Condensation

8. In which of the following combinations, both amino acids contain sulphur?

- (a) Cysteine and leucine
- (b) Tryptophan and leucine
- (c) Methionine and aspartate
- (d) Cysteine and methionine

9. Thiol (-SH) functional group is a feature of which of the following amino acid?

- (a) Glycine
- (b) Isoleucine
- (c) Cysteine
- (d) Methionine

10. Which of the following organs is not involved in amino acid metabolism?

- (a) Stomach
- (b) Liver
- (c) Pancreas
- (d) Small intestine

11. Alpha-helix and beta sheet are not found in which of the following structures of protein:

- (a) Primary structure
- (b) Secondary structure
- (c) Tertiary structure
- (d) All of the above

12. Which of the following bonds play an important role in formation of secondary structure of protein:

- (a) Van der Waal interactions
- (b) Hydrophobic interaction
- (c) Hydrogen bonds
- (d) All of the above

13. Which metal is found in the structure of haemoglobin?

- (a) Magnesium (Mg)
- (b) Cobalt (Co)
- (c) Iron (Fe)
- (d) Zinc(Zn)

14. B-cells and T-cells are two types of cells involved in _____.

- (a) Innate Immunity
- (b) Active immunity
- (c) Passive immunity
- (d) Acquired immunity

15. Which of the following cells is involved in cell-mediated immunity?

- (a) T-cells
- (b) B-cells
- (c) Mast cells
- (d) Both T and B cells

16. Which of the following conveys the longest-lasting immunity to an infectious agent?

- (a) Active immunity
- (b) Passive immunity
- (c) Both (a) and (b)
- (d) None of the above

17. Which of the following does not act as a protecting barrier for the body surface?

- (a) Skin
- (b) Mucus
- (c) Gastric acid
- (d) Salivary amylase

18. Which of the following cells is involved in humoral immunity?

- (a) T-cells
- (b) B-cells
- (c) Mast cells
- (d) Both T and B cells

19. Which of the following does not characterize adaptive immunity?

- (a) Immunogenic memory
- (b) Non-specific antigens
- (c) Self and non-self-recognition
- (d) Diversity

20. Which of these is an autoimmune disease ?

- (a) Cancer
- (b) Diabetes mellitus type I
- (c) Gastric ulcer
- (d) AIDS

21. A single antigen molecule may be composed of many individual _____.

- (a) T-cell receptors
- (b) B-cell receptors
- (c) MHC-II
- (d) epitopes

22. Which of the following antibodies has the highest valency?

- (a) IgE
- (b) IgG
- (c) IgA
- (d) IgM

23. Which of the following is not an antigen presenting cell ?

- (a) B-cell
- (b) Macrophages
- (c) Dendritic cell
- (d) T-cell

24. Exogenous antigens are associated with which molecules in order to activate the cells ?

- (a) Class II MHC
- (b) Peptide molecules
- (c) Class I MHC
- (d) Antigen presenting cells

25. Which of the following is a consequence of antigen-antibody interaction?

- (a) Opsonization
- (b) Agglutination
- (c) Precipitation
- (d) All of the above

26. Fructose has the following functional group in its structure:

- (a) Carboxylic group
- (b) Ketose group
- (c) Aldehydic group
- (d) Ether group

27. What are stereoisomers ?

- (a) Isomers having different composition and different spatial arrangement
- (b) Isomers having same composition but different spatial arrangement
- (c) Isomers having same composition and same spatial arrangement
- (d) Isomers having different composition but same spatial arrangement

28. Maltose is formed by following pair of monosaccharides?

- (a) Glucose and galactose
- (b) Glucose and sucrose
- (c) Glucose and glucose
- (d) Glucose and fructose

29. Combination of glucose and fructose leads to formation of which of the following disaccharide ?

- (a) Maltose
- (b) Sucrose
- (c) Lactose
- (d) None of the above

30. Which of the following polysaccharide is stored in human liver and muscles

- (a) Glycogen
- (b) Starch
- (c) Cellulose
- (d) All of the above

