

**TELANGANA UNIVERSITY**  
**S.S.R. DEGREE & PG COLLEGE, NIZAMABAD (C.C:5029)**  
**MSC (ZOOLOGY) I SEMESTER INTERNAL QUESTION BANK**

**SUB:- STRUCTURAL BIOLOGY, SEM-I, PAPER-I**

## I. Multiple choice questions.

1. Biomolecules are also called as [ ]

- a) Living Molecule
- b) Chemical Molecule
- c) Biological Molecule
- d) Molecules of Biomes

Answer: (c) Biological Molecule

2. Example of Monosaccharide is [ ]

- a) Galactose
- b) Glucose
- c) Starch
- d) Maltose

Answer: (b) Glucose

3. Amino acids are the building blocks of [ ]

a) Carbohydrates      b) Lipids      c) Nitric acid      d) Proteins

Answer: (d) Proteins

4. Gluconeogenesis occurs in the following Tissue [ ]

a) Muscular Tissue      b) Liver & Cortex of Kidney      c) Pancreas      d) None

Answer: (b) Liver & Cortex of Kidney

5. Deamination of Amino acids takes place in [ ]

- a) Nerve cell
- b) Liver cell
- c) Muscle cell
- d) Cytoplasm

Answer: (b) Liver cell

6. Energy required for starting a chemical reaction is [ ]

- a) Activation Energy
- b) Entropy
- c) Gibb's Energy
- d) All

Answer: (a) Activation Energy

7. All Enzymes are [ ]

- a) Carbohydrates
- b) Nucleic Acids
- c) Lipids
- d) Proteins

Answer: (d) Proteins

8.  $K_m$  value is related to [ ]

### a) Energy

9. Induced fit Hypothesis was given by [ ]

a) Fischer b) Koshland c) Buchner d) Summer

Answer: (b) Koshland

10. Who coined the word Enzyme [ ]

a) Khune b) Trenbe c) Strasburger d) Menten

Answer: (a) Khune

11. Which level of protein structure is stabilized by hydrogen bonds? [ ]

(a) Primary (b) Secondary (c) Tertiary (d) Quaternary

Answer: (b) Secondary

12. Which method is best for determining atomic structure of proteins? [ ]

(a) Spectrophotometry (b) X-ray crystallography (c) Chromatography (d) Centrifugation

Answer: (b) X-ray crystallography

13. Which bond is responsible for peptide formation? [ ]

(a) Hydrogen (b) Ionic (c) Covalent (d) Peptide

Answer: (d) Peptide

14. Alpha helix is an example of: [ ]

(a) Primary (b) Secondary (c) Tertiary (d) Quaternary

Answer: (b) Secondary

15. Which molecule acts as the backbone of DNA? [ ]

(a) Sugar-phosphate (b) Nitrogen bases (c) Amino acids (d) Fatty acids

Answer: (a) Sugar-phosphate

16. Cryo-EM is mainly used to study: [ ]

(a) Small metabolites (b) Protein complexes (c) Only carbohydrates (d) Only lipids

Answer: (b) Protein complexes

17. The quaternary structure is seen in: [ ]

(a) Single peptide proteins (b) Proteins with multiple subunits (c) Lipids (d) Vitamins

Answer: (b) Proteins with multiple subunits

18. Which force stabilizes tertiary protein structure? [ ]

(a) Peptide bonds (b) Hydrogen bonds (c) Disulfide bonds (d) All of the above

Answer: (d) All of the above

19. DNA double helix is stabilized mainly by: [ ]

(a) Peptide bonds (b) Hydrogen bonds (c) Disulfide bonds (d) Covalent bonds

Answer: (b) Hydrogen bonds

20. Structural biology bridges the gap between biology and: [ ]

(a) Physics and chemistry (b) Mathematics (c) Botany only (d) Zoology only

Answer: (a) Physics and chemistry

## II. Fill in the Blanks

1. The basic structural unit of proteins is the **Amino acid**
2. The primary structure of a protein refers to the **Amino acid** sequence.
3. The protein hemoglobin is an example of **Quaternary** structure.
4. Beta-pleated sheets are part of the **Secondary** structure of protein.
5. The bond that links amino acids together is called a **Peptide** bond.
6. The helical structure of DNA was proposed by **Watson** and Crick.
7. The complete set of proteins expressed by a cell is called the **Proteome**.
8. Disulfide bonds help in maintaining the **Tertiary** structure of proteins.
9. The functional shape of a protein is also known as its **Conformation**.
10. Structural biology mainly focuses on the relationship between structure and **Function**.
11. Secondary structure of protein is **Alpha-helix & Beta-pleated sheet**
12. Functional protein is **Tertiary structure**
13. For starting respiration, a living cell requires **Oxygen**
14. Lock and key Hypothesis was proposed by **Emil Fischer**
15.  $K_m$  value is **Substrate concentration at half maximum velocity (½ Vmax)**
16. TCA is also called as **Krebs cycle or Citric acid cycle**
17. **Alanine** is a non-essential amino acid in humans.
18. The synthesis of glucose from fat is called **Gluconeogenesis**
19. Deamination of amino acids takes place in **Liver**
20. The oxidation of 1NADPH2 Yields **3** ATP.

## III Answers the following questions

- (1) Write the structure of DNA?
- (2) Classification, Structure of proteins?
- (3) Glycolysis?
- (4) Polysaccharides?
- (5) Metabolic disorders of different biomolecules?