

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

Answer: (c) ES Complex

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 ($\frac{1}{2} V_{max}$)
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?