

Code No. : 7788

Sub. Code : WZOE 11

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

First Semester

Zoology

Elective I — MOLECULES AND THEIR
INTERACTION RELEVANT TO BIOLOGY

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL the questions.

Choose the correct answer :

1. Match the pH of saliva is _____.
(a) 6.4 – 6.8 (b) 7.55 – 7.9
(c) 2 – 3 (d) 4 – 5
2. Choose the another name of an ionic bond
(a) Vander Waals (b) Free energy
(c) Hydrogen bond (d) Electrovalent bond
3. Select the weakest bond from the following
(a) Dative bond (b) Vander Waals bond
(c) Anhydro bonds (d) Covalent bond
4. Select the Vitamin which plays an important role in oxidation and metabolism
(a) Riboflavin (b) Niacin
(c) Tocopherol (d) Retinol
5. Match the number of ATP produced during the conversion of one glucose to pyruvic acid
(a) 16 (b) 8
(c) 2 (d) 20
6. The enzyme which link two substrates are called _____.
(a) Lyases (b) Ligases
(c) Isomerases (d) Transferases
7. Select the possible left handed, double helical structures of DNA _____.
(a) B DNA (b) Z-DNA
(c) A DNA (d) None
8. Secondary structure of proteins are exhibited by _____ nature.
(a) helical (b) linear
(c) comma (d) cone
9. Select the bond which is very common in organic compound is _____.
(a) double bond (b) triple bond
(c) covalent bond (d) all the above
10. Choose the less stable molecules from the following
(a) tRNA (b) mRNA
(c) rRNA (d) DNA
11. The atomic number of an element is determined by the number of
(a) Protons (b) Electrons
(c) Neutrons (d) Photons
12. Enzymes, which facilitate chemical reactions in living organisms, are a type of _____.
(a) Carbohydrate (b) Nucleic acid
(c) Protein (d) Vitamin
13. Quaternary structure of proteins are applicable to
(a) all proteins
(b) only proteins with single polypeptide chain subunits
(c) only protein with multiple polypeptide chain sub units
(d) proteins with helical secondary structure
14. The Michaelis – Menten equation describes the relationship between the rate of an enzyme catalyzed reaction and the _____.
(a) enzyme concentration
(b) substrate concentration
(c) product concentration
(d) inhibitor concentration
15. Which is a key factor to the stability of tertiary structure of proteins?
(a) Covalent bond
(b) Hydrogen bond
(c) Hydrophobic interaction
(d) Ionic repulsion

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Discuss the colligative properties.
Or
(b) Write a note on molecules.
17. (a) Discuss the functions of proteins.
Or
(b) Write down the sources and functions of Vitamin B₁₂.
18. (a) Explain the isoenzymes.
Or
(b) Discuss the coupled reaction.
19. (a) Explain the micro RNA.
Or
(b) Write about the motifs and folds.
20. (a) Discuss the hydrophobic interaction.
Or
(b) Explain the stability of nucleic acids.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

21. (a) Elaborate the first law of thermodynamics laws.
Or
(b) Enumerate the bicarbonate buffer system and its principle.
22. (a) Describe the structure of atoms.
Or
(b) Enumerate the structure and functions of carbohydrate.
23. (a) Discuss the steps involved in glycolysis.
Or
(b) Discuss the mechanism of enzyme catalysis.
24. (a) Describe the primary structure of Protein.
Or
(b) Discuss in detail about the structure of tRNA.
25. (a) Discuss the stability of Proteins.
Or
(b) Explain the following :
(i) Covalent bond
(ii) Hydrogen bond.