2025

(FYUGP)

(4th Semester)

ZOOLOGY

(MINOR)

Paper Code : ZOO/M4 (T)

(Fundamentals of Biochemistry)

Full Marks : 75 *Pass Marks* : 40%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

1. Define monosaccharide. Write notes on disaccharides and polysaccharides. 1+9=10

Or

Elucidate glycolysis with a detailed diagram. 10

2. What are glycolipids? Discuss the structures of triacylglycerols and phospholipids. 1+9=10

Or

What are steroids? Discuss types of steroids. Add a note on its significance of human health. 1+6+3=10

3. What are amino acids? Classify amino acids according to their side chains with examples. 1+9=10

Or

Write notes on any *two* of the following : 5×2=10

(a) Non-essential amino acids

(b) Physiological importance of essential amino acids

(c) Secondary structure of protein

4. Define deoxyribonucleic acid. Explain the complementarity of DNA with suitable illustration. 1+9=10

Or

Write notes on any *two* of the following : 5×2=10

(a) Denaturation and renaturation of DNA

(b) Types of RNA

(c) Hypo and hyperchromicity of DNA

(Continued)

5. Explain the nomenclature and classification of enzymes. 10

Or

Write notes on the following : 5×2=10

(a) Isozymes

(b) Factors affecting enzyme catalyzed reactions

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(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

I. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

1. Synthesis of sugar from fats is

(a) glycogenolysis ( )

(b) carbohydration ( )

(c) gluconeogenesis ( )

(d) glycogenesis ( )

2. Which of the following is *not* false for disaccharide?

   (a) Lactose is found in milk ( )

   (b) Monosaccharide is joined by a glycosidic bond ( )

   (c) It is a double sugar ( )

   (d) All of the above ( )

3. Lipids are

   (a) essential components of cell membrane ( )

   (b) absent in eggs ( )

   (c) involved in short-term energy source ( )

   (d) soluble in water but insoluble in organic solvents ( )

4. Phospholipids

   (a) are hygroscopic in nature ( )

   (b) exhibit non-permeability in cellular membrane ( )

   (c) have no application in nanotechnology ( )

   (d) ensure accumulation of cholesterol in the body ( )

5. Proline is

   (a) a non-cyclic amino acid ( )

   (b) the only cyclic amino acid ( )

   (c) known for its sulfhydryl group ( )

   (d) achiral in structure ( )

6. Protein structure is stabilized due to

   (a) covalent and hydrogen bonds ( )

   (b) disulfide and ionic bonds ( )

   (c) hydrophobic interactions ( )

   (d) All of the above ( )

7. Adenine and guanine are

   (a) pyrimidine ( )

   (b) cyclic adenosine monophosphate ( )

   (c) purine ( )

   (d) adenylate kinase ( )

8. Protein synthesis involves

   (a) only messenger and transfer RNA ( )

   (b) small nuclear RNA and micro RNA ( )

   (c) only ribosomal RNA ( )

   (d) None of the above ( )

9. The property that distinguishes enzymes from other catalyst is

   (a) rigidity ( )

   (b) specificity ( )

   (c) exhibition ( )

   (d) inhibition ( )

10. V_{max} in enzyme kinetics refers to

   (a) volume of substrate present ( )

   (b) maximum concentration of reactants ( )

   (c) maximum rate of an enzyme catalyzed reaction ( )

   (d) a universal constant ( )

II. Match the following : 1×5=5

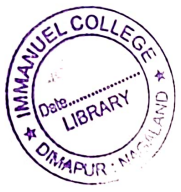
1.	Ribose	*(a)*	Treat skin condition
2.	Topical Steroids	*(b)*	Building block of nucleic acid
3.	Side chain	*(c)*	Simple sugar
4.	Nucleoside	*(d)*	Helper molecules
5.	Cofactors	*(e)*	Distinctive for each amino acid

III. Write short notes on any *five* of the following : 2×5=10

(a) Carbohydrates

(b) Gluconeogenesis

(c) Biological significance of phospholipids



(d) Proteins

(e) Nucleotides

(f) Cofactors

(g) Lineweaver-Burk plot

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