

Mode of Examination: Open Book Examination

Unique Paper Code : 32231303
Name of the Paper : Fundamentals of Biochemistry (LOCF)
Name of the Course : B.Sc. (H) Zoology
Semester : III, CBCS
Duration : 3 hours
Maximum Marks : 75

Instruction for Candidates

1. Write your Roll No., Name of the paper, Course, Semester, and Date of examination on the first page of the answer sheet.
2. Attempt **ANY FOUR** questions. All questions carry equal marks.
3. Substantiate your answer with structures/diagrams wherever required.

Q1. Describe a sugar with same structure as glucose, but with an altered configuration at a stereogenic center. Discuss the isomerism in carbohydrates, and the physiological importance of these biomolecules.

Q2. Fats and oils are the principal stored forms of energy in many organisms which are derived from fatty acids. Explain the system followed for nomenclature of fatty acids? How does the nature of fatty acids affect the various types of triacylglycerols produced by them? Also comment upon the functional significance of triacylglycerols.

Q3. How do local interactions between amino acyl residues of a polypeptide chain lead to different types of protein secondary structures? Explain with suitable diagrams. Explain the difference between domains and motifs with suitable examples.

Q4. Define enzymes and enlist the factors affecting an enzyme catalyzed reaction. Explain Double Reciprocal Plot and effect of enzyme inhibitors on it.

Q5. What do you understand by hyper-chromicity. Elucidate in the light of the structure of DNA double helix. Describe Cot Curves and discuss the factors affecting the rate of renaturation of eukaryotic DNA. How are Cot curves important in analyzing the complexity of the genome.

Q6. Several carbohydrates are covalently joined to another biomolecule to form a glycoconjugate, which is a biologically active molecule. Enumerate the structural and physiological features of these compounds. Also discuss in brief different categories of conjugate proteins found in nature.