Sr. No. of Question Paper : **7860**   **F–2**   Your Roll No................

Unique Paper Code   : 2531201

Name of the Course   : **Bachelor with Honours in Microbiology** [DC–1.3]

Name of the Paper   : Biochemistry

Semester   : II

Duration : 3 Hours   Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt **five** questions in all.

3. Question No. **1** is compulsory.

4. **All** questions carry equal marks.

5. Attempt all parts of a question together.

1. (a) Give an example of **any twelve** of the following :

   (i) Multienzyme complex

   (ii) Storage lipid

   (iii) Rare protein amino acid

   (iv) Bacterial cell wall polysaccharide

   (v) An oxygen binding protein

   (vi) Neutral Glycosphingolipid

   (vii) An imino acid found in proteins

(viii) A storage polysaccharide in mammals

(ix) A biological buffer

(x) Biologically active oligopeptide

(xi) Lipid as cell signal

(xii) A four carbon ketose sugar

(xiii) Oxido-reducatase (1×12=12)

(b) Define the terms Standard free energy change and equilibrium constant of a reaction and write the mathematical expression relating them. (3)

2. Write short notes on **any three** of the following :

(i) Chitin structure and function

(ii) Titration curve of an amino acid and its significance

(iii) Triacylglycerols

(iv) Allosteric enzymes (5×3=15)

3. (a) Differentiate between **any three** of the following :

(i) Cellulose and Glycogen

(ii) Coenzyme and Isozyme

(iii) Lipid-Micelles and Bilayers

(iv) Non-competitive and Competitive enzyme inhibition (4×3=12)

(b) Write the contributions of any **two** of the following :

    (i) Daniel Koshland

    (ii) Max F. Perutz

    (iii) Linus Pauling   (1.5×2=3)

4. (a) What are the different levels of protein structure and conformation ? Explain briefly.   (5)

    (b) Derive the equation that accounts for hyperbolic nature of rate curve of an enzyme.   (5)

OR

Describe the salient features of enzymes.

    (c) Write in short on **any two** energy rich compounds.   (5)

5. (a) Describe the salient features of active site of an enzyme.   (5)

    (b) Define **any five** of the following giving suitable examples :

       (i) Specific activity

       (ii) Anomer

       (iii) Apoenzyme

       (iv) Saponification

       (v) Non-reducing sugar

       (vi) Zwitterion   (2×5 =10)

6. (a) Describe the properties of fatty acids and add a note on their function.   (3+3= 6)

(b) Describe the double reciprocal plot of enzyme activity. Add a note on its significance.   (3+2=5)

(c) Comment on the structure and function of Haemoglobin **OR** Starch.   (4)