This question paper contains 2 printed pages.

Your Roll No. .....

Sl. No. of Ques. Paper : 2081

GC-3

Unique Paper Code : 32231303

Name of Paper : **Fundamentals of Biochemistry**

Name of Course : **B.Sc. (Hons.) Zoology (CBCS)**

Semester : III

Duration : **3 hours**

Maximum Marks : 75

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

Attempt five questions including Question No. 1 which is compulsory.
Draw well labelled diagram wherever necessary.

1. (a) Define:

   (i) Molecular chaperon

   (ii) Peptide bond

   (iii) Isoelectric pH

   (iv) Plasmalogens

   (v) Nucleoside. 5

   (b) Differentiate between:

   (i) Amylose and Amylopectin

   (ii) Ligases and Lyases

   (iii) Cysteine and Cystine

   (iv) Anomer and Epimer

   (v) B-DNA and Z-DNA. 5

   (c) Write the structures of the following:

   (i) Galactose

   (ii) Cellulose

   (iii) Phosphatidyl serine

   (iv) Phenylalanine

   (v) Cytosine. 5

   (d) Give contribution of the following:

   (i) Pauling and Corey

   (ii) Christian Anfinsen

   (iii) G. Ramachandran

P. T. O.

(iv) Daniel Koshland. 5

(e) Fill in the blanks:

(i) Palmitic acid has ..... number of double bonds.

(ii) Enzyme cofactors that bind covalently at the active site of the enzyme are known as .....

(iii) Low K_m value indicates ..... affinity between the enzyme and substrate.

(iv) Sucrose is a ..... sugar.

(v) Enzymes speed up reactions by ..... activation energy. 5

(f) Give reasons:

(i) Enzyme reactions are carried in buffer solutions.

(ii) Sucrose does not give positive reaction with Benedict's reagent.

(iii) Fats have thermal insulation properties.

(iv) Fat is preferable storage material as compared to polysaccharide.

(v) Only right-handed alpha helix occurs in nature. 5

2. What is the relationship between enzyme activity and substrate concentration? Arrive at a mathematical equation (Michaelis-Menten equation) to explain. 12

3. (a) Describe the different levels of protein structure. 8

(b) Explain the bonds stabilizing the protein structure. 4

4. (a) Describe the structures and functions of any *two* homo and hetero polysaccharides. 6

(b) Explain briefly about glycoconjugates. 6

5. (a) Classify the lipids and describe their functions. 9

(b) What are the factors affecting the fluidity of the membrane? 3

6. (a) Give a detailed account on different types of RNAs. 6

(b) Describe the salient features of Watson and Crick model of B-DNA. 6

7. Write short notes on (any *three*) of the following:

(a) Lineweaver-Burke plot

(b) Phospholipids

(c) Cot curves

(d) Protein denaturation. 3×4=12