15.12.18 (M)

This question paper contains 4 printed pages.

Your Roll No. .....

Sl. No. of Ques. Paper	: **127** I
Unique Paper Code	: **32231303**
Name of Paper	: **Fundamentals of Biochemistry**
Name of Course	: **B.Sc. (Hons.) Zoology**
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 in all. Question No. 1 is compulsory. Make well labelled diagrams wherever necessary.

1. (a) Define the following:

   (i) Molecular chaperones

   (ii) Epimers

   (iii) Zwitter ions

   (iv) Holoenzyme

   (v) Plasmalogens. 5

   (b) Give the structural formulae for the following:

   (i) Isoleucine

   (ii) Haworth projection formula for α-D-Glucose

   (iii) Pyrimidine

   (iv) Arachidonic acid. 4

P. T. O.

(c) Differentiate between the following:

(i) Oxidoreductase and Transferase

(ii) *t*-RNA and *m*-RNA

(iii) Amylose and Amylopectin

(iv) Cysteine and Cystine

(v) Triglycerides and Phospholipids. 10

(d) Fill in the blanks:

(i) ..... bonds are not broken on denaturation.

(ii) DNA exhibits ..... upon annealing.

(iii) Competitive inhibitor ..... K_m value of enzyme.

(iv) Interconversion of α and β forms of monosaccharides is called ..... .

(v) Lock and Key theory was given by 5

(e) Give reasons for the following:

(a) Saturated fatty acids are waxy solids while unsaturated fatty acids of same chain length are oily liquids.

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

(iii) Regulatory enzymes show sigmoid saturation curve. 3

2. (a) Give the structure and function of any *two* storage polysaccharides and two structural polysaccharides.

(b) Write a note on isomerism in carbohydrates. 8,4

3. (a) Derive an equation for determining relation of K_m with substrate concentration and rate of reaction.

(b) Discuss the factors governing rate of an enzyme catalyzed reaction. 8,4

4. (a) Discuss the salient features of Watson and Crick model of DNA.

(b) Describe briefly the different types of DNA. 6,6

5. (a) Discuss the different levels of protein organization with suitable diagrams.

(b) Explain the physiological importance of amino acids.

9,3

6. (a) Explain the structural and functional features of phospholipids.

(b) How are triacylglycerols formed? What are the advantages of using them as stored fuels? 6,6

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

(a) Lineweaver Burke plot

(b) Cot curves

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(c) Sphingolipids

(d) Glycoconjugates. 4,4,4