This question paper contains 3 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **1475**

Unique Paper Code : **2231302** **F-7**

Name of the Paper : **FUNDAMENTALS OF BIOCHEMISTRY**

Name of the Course : **B.Sc. (Hons.) Zoology—(erstwhile FYUP)**

Semester : **III**

Duration : **3 Hours** Maximum Marks : **75**

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

This paper contains seven questions.

Attempt *Five* questions in all.

Question No. **1** is compulsory.

1. (*a*) Define (any *five*) : 5

(*i*) Eicosanoids

(*ii*) Anomer

(*iii*) Isozymes

(*iv*) Allosteric sites

(*v*) Amphoteric molecule

(*vi*) Molecular chaperons.

(*b*) Differentiate between the following (any *five*) : 5×2=10

(*i*) Triglycerides and Glycolipids

(*ii*) Peptide and Glycosidic bonds

(*iii*) Amylose and Amylopectin

P.T.O.

(*iv*) Hemiacetal and Hemiketal

(*v*) RNA bases and DNA bases

(*vi*) Cystine and Cysteine.

(*c*) Give the names and structures of the following (any *three*) : 3×2=6

(*i*) A saturated C-18 fatty acid.

(*ii*) A disaccharide composed of glucose and galactose.

(*iii*) An amino acid with positively charged 'R' group.

(*iv*) Nitrogenous base with methyl group.

(*d*) Fill in the blanks : 4

(*i*) The coils of an α-helix are held together by ..... .

(*ii*) Protein component of an enzyme is known as ..... .

(*iii*) Lock and key theory was proposed by ..... .

(*iv*) ..... is the only amino acid which is achiral.

(*e*) Give reasons for the following (any *two*) : 2

(*i*) Enzymatic reaction are carried out at optimum pH.

(*ii*) Unsaturated fatty acids are liquid at room temperature.

(*iii*) Cell wall synthesis in bacteria is directly inhibited by the antibiotic penicillin.

2. (*a*) Elucidate the Michaelis-Menten kinetics for a one enzyme-one substrate reaction. 7

(*b*) Discuss the various factors influencing enzyme activity. 5

3. (*a*) Describe various forms of DNA with special reference to Watson and Crick model. 6

(*b*) Give structure for phospholipids and explain their biological significance. 6

4. (*a*) What are polysaccharides ? Describe various types of polysaccharides with respect to structure and function. 8

(*b*) Give the chemistry of Benedict's reaction and highlight its use. 4

5. (*a*) Define enzyme inhibition. Discuss various types of enzyme inhibition with suitable examples. 8

(*b*) What are simple lipids ? How are these different from complex lipids ? 4

6. (*a*) Explain various orders of organisation of protein structure and their significance. 8

(*b*) Give a brief classification of enzyme with suitable example of each class. 4

7. Write short notes on any *three* of the following : 3×4=12

(*a*) Functional significance of cholesterol and its derivatives

(*b*) Induced fit theory of enzyme action

(*c*) t-RNA

(*d*) Isoelectric focusing.