[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1350 **I**

Unique Paper Code : 2492011101

Name of the Paper : Biomolecules

Name of the Course : **B.Sc. (Hons.) Biochemistry**

Semester : I

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are **6** questions. Attempt any **4** questions.
3. **All** questions carry equal marks. Question no. **1** is compulsory.

1. (a) Identify the following statements as true or false and justify your answer :

   (i) All other amino acids except proline are optically active.

   (ii) Melting point of DNA is directly related to GC content.

P.T.O.

(iii) Glycine acts as biological buffer at physiological pH.

(iv) Chitin is an example of storage polysaccharides.

(v) At pH more than pi amino acids exits in negatively charged form.

(vi) Oleic acid has a higher melting point than stearic acid.

(b) Name the following :

(i) Methyl donor in biological reaction

(ii) Most abundant polysaccharide in biosphere

(iii) Active form of vitamin B1

(iv) An unusual base found in tRNA

(v) An example of w-3 fatty acid

(vi) A hormone derived from amino acid

(9,6)

2. Differentiate between the following :

(a) Proteoglycans and Glycoproteins

(b) Glycerophospholipids ana Spingophospholipids

(c) Standard and non-standard amino acid

(d) B-DNA and Z-DNA

(e) Water soluble and Fat- soluble vitamins

(3×5=15)

3. (a) Explain why :

(i) Glucose is not stored in monomeric form.

(ii) Glycosaminoglycans have gel like consistency.

(iii) Amino acid can act as both acid and base.

(iv) Arginine is highly soluble in water however tryptophan is poorly soluble.

(v) DNA is resistant to alkali hydrolysis.

(vi) Vitamin K is called an anti-hemorrhagic vitamin.

(b) Give the active form of vitamin D along with its deficiency diseases. (12,3)

4. (a) Draw the structure of the following :

(i) N- acetyl D glucosamine

(ii) Trehalose

(iii) Lysine

(iv) Aspartic acid

(v) Phosphatidyl Choline

(vi) 7 methyl Guanosine

(b) Triglycerides are considered as an ideal storage molecule. Comment.

(c) What do you mean by mutarotation? Explain with the help of example. (9,3,3)

5. (a) What are eicosanoids? Briefly describe the function of three classes of eicosanoids.

(b) Give the biological function of different forms of RNA.

(c) Draw the titration curve of glycine and discuss the information you obtained from the titration curve. (5,5,5)

6. Write short notes on the following :

(a) Lectins

(b) Biologically important nucleotides

(c) Glycolipids

(d) Waxes (3,5,4,3)