[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1352 **I**

Unique Paper Code : 3182011101

Name of the Paper : Bio-organic Chemistry

Name of the Course : **B.Sc. (H) Biomedical Science (NEP-UGCF)**

Semester : I

Duration : 3 Hours Maximum Marks : 90

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. Attempt sub-parts of questions together.
5. Give example and illustrations and Chemical structures wherever required.

1. (a) Define **(Any five)**

   (i) Geometrical isomer

   (ii) Conditionally essential amino acids

   (iii) Peptide group

P.T.O.

(iv) Phospholipids

(v) Racemic modification

(vi) Conformation (5×2=10)

(b) Differentiate **(Any three)**

(i) Glycogen and cellulose

(ii) Cis and trans fatty acid

(iii) Sawhorse and Newman projections

(iv) Monosaccharides and Disaccharides (3×4=12)

(c) Give the structure of the following :

(i) α (1 → 6) linkage in carbohydrates

(ii) PUFA

(iii) Zwitter ion

(iv) Inosine

(v) Tryptophan (4×2=8)

2. (a) What are anomers? Giving the structure of anomeric forms of glucose, explain what happens when they interconvert in aqueous solution.

(b) Draw a labelled diagram of titration curve for Aspartic acid. Answer the following questions after looking at the curve

(i) Range in which it has buffering capacity

(ii) Point at which it is a zwitterionic

(iii) Equation showing successive ionization of groups due to change in pH of medium

(6,9)

3. Give mechanism and biological importance of the following : **(Any three)**

(i) Aldol condensation

(ii) Cannizaro reaction

(iii) Michael addition

(iv) Baeyer Villiger oxidation (5,5,5)

4. (a) Giving the structure of sucrose explain why a solution of sucrose gives negative Benedict's test, however upon boiling with concentrated HCI the solution becomes positive for Benedict's Test.

(b) Write all the possible isomers for 2,3 dicholopentanoic acid. Classify them as threo or erthro isomer. Specify the stereochemical relationship between these isomers.

(c) RNA undergoes hydrolysis under basic condition but DNA doesnot. Justify giving the mechanism involved. (5,5,5)

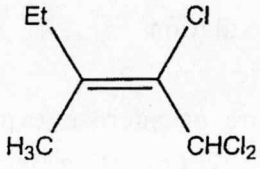
P.T.O.

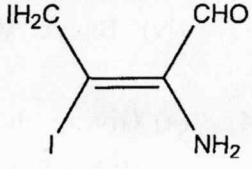
5. (a) Give the structure for various conformation of cyclohexane. Give their stability order and justify your answer.

(b) What are triacylglycerols? Why are they preferred for storing energy?

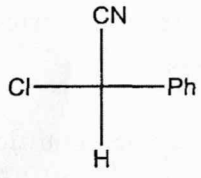
(c) Enlist five bioactive compounds and their precursor amino acids. (5,5,5)

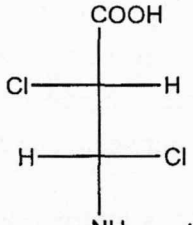
6. (a) Assigning priority order and assign E/Z configuration to each of the following :

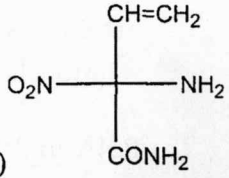
i) 

ii) 

(b) Assigning priority order and assign R/S configuration to each of the following :

i) 

ii) 

iii) 

(5,10)

(200)