

(c) Draw the Fischer Projection and Haworth projection formulae for following :

(i) β -D-glucopyranose

(ii) α -D-fructofuranose

(d) What do you mean by Active site of an enzyme?
What are the main characteristics of the active site? (4,4,4,3)

6. Write short note on any **three** of the following :

(a) Electrophoresis

(b) Killiani Fischer Synthesis

(c) Edman method for sequence analysis in peptides

(d) Significance of DCC and t-Boc in peptide synthesis. (5×3=15)

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6053

H

Unique Paper Code : 2174001206

Name of the Paper : GE: Molecules of Life

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

Semester : II

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. All questions have equal marks.
3. Attempt any **four** questions in all.

1. Answer any **five** of the following :

(a) How will you convert an aldohexose to aldopentose?

P.T.O.

- (b) What are reducing sugars and non-reducing sugars? Give two examples of each.
- (c) Discuss the carboxypeptidase enzyme method for the C-terminal analysis of peptides.
- (d) Differentiate between cofactor and coenzyme with examples.
- (e) Explain Lock & Key model of enzyme action.
- (f) Give the name and structure of neutral, acidic and basic amino acids. (3×5=15)
2. (a) Explain the phenomenon of Mutarotation in Glucose.
- (b) What do you mean by Zwitterion and isoelectric point of an amino acid? Write the structures of Glycine at pH 1, pH 6 and pH 11.
- (c) Give the mechanism of formation of glucosazone. Explain why glucose and fructose give the same osazone.
- (d) Define the following (with examples):
- (i) Anomers
 - (ii) Epimers (4,4,4,3)

3. (a) Discuss schematically the solid phase synthesis of a dipeptide Gly-Ala. What are the advantages of solid phase synthesis over other methods?
- (b) Discuss the secondary structure of proteins in detail.
- (c) List the six main groups of enzymes according to the Enzyme Commission. What functions do they perform? (5,5,5)
4. (a) Illustrate the stereospecificity of enzyme action with a suitable example.
- (b) Differentiate between competitive and non-competitive enzyme inhibition.
- (c) Explain the effect of temperature and pH on the activity of enzymes.
- (d) What is denaturation of proteins? (4,4,4,3)
5. (a) Discuss the structural differences between starch and cellulose.
- (b) What is invert sugar? Why is it called so?