

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6482

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Unique Paper Code : 2174001206

Name of the Paper : GE: MOLECULES OF LIFE

Name of the Course : **All Undergraduate Courses except with Chemistry**

Semester : II/IV/VI

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. Attempt any **four** questions.
3. **All** questions carry equal marks.

1. (a) Give the classification of carbohydrates with examples.

(b) Draw Fischer and Haworth Projection of α -D-fructofuranose and α -D-glucopyranose.

(c) How will you convert:

i) Glucose into glucaric acid?

ii) Glucose into n-hexane?

(5,5,5)

2. (a) What are essential and non-essential amino acids give two examples of each?

(b) Define isoelectric point. What is a zwitterion? Give an example.

(c) Give chemical synthesis of a dipeptide Gly-Ala using appropriate reagents and protecting groups

(5,5,5)

3 (a) Explain the effect of enzyme concentration and substrate concentration on the activity of enzymes

(b) Differentiate between reversible and irreversible inhibition of enzyme activity.

P.T.O.

- (c) What is the structure-activity relationship (SAR) of drug molecules, and how is it used to optimize drug design and efficacy?

(5,5,5)

4 Write short notes on the following:

- (a) Mutarotation
- (b) Primary and tertiary structure of protein.
- (c) Lock and key model and Induced fit model

(5,5,5)

- 5(a) Why sucrose is known as an invert sugar? How do you account for the fact that sucrose does not reduce Fehling's solution?

- (b) Describe Edman's method of α -terminal analysis. What is the advantage of this method?

- (c) What are enzymes? Discuss briefly the classification of enzymes and their uses.

(5,5,5)

- 6 (a) Differentiate between reducing and non-reducing sugars. Give their examples. Explain their biological functions.

- (b) How is electrophoresis used as a method for separation of amino acids?

- (c) What are coenzymes and cofactors? Give their role in biological reactions.

(5,5,5)