

(b) When a nonapeptide undergoes partial hydrolysis, it forms dipeptides, a tripeptide and two tetrapeptides whose amino acid compositions are shown. Reaction of the intact nonapeptide with Edman's reagent releases PTH-Leu. What is the sequence of the nonapeptide?

1. Pro, Ser
2. Gly, Glu
3. Met, Ala, Leu
4. Gly, Ala
5. Glu, Ser, Val, Pro
6. Glu, Pro, Gly, Pro
7. Met, Leu
8. His, Val

(c) What are the different types of enzymes, and how are they classified based on their functions and mechanisms of action. (3×5=15)

6. Differentiate between (with examples) :

- (i) Globular and Fibrous Proteins
- (ii) Apoenzyme and Holoenzyme
- (iii) Amylose and Amylopectin

(3×5=15)

(200)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5050

J

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) How can you distinguish between Ala-Phe and Phe-Ala using DNFB. Write the reactions involved.

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- (b) How will you synthesise dipeptide Gly-Phe with the help of N-protection group t- butyloxycarbonyl?
- (c) Define isoelectric point and give its significance in protein chemistry. Calculate the isoelectric point of aspartic acid from the following data :
 $pK_{a1} = 2.09$, $pK_{a2} = 3.87$ and $pK_{a3} = 9.68$.
(3×5=15)
2. (a) Discuss the effect of temperature and pH on the activity of enzyme with suitable diagram.
- (b) What is enzyme inhibition? Explain competitive, non-competitive inhibition and allosteric inhibition.
- (c) Explain the binding role of the following in determining the structure activity relationship of a drug :
- (i) -OH group
- (ii) -NH₂ group (3×5=15)
3. (a) Why Fructose gives positive test with Tollens's and Fehling's reagents? Write the chemical reactions involved.

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- (b) How will you convert?
- (i) Glucose into glucaric acid
- (ii) Glucose into n-hexane
- (c) Draw the Fischer and Haworth projection for following :
- (i) β -D-fructofuranose
- (ii) α -D-glucopyranose (3×5=15)
4. Write short notes on the following (attempt any three) :
- (i) Denaturation of proteins
- (ii) Mutarotation
- (iii) Primary and Secondary structure of proteins
- (iv) Allosteric inhibition (3×5=15)
5. (a) Why is sucrose known as invert sugar? How do you explain the fact that sucrose does not reduce Fehling's solution? Write Haworth projection formula for sucrose.

P.T.O.