

1 (Sem-5/FYUGP) ZLG 42 MJ

2025

ZOOLOGY

(Major)

Paper : ZLG0500204

(Fundamentals of Biochemistry)

Full Marks : 45

Time : 2 hours

*The figures in the margin indicate full marks
for the questions.*

1. Fill in the blanks : 1×5=5
- (a) _____ atom is called chiral carbon.
 - (b) _____ is the building block of protein.
 - (c) The optimum temperature for enzyme action in the human is _____.
 - (d) Sucrose is an example of _____ sugar.
 - (e) _____ form of DNA is left handed.
2. Answer any *five* of the following : 2×5=10
- (a) What is aldose sugar?
 - (b) Draw the ring structure of glucose or fructose.

(2)

- (c) What is compound lipid?
- (d) What is stereoisomerism?
- (e) Explain briefly the protein denaturation.
- (f) Differentiate between nucleotide and nucleoside.
- (g) Write about allosteric enzymes.
- (h) Write about the Chargaff's rule.
- (i) What are the factors affecting enzyme activity?
- (j) Define isoenzymes with example.

3. Answer any *four* of the following in short :

5×4=20

- (a) Discuss reducing and non-reducing sugars with examples.
- (b) Write the different forms of DNA.
- (c) Explain glycoconjugate with examples.
- (d) Write the characteristics of lipids.
- (e) Discuss the simple and conjugated proteins with examples.
- (f) Write the characteristics of amino acids.

(3)

- (g) Classify enzymes with example.
- (h) Explain the Koshland's theory of enzyme-substrate complex formation.

4. Answer any *one* of the following questions : 10

- (a) Illustrate the level of protein organization.
- (b) Discuss the double-helical structure of DNA with a labelled diagram.
- (c) Explain essential and non-essential types of fatty acids with example.
- (d) Discuss in detail the Michaelis-Menten model of enzyme kinetics.

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