

2026

Zoology (Core)

Paper Code : ZL-CE-6324

Paper Name : Principles of Biochemistry

Time : 2 hours

Full Marks : 50

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

1. Choose the correct answer :

1×4=4

a) Glycosidic bond joins :

i) Amino acids

ii) Fatty acids

iii) Monosaccharides

iv) Nucleotides

b) The basic unit of lipids :

i) Fatty acid

ii) Fatty acids + glycerol

iii) Glycerol

iv) Monosaccharides

c) Secondary structure of protein includes :

i) DNA

ii) Alpha helix and beta sheet

iii) 3D folding

iv) Peptide bonds

d) Glycolysis occurs in :

i) Nucleus

ii) Cytoplasm

iii) Mitochondria

iv) Ribosome

2. Answer the following questions :

2×3=6

a) Write differences between glycogenesis and glycogenolysis.

b) What is the role of mitochondria in lipid metabolism ?

c) Explain electrochemical properties of amino acids.

Contd.

3. Answer the following questions (*any two*) : $5 \times 2 = 10$

- a) Write a short note on Watson and Crick model of DNA.
- b) Write a short note on Physiological importance of saturated and unsaturated fatty acids.
- c) Write a short note on Urea cycle.
- d) Differentiate between inhibitors and uncouplers.

4. Answer the following questions (*any three*) : $10 \times 3 = 30$

- a) Describe the Citric Acid Cycle in detail including its steps and the enzymes involved. 10
- b) Explain the process of Oxidative Phosphorylation and its importance in energy metabolism. $8 + 2 = 10$
- c) Describe the process of β -Oxidation of palmitic acid in details. 10
- d) Explain the catalytic mechanism of enzymes and derive the Michaelis-Menten equation with necessary conditions. $5 + 5 = 10$
- e) Discuss fermentation and its significance from the view point of traditional practices in ancient India. 10
- f) Describe the structure and properties of DNA and its biological significance. $4 + 4 + 2 = 10$

