

(FOR THE CANDIDATES ADMITTED

23UZY510

DURING THE ACADEMIC YEAR 2023-2026 ONLY)

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS : NOVEMBER - 2025

B.Sc., ZOOLOGY(AIDED)

MAXIMUM MARKS: 75

SEMESTER - V

TIME : 3 HOURS

PART - III

23UZY510 -BIOCHEMISTRY

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

(K1)

1. Atoms of the same element with different numbers of neutrons are called_____
a) Ions b) Isotopes c) Isomers d) Electrons
2. In glycerophospholipids, the third hydroxyl group of glycerol is esterified with_____
a) A fatty acid b) A sugar molecule c) A phosphate group d) A steroid ring
3. Which of the following is NOT a conjugated protein?
a) Glycoprotein b) Albumin c) Nucleoprotein d) Metalloprotein
4. The enzyme responsible for cleaving α -1,4-glycosidic bonds in glycogen is_____
a) Glycogen synthase b) Glycogen phosphorylase c) Debranching enzyme d) Hexokinase
5. The region of the enzyme where the substrate binds is called as _____.
a) Catalyst site b) Binding zone c) Active site d) Reaction core

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

6. Define biomolecule. Give two examples.
7. Why cholesterol classified under derived lipid?
8. Mention any two characteristics of fibrous proteins.
9. In which organs does glycogenesis primarily occur?
10. Why enzymes are called biological catalysts?

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Explain the role of functional groups in determining the chemical properties of amino acids.
(OR)
b) Classify Monosaccharides. Describe them with examples.
12. a) Illustrate the chemical composition and functions of triglycerides.
(OR)
b) Explore the structure of glycerol and its biological importance.

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13. a) Explain any five conjugated proteins with their prosthetic groups and functions.
(OR)
b) Describe the key steps involved in the biosynthesis of methionine in microorganisms.
14. a) Outline the steps involved in glycogenolysis.
(OR)
b) Elucidate the process involved in the conversion of ammonia to urea.
15. a) Explain the system of enzyme classification and nomenclature according to the Enzyme Commission.
(OR)
b) Highlight the salient features of Co-enzyme.

SECTION – C

(5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.(K4 (Or) K5)

16. a) Describe the physical and chemical properties of water that makes it essential for life.
(OR)
b) Differentiate between homopolysaccharides and heteropolysaccharides. Give two examples of each and explain their roles.
17. a) Explain the classification of compound lipids with suitable examples. How do they differ structurally and functionally from simple lipids?
(OR)
b) Discuss the role of lipoproteins (LDL, HDL, VLDL) in lipid transport and how their imbalance contributes to obesity and associated risks.
18. a) Illustrate the structure, properties, and biological functions of Globular Proteins. Give suitable examples.
(OR)
b) Explain the microbial production of glutamic acid using *Corynebacterium glutamicum* in the industrial fermentation conditions.
19. a) How does the Krebs cycle contribute to both energy production and biosynthesis? Explain with ATP accounting.
(OR)
b) Explain the steps of mitochondrial β -oxidation and highlight the role of coenzymes.
20. a) Discuss in detail the various factors that influence enzyme activity.
(OR)
b) Explain why vitamins are essential for our body, with justification.

Ethical paper