K25FY3260 Pages: 2 Reg No:.....
Name:.....

Third Semester FYUGP Degree (Reg) Examination November 2025

KU3DSCMBG202 - ESSENTIALS OF BIOCHEMISTRY

2024 Admission onwards

Time : 2 hours Maximum Marks : 70

Section A

Answer any 6 questions. Each carry 3 marks.

1. Explain the structural difference between myoglobin and hemoglobin.
2. What is Levinthal paradox? Mention the relevance.
3. Which property makes lipids insoluble in water?
4. Define nucleotide and nucleoside with examples.
5. Which scientist proposed the double helix model of DNA?
6. How many ATP and NADH molecules are produced in glycolysis?
7. What is diabetes mellitus?
8. What are the components of a carbohydrate fermentation medium?

Section B

Answer any 4 questions. Each carry 6 marks.

9. Design an experiment to demonstrate hydrophobic properties of lipids.
10. Prepare a diagrammatic classification of lipids and explain with examples
11. Design a labeled flowchart showing structural components of nucleic acids starting from phosphate-sugar-base.
12. Describe structure of electron transport chain and its role in ATP formation in bacteria
13. Briefly explain the disorders in protein metabolism
14. Briefly explain the disorders in carbohydrate metabolism

Section C

Answer any 2 questions. Each carry 14 marks.

15. Carbohydrates are classified into monosaccharides, disaccharides, polysaccharides, and their derivatives. Apply this classification to explain their structural characteristics with suitable examples, and relate each class to its role in human nutrition

16. Cellulose and chitin are structural polysaccharides, whereas starch is a storage polysaccharide. Apply your knowledge to compare their structural features and explain how these properties determine their biological roles.

17. Evaluate the mechanism of enzyme action by deriving the Michaelis–Menten equations and considering the specific factors