Reg No:..... K24FY1353
Name :.....

First Semester FYUGP Zoology and CB Examination November 2024 (2024 Admission onwards)
KU1DSCZCB101 (LIFESCIENCES AND BIOMOLECULES)

(EXAM DATE : 02-12-2024)

Time : 90 min Maximum Marks : 50

Part A (Answer any 6 questions. Each carries 2 marks)

1. Define the concept of life and discuss its essential attributes. 2

2. Define the different types of carbohydrates and give examples for each category. 2

3. What are the classifications of amino acids, and what are some examples of each type ? 2

4. What are the classifications of proteins, and what are some examples of each type? 2

5. What is the basic structure of lipids, and what are their biological functions? 2

6. What is the concept of the active site in enzymes, and why is it important for catalysis? 2

7. Explain the factors that can affect the velocity of enzyme action. 2

8. What factors influence the velocity of enzyme action, and how do they affect enzyme activity? 2

Part B (Answer any 4 questions. Each carries 6 marks)

9. What is the concept of life, and what are the key characteristics that define living organisms? Discuss its implications for biology and our understanding of living systems. 6

10. Explain the classification of carbohydrates, including the main types: monosaccharides, disaccharides, oligosaccharides, and polysaccharides. Describe the structural features, functions, and examples of each category to illustrate their roles in biological systems. 6

11. Explain the various structural levels of proteins, namely primary, secondary, tertiary, and quaternary structures. For each level, describe its unique features and how these structures influence the overall functionality of proteins in biological systems. 6

12. Describe the fundamental structural characteristics of lipids and analyze their roles in biological systems. 6

13. Describe the active site of an enzyme, detailing its structural features and how these contribute to the enzyme's catalytic function. 6

14. Discuss the various mechanisms of enzyme regulation, including allosteric regulation, covalent modification, and feedback inhibition, and explain how each mechanism affects enzyme activity. 6

Part C (Answer any 1 question(s). Each carries 14 marks)

15. Provide a detailed overview of enzyme classification according to IUB nomenclature, explaining the six major classes. For each class, describe their specific functions, characteristics, and provide examples of enzymes within each category. 14

16. Discuss the concept of pH, including its definition, the mathematical relationship to hydrogen ion concentration, and the significance of the pH scale in measuring acidity and alkalinity. Analyze the role of pH in biological systems, emphasizing its impact on enzyme activity, metabolic processes, and overall homeostasis. Additionally, explore the importance of pH regulation in various environments, such as ecosystems and human health, and the consequences of pH imbalances. 14