

B.Sc. ZOOLOGY FIFTH SEMESTER SESSIONAL EXAMINATION, 2023
FUNDAMENTALS OF BIOCHEMISTRY
PAPER CODE: ZOO-HC-3036

Marks=30

Time=1 hour

Q1. Answer the following:

1x5=5

- a) What is a peptide bond? Draw the structure of a basic amino acid.
- b) Substances that reduce the rate of enzyme-catalyzed reactions are known as _____.
- c) Who proposed the 'Induced-Fit Model' of enzyme action?
- d) Which bond connects two monosaccharides in a disaccharide/polysaccharide?
- e) What is the general formula for representing the ratio of carbon, hydrogen and oxygen in a disaccharide?

Q2. Answer the following (any five):

2x5=10

- a) Draw the Michaelis-Menten curve.
- b) What is the significance of K_m and V_{max} in enzyme kinetics?
- c) Explain the zwitterionic nature of amino acids. What is isoelectric point?
- d) What is Cot curve?
- e) Write four important functions of carbohydrates.
- f) With the help of diagram, explain the process of cyclization of glucose.

Q3. Write short notes (any one):

5x1=5

- a) Carbohydrate classification with examples.
- b) Different types of DNA structure.
- c) Secondary structure of proteins

Q4. Answer the following (any one):

10x1=10

- a) What are the different classes of enzymes based on the type of reaction? Explain each of them with an example. 10
- b) Give one example of Aldose, Ketose, Triose, Pentose and Hexose. Explain with a diagram the process of formation of Maltose and Sucrose. (5+2.5+2.5)
- c) What is a peptide bond? What plot is used to identify protein structures based on bond angles? Discuss any two forces that stabilize protein structure. Draw the titration curve of glycine. (2+2+4+2)