

Term End External Examination 1st Semester (Session-Feb 2025)

Subject: Biochemistry

Course No and Title: BCH124M/ Biomolecules

Time: 2.15 hours

Max Marks:100

Min. Marks:40

Section A: Objective Type Questions

Q1. Choose the appropriate Answer: (8x1.5=12)

i. What is the primary function of a biological buffer?

A Increase the rate of a chemical reaction
B Decrease the rate of a chemical reactionC Maintain a stable pH in biological systems
D None of the above

ii. Which of the following is not an aldose

A Glucose
B Galactose
C Mannose
D Fructose

iii. Which of the following is an aromatic amino acid

A Glycine
B Valine
C Tyrosine
D Arginine

iv. Primary structure of a protein is formed by

A Hydrogen bonds
B Disulphide bonds
C Peptide bonds
D All of these

v. Which are the essential fatty acids

A Palmitic acid, Oleic acid
B Linoleic acid, Linolenic and Arachidonic acid
C Stearic acid, Linoleic acid
D All of the these and Linolenic acid

vi. High iodine number of a fat indicates

A Higher amount of unsaturated fatty acids
B Higher degree of saturation
C Lower saponification value
D Presence of short-chain fatty acids

vii. The nitrogenous base not present in DNA structure

A Adenine
B Guanine
C Cytosine
D Uracil

viii. Which of the following histones is not part of the core nucleosome?

A H1
B H2A
C H3
D H4Section-B: Descriptive Type Questions (Short Type)

Q2: Answer all the Questions (8 x 4 =32)

i. Define buffer and briefly explain the working of any biological buffer.

ii. What are reducing sugars, give an example.

iii. Define Zwitter ion and Isoelectric point.

iv. What is peptide bond. Give its features and draw the structure of a dipeptide

v. Define fatty acids. Briefly discuss the classification of fatty acids.

vi. Define Iodine number and give its significance.

vii. Name the components and draw the structure of a nucleotide and nucleoside.

viii. What are histones? Name various histones present in DNA.

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (4 x 7=28)

Q3. Define mutarotation and discuss the mutarotation of glucose.

OR

Discuss the structure and functions of Maltose and Sucrose.

Q4. Discuss and draw the titration curve of Glycine.

OR

Give the details of the structure and functions of Haemoglobin.

Q5. Discuss the structure and functions of sphingolipids and cholesterol.

OR

Give an account of saponification value, Reichert Meissel Number and rancidity of fats.

Q6. Discuss the features of A, B and Z forms of the DNA.

OR

Give an account of terms, central dogma, chromosomes and genes.

Section – D: Descriptive Type Questions (Long Type)

Answer any two of the following: (2 x 14=28)

Q7. Define polysaccharides. Describe the structure and functions of starch and cellulose.

Q8. Describe various structural levels of proteins. Add a note on functions of proteins.

Q9. Describe the structure, types and functions of triacylglycerols.

Q10. Describe the composition of DNA and features of DNA Double Helix.