



13790



BRAINWARE UNIVERSITY

LIBRARY
Brainware University
Barasat, Kolkata -700125

Term End Examination 2025-2026
Programme – B.Optomety-2022/B.Optomety-2023/B.Optomety-2024/B.Optomety-2025
Course Name – General Biochemistry
Course Code - BOPTOC103
(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Select the option that defines the type of bond that joins monosaccharides to produce polysaccharides.
- | | |
|--------------------|------------------|
| a) Peptide bond | b) Glucose bond |
| c) Glycosidic bond | d) Covalent bond |
- (ii) Identify the type of monosaccharides that is the majorly found in the human body.
- | | |
|------------|-----------|
| a) D-type | b) L-type |
| c) DL type | d) M type |
- (iii) Choose the option that mentions the example of Epimers.
- | | |
|-----------------------------------|--------------------------------|
| a) Glucose and Ribose | b) Glucose and Galactose |
| c) Galactose, Mannose and Glucose | d) Glucose, Ribose and Mannose |
- (iv) Which of the following is not a substrate for gluconeogenesis?
- | | |
|-------------|---------------|
| a) Lactate | b) Alanine |
| c) Glycerol | d) Acetyl CoA |
- (v) Choose the option that indicates the first amino acid in any polypeptide chain.
- | | |
|------------|---------------|
| a) Valine | b) Methionine |
| c) Glycine | d) Alanine |
- (vi) Choose which of the following is an example of aromatic amino acid.
- | | |
|------------------|-------------|
| a) Phenylalanine | b) Tyrosine |
| c) Tryptophan | d) 1 & 2 |
- (vii) Two amino acids are combined together by what type of bond?
- | | |
|------------------------|-----------------|
| a) Glycosidic linkage. | b) Peptide bond |
| c) Hydrogen bond | d) All of these |
- (viii) State the location of Glycogen in the body.
- | | |
|----------|------------|
| a) Liver | b) Kidneys |
|----------|------------|

- c) Lungs
d) Brain
- (ix) Select the carbohydrate that cannot be digested by humans but is essential for dietary fiber.
- a) Starch
b) Cellulose
c) Lactose
d) Sucrose
- (x) Name the carbohydrate responsible for the sweetness of table sugar.
- a) Glucose
b) Fructose
c) Sucrose
d) Maltose
- (xi) Select the option that accurately explains the primary structure of a protein.
- a) The overall three-dimensional shape.
b) The sequence of amino acids.
c) The arrangement of alpha helices and beta sheets.
d) The presence of disulfide bonds.
- (xii) Name the process by which a protein loses its three-dimensional structure and biological activity due to extreme conditions like heat or pH changes.
- a) Denaturation
b) Polymerization
c) Condensation
d) Hydrolysis
- (xiii) Choose the term for the specific sequence of amino acids in a protein that determines its function.
- a) Codon
b) Polypeptide chain
c) Primary structure
d) Tertiary structure
- (xiv) Name the test that is commonly used to detect the presence of proteins in a solution.
- a) Benedict's test
b) Biuret test
c) Iodine test
d) Litmus test
- (xv) Give an example of a fibrous protein.
- a) Hemoglobin
b) Insulin
c) Collagen
d) Albumin

LIBRARY
Brainware University
Barasat, Kolkata -700125

Group-B

(Short Answer Type Questions)

3 x 5=15

2. "Starch is a polysaccharide." Explain the statement. (3)
3. Discuss the structural differences between aldoses and ketoses, and give an example of each type. (3)
4. Define what amino acids are and list the general structure of an amino acid. (3)
5. What is the primary function of copper (Cu) in the body? (3)
6. Evaluate the significance of disulfide bridges in maintaining the tertiary structure of proteins. How do these covalent bonds affect protein functionality? (3)

OR

- Analyze the impact of steric hindrance on the shape of the Ramachandran plot. How do these constraints influence protein conformations? (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the concept of peptide bonds. Differentiate between a dipeptide and a polypeptide. (5)
8. Discuss briefly about phospholipids and glycolipids. (5)
9. Write short note on isomerism and define anomers with example. (5)
10. Apply your knowledge to differentiate between saturated and unsaturated fatty acids in terms of their chemical structures and health effects. Provide examples of dietary sources for each type. (5)
11. Explain how do the chemical properties of sodium and potassium contribute to their role in nerve impulse transmission? (5)

12. Explain in brief the four levels of protein structure, and how do they contribute to the overall structure of a protein? (5)

OR

Determine the effect of pH on structure of amino acids taking suitable examples. (5)

LIBRARY
Brainware University
Barasat, Kolkata -700125