



Library
Department of Allied Health Sciences
Brainware University
Barasat, Kolkata- 700125

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – DMLT-2023/DMLT-2024/DMLT-2025
Course Name – Clinical Biochemistry - II
Course Code - DMLT204
(Semester II)

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 primary function of carbohydrates in the human body.

a) Energy storage	b) Protein synthesis
c) Cellular respiration	d) Vitamin absorption
- (ii) Name the carbohydrate that is commonly found in dairy products like milk and yogurt.

a) Maltose	b) Lactose
c) Sucrose	d) Fructose
- (iii) Select the number of standard amino acids that make up proteins in humans.

a) 10	b) 20
c) 5	d) 30
- (iv) Give an example of a secondary structure in proteins.

a) Alpha helix	b) Tertiary structure
c) Quaternary structure	d) Disulfide bridge
- (v) Proteins are polymers composed of: _____. Choose the correct answer.

a) Nucleotides	b) Amino acids
c) Fatty acids	d) Monosaccharides
- (vi) State the location of the protein Albumin.

a) Red blood cells	b) Muscle tissue
c) Serum or plasma	d) Bone tissue
- (vii) State the location in eukaryotic cells, where DNA is primarily found.

a) Mitochondria	b) Ribosome
c) Golgi body	d) Nucleus
- (viii) Name the radioactive isotope is commonly used in carbon dating.

a) Uranium-235	b) Carbon-14
c) Iodine-131	d) Potassium-40
- (ix) Select which type of electrophoresis is used specifically for the separation of hemoglobin variants.

- a) Protein electrophoresis
- b) DNA electrophoresis
- c) Hemoglobin electrophoresis
- d) Lipid electrophoresis
- (x) Choose the primary function of a stacking gel in SDS-PAGE.
 - a) To provide support to the sample wells
 - b) To concentrate the protein sample into a narrow zone
 - c) To facilitate separation based on charge
 - d) To visualize the protein bands
- (xi) Choose which class of drugs is commonly used for prophylaxis and treatment of gout.
 - a) Nonsteroidal anti-inflammatory drugs (NSAIDs)
 - b) Corticosteroids
 - c) Allopurinol
 - d) Antibiotics
- (xii) Give an example of an essential fatty acid.
 - a) Oleic acid
 - b) Stearic acid
 - c) Linoleic acid
 - d) Palmitic acid
- (xiii) Select which type of fatty acid has only one double bond in its carbon chain.
 - a) Saturated fatty acid
 - b) Monounsaturated fatty acid
 - c) Polyunsaturated fatty acid
 - d) Trans fatty acid
- (xiv) Name the process by which an unstable nucleus emits an alpha particle.
 - a) Alpha decay
 - b) Beta decay
 - c) Gamma decay
 - d) Electron capture
- (xv) Pick the full form of RIA.
 - a) Real Immune Assay
 - b) Radio Immuno Assay
 - c) Ridial Immune Assay
 - d) Radius Immune Assay

Group-B

(Short Answer Type Questions)

3 x 5=15

- 2. Describe the structure of lactose and explain the enzymatic breakdown of lactose in the human digestive system. (3)
- 3. Classify amino acids according to their nutritional classification. (3)
- 4. Write short note on Hemoglobin. (3)
- 5. Write short note on chromatography. (3)
- 6. Compare and contrast starch, cellulose and glycogen mentioning the point of differences. (3)

OR

Stearic acid has melting point of 69 degree celcius whereas Oleic acid has melting point of 13 degree celcius - Infer this result on the basis of their structural properties. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

- 7. Compare and contrast the chemical structures of saturated and unsaturated fatty acids. (5)
- 8. Discuss briefly about the pathophysiology and causes of Gout. (5)
- 9. Name two common tests for the presence of proteins and explain their mechanism. (5)
- 10. Discuss briefly about lipid profile tests mentioning each of the parameters. (5)
- 11. Compare and contrast Agarose gel electrophoresis and Polyacrylamide gel electrophoresis. (5)
- 12. Analyze the reaction with acid property of carbohydrates. (5)

OR

Diagrammatically illustrate the condensation and hydrolytic reaction of peptide bond. (5)

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