BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – B.Optometry-2023
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 primary function of Vitamin K:

a) Healthy skin b) Blood clotting
c) Collagen synthesis d) Energy metabolism

(ii) Name the carbohydrate that is commonly found in dairy products like milk and yogurt.

a) Maltose b) Lactose
c) Sucrose d) Fructose

(iii) In polysaccharide, name the bond by which monosaccharide are joined

a) Peptide bond b) Glucose bond
c) Glycosidic bond d) Covalent bond

(iv) Iron (Fe) plays a vital role in the body by: _____. Select the correct answer.

a) Regulating blood pressure b) Carrying oxygen in the blood
c) Maintaining bone density d) Supporting immune function

(v) Pick the example of epimers

a) Glucose and Ribose b) Glucose and Galactose
c) Glucose and fructose d) Ribose and Mannose

(vi) Unsaturated fatty acids contain: _____. Pick the correct answer.

a) Only single bonds between carbon atoms b) Both single and double bonds between carbon atoms
c) No carbon atoms d) Only triple bonds between carbon atoms

(vii) Selenium (Se) is important for the proper functioning of _____. Select the correct answer.

a) Liver b) Heart
c) Pancreas d) Thyroid gland

(viii) Identify the mineral that is essential for maintaining proper nerve and muscle function and is often found in bananas and potatoes.

a) Sodium (Na) b) Potassium (K)

c) Calcium (Ca) d) Iron (Fe)

(ix) Select the primary function of cholesterol in the body.

a) Energy storage b) Insulation
c) Cell membrane structure d) Enzyme activation

(x) Identify the lipid that is essential for the absorption of fat-soluble vitamins (A, D, E, and K) in the digestive system.

a) Triglycerides b) Cholesterol
c) Waxes d) Phospholipids

(xi) Name the amino acid that is commonly used as a neurotransmitter in the nervous system

a) Alanine b) Arginine
c) Serine d) Glutamate

(xii) Select the importance of Vitamin C, also known as ascorbic acid.

a) Blood clotting b) Collagen synthesis
c) Energy metabolism d) Nerve function

(xiii) Name the amino acid which is the smallest and simplest, with just a hydrogen atom as its side chain

a) Glycine b) Tryptophan
c) Glutathione d) Albumin

(xiv) Inositol is considered a vitamin-like substance and is important for: _____. Select the correct answer.

a) Vision b) Bone health
c) Nerve function and cell signaling d) Blood clotting

(xv) Hemoglobin is a protein primarily responsible for transporting: _____. Select the correct answer.

a) Oxygen in the blood b) Nutrients in the lymph
c) Carbon dioxide in the lungs d) Hormones in the brain

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the structural differences between amylose and amylopectin, the two components of starch, and their respective roles in plants. (3)
3. What is the primary function of albumin in the bloodstream, and how is it commonly used as a diagnostic marker? (3)
4. Define fatty acids and distinguish between saturated and unsaturated fatty acids. (3)
5. Explain in brief the nutritional classification of amino acids with example. (3)
6. Analyze the structure of the plasma membrane and explain how its composition contributes to its various functions. (3)

OR

Illustrate the structure of Histidine at different pHs (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Define vitamins and its types in details (5)
8. Define macrominerals and its types mentioning each of their functions. (5)
9. Define Iodine number and write its importance in fat identification. (5)
10. In a laboratory experiment of qualitative analysis of unknown biomolecule, Biuret test comes positive for your sample. Apply your knowledge and predict the possibilities from there. (5)
11. Analyze the relationship between dietary habits and cholesterol levels in the context of cardiovascular health. (5)

12. Classify amino acids on the basis of presence of different types of R groups with examples in each case. (5)

OR

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

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