



## BRAINWARE UNIVERSITY

**Term End Examination 2023**  
**Programme – B.Sc.(FND)-Hons-2022**  
**Course Name – Nutritional Biochemistry**  
**Course Code - BFNC201**  
**( 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) Name the bond which consists of two monosaccharide units in a disaccharide?

- a) Hydrogen
- b) Glycosidic
- c) Phosphodiester
- d) Ionic

(ii) What kind of molecules carry the instructions for protein synthesis?

- a) DNA and RNA
- b) Amino acids
- c) Lipids and carbohydrates
- d) Enzymes

(iii) Where does transcription take place?

- a) Ribosomes
- b) Nucleus
- c) Mitochondria

(iv) What is the cell membrane composed of?

- a) Phospholipid bilayer with many other organic compounds
- b) Just a phospholipid bilayer
- c) Long amino acid chains
- d) Cytosol and eukaryotes

(v) Who deduced the double-helical structure of DNA?

- a) Watson and Francis Crick
- b) Frederick Sanger
- c) Anton van Leeuwenhoek
- d) Mendel

(vi) What is the function of proteins in cell membranes?

- a) Cellular transport
- b) Photosynthesis
- c) Cellular respiration
- d) None of these

(vii) Where are peripheral proteins attached?

- a) The surface of the cell membrane
- b) The rough endoplasmic reticulum
- c) The Golgi apparatus
- d) The interior of the cell membrane

- (viii) Which of the following transports only one kind of substrate?  
 a) Uniport carriers  
 b) Symport carriers  
 c) An port carriers  
 d) Membrane proteins
- (ix) What is the primary structure of a protein?  
 a) The sequence of amino acids form alpha helix's and beta pleated sheets  
 b) The sequence of amino acids  
 c) 3D arrangement held together by ionic bonds, hydrogen bonds and disulphide bridges  
 d) More than one polypep de chain in the protein
- (x) Which contains sulfur?  
 a) Thiamin B1  
 b) Riboflavin B2  
 c) Niacin  
 d) Cobalamin
- (xi) What is the best source of Riboflavin?  
 a) Organ meats  
 b) Citrus fruits  
 c) Milk  
 d) Lean Pork
- (xii) Which of the following are the major functions of Carbohydrates?  
 a) Storage  
 b) Structural framework  
 c) Transport Materials  
 d) Both Storage and structural framework
- (xiii) Select the following is an example of Epimers?  
 a) Glucose and Ribose  
 b) Glucose and Galactose  
 c) Galactose, Mannose and Glucose  
 d) Glucose, Ribose and Mannose
- (xiv) What is the shape of the DNA called?  
 a) Double spiral  
 b) Circular  
 c) Spiral  
 d) Double helix
- (xv) Name the simplest carbohydrate?  
 a) Gulose  
 b) G. lucose  
 c) Dihydroxyacetone  
 d) Glyceraldehyde

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Define the structure and functions of cell membrane. (3)
3. Define substrate level phosphorylation. (3)
4. Discuss the metabolism of fats with reference to (a) oxidation of fatty acids and (b) biosynthesis (3) of fatty acids.
5. Describe Mutarotation (3)
6. Differentiate between fibrous proteins and globular proteins. What is meant by the denaturation of a protein? (3)

OR

Glucose or sucrose are soluble in water, but cyclohexane or benzene (simple six-membered ring (3) compounds) are insoluble. Explain.

### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the transport mechanism across the cell membrane (5)
8. Distinguish between translation and transcription (5)
9. Describe the structure and functions of mucopolysaccharides. (5)

10. Write down the steps involved in Urea cycle and how it is regulated? What is the normal level of urea in an adult? (5)
11. Discuss the biochemical functions of vitamin K. Add a note on the therapeutic use of mega doses of this vitamin. (5)
12. Distinguish between starch and glycogen (5)
- OR**
- “The backbone of nucleic acid structure is 3c-5c phosphodiester bridge.”—justify. (5)

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