



**DBY-003-1012014**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. II) (W.E.F. 2016) Examination**

**July - 2022**

**Biotechnology**

**Fundamentals of Biomolecules : BT-201**

**Faculty Code : 003**

**Subject Code : 1012014**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : **70**

- Instructions :**
- (1) All questions are compulsory.
  - (2) The right side figure indicates total marks of the question.
  - (3) Draw the figure wherever necessary.

- 1 (a) Objective type questions : **4**
  - (1) \_\_\_\_\_ results from an unequal sharing of electrons between atoms.
  - (2) A charged atom particle is called a/an \_\_\_\_.
  - (3) The medium in which substance dissolves, is known as \_\_\_\_.
  - (4) Water density is maximum at \_\_\_\_ °C.
- (b) Answer in brief : (Any One) **2**
  - (1) Define buffer with one example.
  - (2) What is isoelectric point ?
- (c) Answer in detail : (Any One) **3**
  - (1) Explain the properties of carbohydrates.
  - (2) Write a note on general properties of water.
- (d) Write a note on : (Any One) **5**
  - (1) Write a detail note on chemical bonds.
  - (2) Write a note on ATP and other high energy compound.

- 2** (a) Objective type questions : **4**
- (1) \_\_\_\_ is known as milk sugar, found as the principle carbohydrate in milk.
  - (2) Give general carbohydrate formula.
  - (3) Oligosaccharides linked to protiens are called \_\_\_\_.
  - (4) The epimer of glucose is \_\_\_\_.
- (b) Answer in brief : (Any One) **2**
- (1) Explain anyone disaccharide with structure.
  - (2) What are Epimers ? Give an example.
- (c) Answer in detail : (Any One) **3**
- (1) Discuss glycolipids.
  - (2) Role of polysaccharide in biological systems.
- (d) Write a note on : (Any One) **5**
- (1) Briefly describe classifications and functions of disaccharides and polysaccharides.
  - (2) Write a detail note on glycoconjugates.
- 3** (a) Objective type questions : **4**
- (1) A tripeptide is a combination of \_\_\_\_ amino acids; so there are \_\_\_\_ peptide bonds.
  - (2) Amino acids the body cannot make are known as \_\_\_\_ amino acids.
  - (3) Proteins are micronutrients or macronutrients.
  - (4) Tryptophan is classified as \_\_\_\_ amino acids.
- (b) Answer in brief : (Any One) **2**
- (1) Briefly explain significance of protein folding.
  - (2) Draw the structures of aromatic amino acid.
- (c) Answer in detail : (Any One) **3**
- (1) Describe DNA-protein and protein-protein interaction with suitable example.
  - (2) Write a note on amino acid derivatives.

- (d) Write a note on : (Any One) 5
- (1) Explain levels of structures in protein.
  - (2) Write a note on biologically important protein.
- 4 (a) Objective type questions : 4
- (1) \_\_\_\_\_ form of DNA is left-handed helical structure.
  - (2) \_\_\_\_\_ is also known as linker histone.
  - (3) The basic repeating units of a DNA molecule is \_\_\_\_\_.
  - (4) Which nitrogenous base is absent in DNA ?
- (b) Answer in brief : (Any One) 2
- (1) What are ribozymes ?
  - (2) What are the types of DNA ?
- (c) Answer in detail : (Any One) 3
- (1) Comment about experiment proving semi-conservative nature of DNA.
  - (2) Write a short note on nucleotide analogues.
- (d) Write a note on : (Any One) 5
- (1) Discuss type of RNA and their functions.
  - (2) Explain Sanger DNA sequencing method.
- 5 (a) Objective type questions : 4
- (1) \_\_\_\_\_ fat soluble vitamin works as antioxidant.
  - (2) A lipid is formed by the condensation reaction between \_\_\_\_\_ and \_\_\_\_\_.
  - (3) Lipids are organic compounds formed mainly from alcohol and fatty acids combined together by \_\_\_\_\_ linkage.
  - (4) Vitamin B12 is present only in the foods of \_\_\_\_\_ origin.
- (b) Answer in brief : (Any One) 2
- (1) What are bipolar lipids ?
  - (2) Why pellagra is common in people who have eaten maize as staple diet ?

(c) Answer in detail : (Any One) **3**

(1) Describe Steroids.

(2) Explain structure and function of triacylglycerol.

(d) Write a note on : (Any One) **5**

(1) Classify vitamins and discuss any three in detail from vitamin B complex.

(2) Discuss lipid classification with diagram.

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