DBY-14

Seat No. _____

B. Sc. (Biotechnology) (Sem. II)
(W.E.F. 2019) Examination
July - 2022
BT-201 : Fundamentals of Biomolecules

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) ____ is when water changes from a solid directly to a gas.

(2) A charged atom particle is called a/an _____.

(3) A protogenic solvent donates protons. [True/False]

(4) Water density is maximum at _____°C and minimum at _____ °C.

(b) Answer in brief : (Any One) **2**

(1) Define ionic bond with example.

(2) Describe physical properties of water.

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

(1) Define: Acid, Base and Buffer.

(2) Explain hydrogen bonds and hydrophobic interaction.

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

(1) Explain important biological buffers in detail.

(2) Write a detailed note on laws of thermodynamics.

2 (a) Objective type questions : **4**

(1) _____ is commonly known as table sugar, beet or cane. It occurs in many fruits and vegetables.

(2) _____ is the epimer of glucose.

(3) Lactose is made of _____ and _____.

(4) Polyhydroxy aldehyde and ketones are also known as _____.

(b) Answer in brief : (Any One) **2**

(1) Give the functions of carbohydrates.

(2) Define Glycoconjugates.

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

(1) Discuss glycolipids.

(2) Explain optical isomer and stereoisomer with example and structure.

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

(1) Explain classification and function of disaccharides.

(2) Write a detailed note on reactions of monosaccharides and sugar derivatives.

3 (a) Objective type questions : **4**

(1) _____ amino acids cannot be produced in the body so they must be provided by Diet.

(2) A tripeptide has ____ amino acids and ____ peptide bonds.

(3) At isoelectric point amino acids exist as ____.

(4) The monomers used to synthesize proteins are called ____.

(b) Answer in brief : (Any One) **2**

(1) Describe secondary structure of proteins.

(2) Name any two aromatic amino acids.

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

(1) Describe physical properties of protein.

(2) Explain role of chaperons in protein folding mechanism.

(d) Write a note on Any One : 5

(1) Describe Edman and Sanger method of protein sequencing.

(2) Write a note on biologically important proteins.

4 (a) Objective type questions : 4

(1) DNA wrapped around histones is known as _____.

(2) In the nucleic acid, RNA, adenine pairs with _____.

(3) The enzyme used in Maxam-Gilbert method for 32P labelling of DNA at 3' end is _____.

(4) The negative charge of DNA is due to _____.

(b) Answer in brief : (Any One) 2

(1) Define : Ribozyme.

(2) Explain Chargaff's rule.

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

(1) Give any four differences between alternative forms of DNA.

(2) What are the features of Watson and Crick model of DNA ?

(d) Write a note on Any One : 5

(1) Explain DNA replication is semi-conservative in nature.

(2) Explain Griffith's experiment.

5 (a) Objective type questions : 4

(1) _____ vitamin is also described as a 'vitamin in search of a disease.

(2) Cobalt containing vitamin is _____.

(3) Higher the iodine value, greater the degree of _____.

(4) Osteomalacia in adults is caused due to deficiency of vitamin _____.

(b) Answer in brief : (Any One) **2**

(1) Give important sources of vitamin C.

(2) What are bipolar lipids ?

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

(1) Detail notes on structure and function of fatty acid.

(2) Explain vitamin B complex with its sources and associated deficiency disorder.

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

(1) Write a note on fat soluble vitamin.

(2) Discuss classification of lipid.
