



**NBH-003-10120014**      Seat No. \_\_\_\_\_

**B. Sc. (Sem. II) (CBCS) Examination**

**April / May – 2017**

**BT-201 : Fundamentals of Biomolecules**

**Faculty Code : 003**

**Subject Code : 10120014**

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

[Total Marks : 70

**Instructions :** (1) Objective type questions are compulsory.  
(2) Figures to the right indicate marks of the question.

- 1 (a) Objective type Questions 4
- (1) pH was introduced by scientist \_\_\_\_\_ in 1909.
- (2) Secondary bonds are weak bonds which include ionic bonds, vanderwaal's bonds and hydrogen bonds and are easily broken.  
TRUE/FALSE.
- (3) The accepted IUPAC name of water is \_\_\_\_\_.
- (4) Name the four main types of Blomolecules.
- (b) Answer in brief (Any 1 out of 2) 2
- (1) Define: pH and Buffers.
- (2) Define: Acid and Base.
- (c) Answer in Detail (Any 1 out of 2) 3
- (1) Explain Covalent and Ionic bonds.
- (2) State 1<sup>st</sup> and 2<sup>nd</sup> Laws of thermodynamics.
- (d) Write a note on (Any 1 out of 2) 5
- (1) Describe the Properties of water.

- (2) Describe the Properties of Biomolecules.
- 2** (a) Objective type Questions **4**
- (1) Give any one name of tests used for detection of Reducing sugars.
- (2) Hyaluronic acid is composed of alternative units of \_\_\_\_\_ and \_\_\_\_\_.
- (3) Which glycoproteins has a function of defence against infection?
- (4) Heparin is an example of Anticoagulant.  
TRUE / FALSE.
- (b) Answer in brief : (Any 1 out of 2) **2**
- (1) Write the functions of carbohydrates.
- (2) Define Epimers with example.
- (c) Answer in Detail (Any 1 out of 2) **3**
- (1) Explain oxidation and reduction reactions of sugars.
- (2) Explain Sterioisomerism and optical isomerism.
- (d) Write a note on (Any 1 out of 2) **5**
- (1) Explain Homopolysaccharides.
- (2) Explain Disaccharides.
- 3** (a) Objective type Questions **4**
- (1) Give the name of sulfur containing aminoacids.
- (2) Each turn of  $\alpha$ -helix contain \_\_\_\_\_ number of amino acids.
- (3) All amino acids reacts with ninhydrin to form purple colour except \_\_\_\_\_.
- (4) The  $\alpha$ - Helical structure of protein was proposed by \_\_\_\_\_

- (b) Answer in brief (Any 1 out of 2) 2
- (1) Draw the structure of acidic amino acid.
  - (2) How peptide bond formation takes place?
- (c) Answer in Detail (Any 1 out of 2) 3
- (1) Explain Physical properties of protein.
  - (2) Explain determination of amino acids sequence by Edman's reagent.
- (d) Write a note on (Any 1 out of 2) 5
- (1) Explain structural classification of amino acid.
  - (2) Describe the secondary structure of protein.
- 4 (a) Objective type Questions : 4
- (1) Who discovered DNA?
  - (2) A nucleotide is a basic structural unit and building block of DNA.  
TRUE/FALSE.
  - (3) Meselson and stahl gave the \_\_\_\_\_ nature of DNA.
  - (4) \_\_\_\_\_ is an enzymatic method for DNA sequencing.
- (b) Answer in brief (Any 1 out of 2) 2
- (1) Give full form of DNA and RNA.
  - (2) Define: Nucleotide and Nucleosides.
- (c) Answer in Detail (Any 1 out of 2) 3
- (1) Explain Chargaffs rule.
  - (2) Draw the labeled structure of DNA.
- (d) Write a note on (Any 1 out of 2) 5
- (1) Explain the Types of RNA and their functions.
  - (2) Explain Maxam Gilbert method of DNA sequencing.

- 5 (a) Objective type Questions 4
- (1) Vitamine A, D, E and K are fat soluble vitamins. TRUE/FALSE.
  - (2) The term lipid is sometime used as a synonym for \_\_\_\_\_
  - (3) Rickets is caused due to deficiency of vitamin \_\_\_\_\_
  - (4) \_\_\_\_\_ vitamin play an important role in keeping our bodies running like well oiled machines.
- (b) Answer in brief : (Any 1 out of 2) 2
- (1) Write the functions of lipid.
  - (2) Define Essential fatty acids with examples.
- (c) Answer in Detail (Any 1 out of 2) 3
- (1) Explain properties of Triacylglycerols.
  - (2) Explain Steroids.
- (d) Write a note on : (Any 1 out of 2) 5
- (1) Explain classifications of lipids.
  - (2) Describe the diseases caused due to vitamin deficiency.
-