

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**B.Sc. Summer 2017-18 Examination**

**Semester: I**  
**Subject Code: 11103101**  
**Subject Name: Biochemistry-I**

**Date: 30/05/2018**  
**Time: 10.30 am to 1.00 pm**  
**Total Marks: 60**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type. (08)**  
 (a) Classification of carbohydrates on the basis of the forming units.
- Q.1. B) Answer the following questions (Any two)**
- (a) General properties of biomolecules (04)  
 (b) Optical isomerism. (04)  
 (c) Characteristics of living matter. (04)
- Q.2. A) Answer the following questions. (04)**  
 (a) Fill in the blanks. (Each of 02 marks) (04)
1. A \_\_\_\_\_ is the sugar formed from two monosaccharides.
  2. An \_\_\_\_\_ is a sugar molecule in which a hydroxyl group has been replaced with an amine group.
- (b) Short note: Structure and function of glycogen. (04)
- Q.2. B) Answer the following questions (Any two)**
- (a) Multiple choice questions. (Each of 01 marks) (03)
1. A sugar that has a free aldehyde or ketone functional groups in its molecular structure is \_\_\_\_\_.  
 a) Table sugar  
 b) Reducing sugar  
 c) Hydrolyzing sugar  
 d) Muta-rotated sugar
  2. Each of two isomers with different configurations of atoms about one of several asymmetric carbon atoms is \_\_\_\_\_.  
 a) Epimer  
 b) Optical isomers  
 c) diastereoisomerism  
 d) All of the above
  3. \_\_\_\_\_ is a carbohydrate whose molecules are composed of a relatively small number of monosaccharide units.  
 a) Disaccharide  
 b) Monosaccharide  
 c) Oligo saccharide  
 d) Poly saccharide
- (b) List any three biotechnologically important carbohydrates. (03)  
 (c) Name any three sugar derivatives of biological importance. (03)
- Q.3. A) Essay type (08)**  
 (a) Structure of proteins.
- Q.3. B) Answer the following questions (Any two)**
- (a) Define the following (Each of 02 marks) (04)
1. Essential amino acids
  2. Denaturation of proteins
- (b) Solubility of proteins in solutions. (04)  
 (c) Chemistry of peptide linkage. (04)

**Q.4. A) Answer the following questions.**

(a) Draw the structure of following nitrogen bases.

(Each of 02 marks)

**(04)**

1. Guanine

2. Uracil

(b) Describe the feature of DNA double helix.

**(04)**

**Q.4. B) Answer the following questions (Any two)**

(a) Multiple choice questions.

(Each of 01 marks)

**(03)**

1. A lipid containing a phosphate group in its molecule is \_\_\_\_

- a) Phospholipid
- b) Phosphates
- c) Formyl phosphate
- d) All of the above

2. \_\_\_\_\_ is a class of compounds which are fatty acid derivatives of sphingosine.

- a) Spingoamines
- b) Spingolipids
- c) Spingosols
- d) Spingopeptides

3. A \_\_\_\_\_ is a biochemical assembly whose purpose is to transport hydrophobic lipid.

- a) Albumin
- b) lipoprotein
- c) Hemoglobin
- d) Globulin

(b) Shortnote: Triacyl glycerol

**(03)**

(c) Differentiate between saturated and unsaturated fatty acids

**(03)**