Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc., Winter 2017-18 Examination

Semester: 1 **Date: 26/12/2017**
Subject Code: 11203104 **Time: 02:00pm to 04:30pm**
Subject Name: Biochemistry of Macromolecules **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.

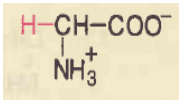
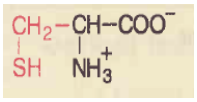
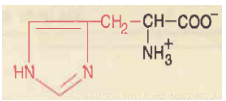
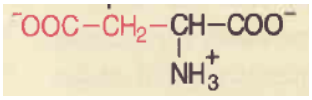
Q.1. A) Essay type **(Each of 04 marks)** **(08)**

(a) Discuss the properties of protein.
(b) Structural organization of proteins.

Q.1. B) Answer the following questions (Any two)

(a) Schematically label the figures (2x2) (Each of 02 marks) **(04)**

1. Label the following amino acids.

a)  b)  c)  d) 

2. List methods for sequence determination of proteins.

(b) Functional classification of proteins. **(04)**
(c) List characteristics of denaturation. **(04)**

Q.2. A) Answer the following questions.

(a) Fill in the blanks. (Each of 02 marks) **(04)**

1. The example of triose sugar is _____ while that of hexose sugar is _____.
2. A disaccharide consists of two mono saccharide units held together by a _____bond. The reducing disaccharides are with _____ groups.

(b) Short note: Biological functions of carbohydrates **(04)**

Q.2. B) Answer the following questions (Any two)

(a) Multiple choice questions. (Each of 01 marks) **(03)**

1. When the polysaccharides are composed of different types of sugars or their derivatives, they are referred to as _____.
   a) Heteropolysaccharides
   b) Glycoproteins
   c) Conjugated carbons
   d) All of the above.
2. _____ are a special type of stereoisomers that are mirror images of each other.
   a) Diastereomers
   b) Enantiomers
   c) Epimers
   d) Ketomers
3. _____ is not an example of glycoproteins.
   a) Fibronectin
   b) Immunoglobulins
   c) Collagen
   d) Cellulose

(b) Short note: Structural elucidation of polysaccharides **(03)**
(c) Short note: Peptidoglycan **(03)**

Q.3. A) Essay type **(08)**

(a) Classification of Lipids.

Q.3. B) Answer the following questions (Any two)

(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) **(04)**

1. List classification of fatty acids.
2. Biological roles of phospholipids

(b) Short note: Essential fatty acids **(04)**

(c) Short note: Chemistry and properties of Steroids **(04)**

Q.4. A) Answer the following questions.

(a) Fill in the blanks. (Each of 02 marks) **(04)**

1. The pyrimidine present in DNA but absent in RNA is_____.
2. Ribose and deoxyribose differ in their structure around carbon atom ____.

(b) Short note: Nucleic acid sequencing **(04)**

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

(a) Multiple choice questions. (Each of 01 marks) **(03)**

1. The number of base pairs present in each turn (pitch) of B-form of DNA helix

a) 9
b) 10
c) 11
d) 12

2. The backbone of nucleic acid structure is constructed by

a) Peptide bonds
b) Glycosidic bonds
c) Phosphodiester bridges
d) All of them.

3. The number of base pairs present in each turn (pitch) of Z-form of DNA

a) 9
b) 10
c) 11
d) 12

(b) Short note: Define Porphyrins. Mention structure and properties of heme. **(03)**

(c) Short note: Types of RNA. **(03)**