

**B.Sc. (Part-I) Semester—I Examination**  
**1S : BIOCHEMISTRY**  
**(Biomolecules and Nutrition)**

Time : Three Hours]

[Maximum Marks : 80

**N.B. :**— **ALL** questions are compulsory and carry equal marks except Question No. 1 carrying 8 marks.

1. (A) Fill in the blanks : ( $\frac{1}{2}$  mark each) 2
- (i) Generally blood sugar means \_\_\_\_\_.
  - (ii) Fats are esters of fatty acids with \_\_\_\_\_.
  - (iii) Amino acid exists as \_\_\_\_\_.
  - (iv) Vitamin \_\_\_\_\_ is also called calciferols.
- (B) Choose correct alternative : ( $\frac{1}{2}$  mark each) 2
- (i) Which one of the following is not a monosaccharide ?
    - (a) Glucose (b) Fructose
    - (c) Galactose (d) Lactose
  - (ii) Arachidonic acid contains the number of double bonds :
    - (a) 2 (b) 3
    - (c) 4 (d) 5
  - (iii) All  $\alpha$ -amino acids are optically active except :
    - (a) Glycine (b) Alanine
    - (c) Serine (d) Phenyl alanine
  - (iv) The number of nucleotide pairs present in one turn of DNA is :
    - (a) 4 (b) 6
    - (c) 8 (d) 10

- (C) Write in **one** sentence about the following : (1 mark each) 4
- (i) What do you mean by zwitter ion ?
  - (ii) Which vitamin is called antihemorrhagic factor ?
  - (iii) What is anticoagulant present in human blood ?
  - (iv) What do you understand by RQ ?
2. (a) What are epimers of D-glucose ? Give their structures. 4
- (b) Describe structure and function of starch. 4
- (c) Define and explain mutarotation with suitable example. 4
- OR**
- (p) Give the structure and functions of Ribose and 2-Deoxyribose. 4
- (q) Explain phenyl hydrazine reaction giving its importance. 4
- (r) Describe the structure and function of chondroitin sulphates. 4
3. (a) Define and classify Lipids giving examples of each class. 4
- (b) What is meant by saponification value ? Give its importance. 4
- (c) Describe the structure and function of cholesterol. 4
- OR**
- (p) Describe structure and function of cerebrosides. 4
- (q) What is meant by rancidity of fats ? Explain in short. 4
- (r) Give the structure and functions of bile acids. 4
4. (a) What is meant by primary structure of protein ? 4
- (b) Describe briefly the biological importance of proteins. 4
- (c) Write the structure of two sulfur containing amino acids. 4

**OR**

- (p) Discuss about non proteinous amino acids. 4
- (q) Enlist glucogenic and Ketogenic amino acids. 4
- (r) Classify proteins based on shape. 4
5. What are essential amino acids ? Discuss nutritional importance of proteins. 12

**OR**

- What is balanced diet ? Give diet for infants and old persons. 12
6. Describe structure and functions of different types of RNA. 12

**OR**

- Discuss chemistry and physiological role of chlorophyll. 12
7. (a) Define and classify hormones. 4
- (b) Describe sources and deficiency effects of Vitamin A. 4
- (c) Describe the structure and sources of Vitamin C. 4

**OR**

- (p) Describe chemistry and function of thyroid hormone. 4
- (q) Describe the sources and deficiency disease of Vitamin B<sub>1</sub>. 4
- (r) Give the target sites and functions of pituitary gland. 4

