

## BIO-CHEMISTRY

[Paper-A : Carbohydrates and Lipids]

**Time Allowed : Three Hours**

**Maximum Marks : 45**

**Note :** Attempt five questions in all, including Question No. 1 is compulsory and selecting one question from each Unit.

1. Explain briefly the following terms:

- (a) Buffer
- (b) Osmotic pressure
- (c) Epimer
- (d) Heteropolysaccharides
- (e) Deoxy sugars
- (f) Iodine value
- (g) W-6 fatty acid
- (h) Chylomicrons
- (i) Bile acids.

(9×1)

## Unit – I

2. (a) Derive an equation to explain how carbonate bicarbonate buffer can resist change in pH within biological system.
- (b) If 1.0 ml of 10N NaOH is added to a liter of pure water at pH 7.0, what is the final pH? (5,4)
3. (a) Derive an equation to explain that pure water has pH=7.0.
- (b) What do you mean by colligative properties? Explain its significance by giving example. (5,4)

## Unit – II

4. (a) What do you mean by deoxy and amino derivatives of monosaccharides? Give structure and biological significance of at least one deoxy and amino sugar. (4)
- (b) Briefly explain structure and biological significance of (i) chitin (ii) glycogen. (2×2½)
5. (a) Explain the structure and function of polysaccharides of bacterial cell.
- (b) Discuss the polysaccharides as component of connective tissue. (5,4)

## Unit – III

6. (a) Define fatty acids. What do you mean by essential fatty acids? Explain by giving example. (4½)
- (b) Briefly explain following :
- (i) Saponification value (ii) Iodine number (iii) Waxes (3×1½)
7. (a) Explain structure, characteristics and functions of phospholipids.
- (b) What do you mean by ether lipids? Explain structure and function of plasmalogens. (5,4)

## Unit – IV

8. (a) What are terpenes? Give their classification and biological significance.
- (b) Define liposomes and explain its applications. (5, 4)
9. (a) Give a structure of cholesterol and write a short note on steroid hormones.
- (b) Explain the biological function of Eicosanoids. (5, 4)