

(i) Printed Pages : 3

Roll No.

(ii) Questions : 9

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Exam. Code :

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B.A./B.Sc. (General) 1st Semester

1125

BIO-CHEMISTRY

Paper-A : Carbohydrates and Lipids

Time Allowed : Three Hours]

[Maximum Marks : 45

Note :- Attempt **five** questions in all, Question No. 1 is compulsory. Attempt any **one** question each from Section-I through Section-IV. All questions carry equal marks.

1. Explain briefly the following terms :

- (i) Osmosis
- (ii) Proton hopping
- (iii) Homopolysacchrides
- (iv) Stereoisomerism
- (v) Waxes
- (vi) Essential Fatty Acids
- (vii) Plasmalogens
- (viii) Liposomes
- (ix) Prostaglandins.

1×9=9

SECTION-I

2. Define Buffer. Explain how they resist change in pH by taking example of biological important buffers. 9
3. (a) Derive the Henderson-Hasselbalch equation for ionization of weak acids. 5
- (b) What do you mean by Colligative Properties and what is its significance? 4

SECTION-II

4. (a) Draw the ring structure of :
- (i) Galactose
 - (ii) Glucosamine
 - (iii) Muramic acid
 - (iv) Uronic acid. 4
- (b) Discuss the structure and biological significance of :
- (i) Lactose
 - (ii) Trehalose. $2.5 \times 2 = 5$
5. (a) Write a short note on polysaccharides of bacterial cell wall. 5
- (b) Briefly discuss storage polysaccharides. 4

SECTION-III

6. (a) What are Fatty Acids? Write structures of palmitic acid, arachidonic acid, oleic acid. 4.5
- (b) Briefly explain following :
- (i) Iodine value
 - (ii) Saponification value
 - (iii) Peroxide value. 1.5×3=4.5
7. (a) Give structure and functions of lecithins and phosphatidyl inositol. 5
- (b) Write a short note on Sphingolipids. 4

SECTION-IV

8. (a) Elaborate on Terpenes. 4
- (b) Discuss the Lipoproteins in detail. 5
9. (a) Write a short note on mycosterols. 4
- (b) Discuss the structure and properties of Leukotrienes and prostaglandins. 5