

(b) What do you understand by energy rich compounds? Why does the hydrolysis of ATP yield a large amount of free energy release? (8)

(c) Why are essential fatty acid called so? Justify their importance and give the chemical structure for any one essential fatty acid. (4)

6. (a) Define (any five) of the following with help of biochemical structure using a suitable example: (5 × 3 = 15)

- (i) Epimer
- (ii) Diastereomer
- (iii) Enantiomer
- (iv) Disaccharides
- (v) O-glycoside
- (vi) Sphingolipids

(b) Write an important contribution of the following scientists in the field of biochemistry. (1.5 × 2 = 3)

- (i) Karl Lohmann
- (ii) Haworth

(500)

Your Roll No.....

Sr. No. of Question Paper : 1068

D

Unique Paper Code : 2532011103

Name of the Paper : Biochemistry of Carbohydrates and Lipids

Name of the Course : B.Sc. (H) Microbiology

Semester : I

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. All questions carry equal marks.
3. Attempt any five questions in all.

1. (a) Free energy change is the most suitable criteria for judging the spontaneity of reactions. Derive the equation for free energy change and justify the statement by providing suitable examples.

(3+4=7)
P.T.O.

- (b) State True or False giving reasons, for *any three* of the following: (3×3=9)
- A catalyst can make an unfavorable reaction favorable.
 - Glycerol and fatty acids are the building blocks of all types of lipids.
 - Deoxyribose is a modified monosaccharide.
 - Lipids are better energy storage material as compared to polysaccharides.
- (c) What is pectin? Give its function. (2)
2. (a) Draw the structure and suggest the significance/distinct property of any three of the following: (5×3=15)
- BPGA
 - Peptidoglycan
 - Sucrose
 - Phosphatidylethanolamine
- (b) Discuss how is free energy change of a chemical reaction related to the concentration of its reactants and products. (3)

3. Differentiate between (any three): (6×3=18)
- Standard free energy change and actual free energy change
 - Starch and Cellulose
 - Micelles and liposomes
 - Reducing and non-reducing sugars
4. (a) Write a short note on any three the following: (4×3=12)
- Saponification
 - Mutarotation
 - Triglycerides
 - Fischer projection formulae of monosaccharides
- (b) State first and second law of thermodynamics. (4)
- (c) Give the classification of monosaccharides on the basis of their functional groups. (2)
5. (a) Discuss the important structural features that influence the physical properties of fatty acids, using suitable examples. (6)