

VCD:

8/12/23

Class: **FYBT** Sem: **I** Subject: **Biotechnology**Duration: **2 ½ Hours**Marks: **75****USBT104 - Biochemistry: Concept of Biomolecules-I**

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labeled diagrams wherever necessary.
4. For Q 2, Q 3 and Q 4 attempt A and B OR C and D.

Q 1 Do as directed (Any fifteen)**15**

1. Define Normality.
2. Write any two functions of water.
3. Water has a higher _____ due to Hydrogen bonds.
4. Solution is made of _____ and _____.
5. Calculate the Normality of the solution containing 1 mole of NaOH in 500ml of water.
6. Write Henderson-Hasselbalch Equation.
7. Name one acidic buffer system.
8. Draw Structure of Glyceraldehyde
9. Define stereoisomer.
10. Give one example of Epimer of Glucose.
11. List two examples of Monosaccharides.
12. Draw structure of enediol.
13. Name the bond between two monosaccharides in Cellulose.
14. Which disaccharide is a reducing sugar?
15. Define the term 'Rancidity'.
16. The process of lipid hydrolysis, catalysed by enzymes known as _____.
17. Name of the saturated fatty acids ends with a suffix _____.
18. Give any ONE function of lipids.
19. What is lipoprotein?
20. What are Steroids?

Q. 2 A Explain mole concept. Calculate number of moles in following substances 08

i) 72 grams of water ii) 80 grams of NaOH iii) 40 grams of NaOH

Molecular Weight: (a) H₂O - 18 amu (b) NaOH - 40 amu**Q. 2 B Write a note on Secondary Standard with an example. 07****OR****Q. 2 C Define Buffer. Give any two examples. Calculate pH of solution 08**containing 0.01M Acetic acid and 0.1M Sodium acetate. $pK_a = 4.76$.**Q. 2 D Explain pH. Derive Ionic Product of water. 07****Q. 3 A Classify carbohydrates based on saccharide units with examples. 08****Q. 3 B Explain any two chemical reactions of monosaccharide. 07****OR****Q. 3 C Write a detailed note on Disaccharides with examples. 08****Q. 3 D Explain Biological buffers with two examples. 07**

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- Q. 4 A Give details on classification of lipids. 08
Q. 4 B Explain different tests to check purity of fats and oils. 07

OR

- Q. 4 C Draw structure of Phosphatidylcholine and Cardiolipin. 08
Q. 4 D Give an account on nomenclature of fatty acids with examples. 07

- Q. 5 Write Short notes on any three of the following 15

- Glyceraldehyde
- Homopolysaccharides
- Solution ratios
- Biological buffers
- Action of Phospholipase C and Phospholipase D