100

VCD / 301122 FYBT-SEM I Biochemistry 2½ Hrs 75 Marks

N.B

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labelled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculators** is **allowed**.
5. 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 heteropolysaccharides
2. Define oligosaccharides.
3. Give 2 examples of disaccharides.
4. Which one of the following is a storage form of carbohydrates in plants?
   a) Starch b) Glycogen c) Cellulose d) Chitin
5. Which of the following glycosidic linkage found in lactose?
   a) Glucose (α-1 – 2β) Fructose b) Glucose (α1 – 4) Glucose
   c) Galactose (β1 – 4) Glucose d) Glucose (β1 – 4) Glucose
6. Which one of the following is the ketose sugar?
   a) Fructose b) Glucose c) Ribose d) Lactose
7. Which one of the following is an example of tetroses?
   a) Fructose b) Glucose c) Erythrose d) Lactose
8. Name the two essential fatty acids?
   a) Linoleate and linolenate b) Oleic and linoleic
   c) Lauric and myristic d) Arachidonic and oleic
9. Which of the following phospholipid is considered as a major constituent of nervous tissue?
   a) Glycerophospholipid b) Plasmalogen c) Inositol d) Sphingomyelin
10. Identify the lowest density lipoprotein among the following?
    a) HDL b) LDL c) VLDL d) VHDL
11. Which one of the following is a storage form of lipids in animals?
    Fatty acids b) Steroids c) Triacylglycerols c) Cholesterol.
12. Which one of the following is a example of derived lipids?
    Estrogen b) Vitamin E c) Vitamin K D) All of the above
13. Find the NOT the biological function of lipids.
    a) Storage form of metabolic fuel
    b) Lipid derivatives are used as vitamins.
    c) The structural component of membranes

d) Exhibit increased catalytic activity

14. What is Normality?
15. What will be the number of molecules in 1 mole of NaOH?
16. Calculate molar mass of NaCl. (Atomic mass of Na - 23 & Cl - 35.5)
17. How many grams of KCl will be in the 10% w/v solution of KCl?
18. Define Buffers.
19. Give an example of Secondary Standard.
20. Give an example of an acidic buffer.

Q 2 A	Derive Henderson -Hasselbach equation	**08**
Q 2 B	Explain preparation of 0.1M of NaOH solution. Calculate weight by volume ratio and ppm of NaOH.	**07**
	OR	
Q 2 C	Describe water and give its biological significance.	**08**
Q 2 D	Derive ionic product of water.	**07**
Q 3 A	What are hexoses? Draw the structures of any 3 hexoses.	**08**
Q 3 B	Enlight on the classification of carbohydrates in brief.	**07**
	OR	
Q 3 C	What is glycosidic bond? Draw the structure of any 2 molecules having glycosidic bond.	**08**
Q 3 D	Give a brief account on reactions of monosaccharides.	**07**
Q 4 A	Give a brief account on classification of lipids.	**08**
Q 4 B	What are triacylglycerols? Explain in brief about properties of triacylglycerols.	**07**
	OR	
Q 4 C	Define phospholipids. Explain in brief about functions of phospholipids.	**08**
Q 4 D	Define unsaturated fatty acids. Draw the structures of any 3 unsaturated fatty acids.	**07**

Q 5 Write short note on any three of the following **15**

a Types of buffers
b Preparation of Standard Solutions
c Heteropolysaccharides.
d Trioses.
e Functions of lipids.