

F. Y. B. Sc. (Biotechnology) SEM – I (CBCS - 2015 COURSE) :
WINTER - 2018

Subject: Foundations of Chemistry and Biochemistry

Day: Friday
Date: 26/10/2018

W-2018-1168

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in SEPARATE answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

SECTION - 01

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What are epimers? Give one example
- b) What are the monomers of (i) lactose (ii) maltose
- c) What are isomers? Give example of sugars that are isomers.
- d) Name any two structural polysaccharides and draw structures of their monomers.
- e) Name the three essential fatty acids.
- f) In which tissue the gangliosides (complex glycosphingolipids) are found?

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) What do you mean by stereoisomerism? Explain with example of carbohydrates.
- b) Describe the biological functions of carbohydrates.

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) Explain the glycoprotein with suitable example.
- b) Discuss the 5 different types of structural lipids.

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) Lectins
- b) Fat soluble vitamins

SECTION - 02

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is meant by saturation or unsaturation when referring to oils and fats?
- b) All eicosanoids are derived from which fatty acids?
- c) Define buffer? Give two examples.
- d) Differentiate between osmosis and diffusion.
- e) What is the physiological pH and temperature?
- f) Define- normality and osmotic pressure

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) Draw the structure of – a) Sphingolipid, b) Cholesterol
- b) What are amorphous substances? How does polarity in a molecule affect its boiling point and melting point?

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) Draw the structure of triacylglycerol with two saturated and one unsaturated fatty acids.
- b) Explain the working of pH meter.

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) Spectroscopy
- b) Properties of colloids and emulsions
