

F. Y. B. Sc. (Biotechnology) SEM – I (CBCS - 2015 COURSE) :
SUMMER - 2019

Subject: Foundations of Chemistry and Biochemistry

Day: Saturday
Date: 13/04/2019

S-2019-1370

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 SAME 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 do you understand by O-glycoside bond and N-glycoside bond?
- b) Draw the structure of Ribose and Deoxy-Ribose
- c) Identify the type of linkage between the monomers of (i) Sucrose (ii) cellulose
- d) Why oceans and lakes not freeze completely in winter?
- e) Enlist the types of structural lipids.
- f) Name the three essential fatty acids.

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

- a) Why do reducing sugars show a red colour when treated with Benedict's reagent?
- b) What is the difference between starch and chitin?

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

- a) Important disaccharides (any two examples)
- b) What are trans fats? Explain the process of rancidity in lipids.

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

- a) ABO blood grouping
- b) Refined and unrefined oils

SECTION - 02

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

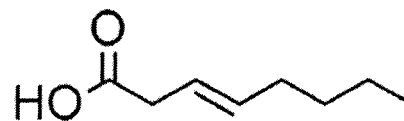
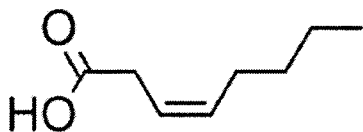
- a) How are lipids used as an energy source by the body?
- b) What is hydrogenation of oil?
- c) Differentiate between colloids and emulsions.
- d) What do you understand by 'depression in freezing point'?
- e) What is the principle of adsorption chromatography?
- f) In what way does temperature affect solubility of carbohydrate?

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

- a) Compare the properties of carbohydrates and lipids as fuel molecule.
- b) What is colorimetry? Explain Beer-Lambert's law.

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

- a) Examine the following two fatty acids. Classify them as cis or trans. Which of the two do you believe would be more densely packed together? Which would have the lower melting point? Explain.



- b) What do you understand by solubility of a substance? How does temperature and pressure affect solubility?

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

- a) Applications of spectrophotometry
- b) Buffers
