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

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