

M. Sc. (Biotechnology) Sem-I (2012 Course)(Choice Based Credit System) : SUMMER - 2019

SUBJECT : BIOLOGICAL CHEMISTRY

Day : Wednesday
Date : 03/04/2019

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

S-2019-1406

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SAME** answer books.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Figures to the right indicate **FULL** marks.
- 5) Assume suitable data if necessary.

SECTION – I

- Q.1** Attempt **ANY FIVE** of the following: [10]
- a) Which disaccharide is present in milk? Give the structure.
 - b) What are proteoglycans? Explain their biological role with suitable examples.
 - c) Write the structure of any three aromatic amino acids.
 - d) Explain the role of fats and oils as storage lipids.
 - e) Write the biological significance of cholesterol.
 - f) Explain the role of vitamin 'K' as an anticoagulant.
- Q.2** a) Write the structure and biological function of a storage polysaccharide present in mammals. [05]
b) Explain with any one experimental evidence to prove DNA as a genetic material. [05]
- Q.3** a) Differentiate between types of RNAs along with their biological functions [05]
b) Explain the difference between aerobic and anaerobic glycolysis and their metabolic significance. [05]
- Q.4** Attempt **ANY TWO** of the following: [10]
- a) Steroid hormones and their biological role.
 - b) Lectins and their structural - functional role.
 - c) Ketone bodies in carbohydrate metabolism.

SECTION – II

- Q.5** a) Explain the organization of various components of electron transport chain involved in oxidative phosphorylation. [05]
b) Explain substrate specificity of enzyme. Which environmental parameters affect the activity of enzyme? [05]
- Q.6** Attempt **ANY TWO** of the following: [10]
- a) Explain Mitchell's hypothesis for coupling electron transport chain and oxidative phosphorylation with a suitable diagram.
 - b) Give structural organization of chloroplast. What do you mean by harvesting of light energy?
 - c) What are growth hormones? Write their applications.
- Q.7** a) Differentiate between cyclic and non-cyclic photophosphorylation. [05]
b) Role of activators and inhibitors of enzymes. [05]
- Q.8** Which assay methods are used to measure the activity of enzyme? [10]

OR

Comment on oxidation reduction reactions in biological system and their role in metabolism.

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