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MCH–015

MASTER OF SCIENCE IN CHEMISTRY/MASTER OF SCIENCE IN ANALYTICAL CHEMISTRY (MSCCHEM/MSCANCHEM)

Term-End Examination

June, 2025

MCH-015 : BIOLOGY FOR CHEMISTS

Time : 1 Hour *Maximum Marks : 25*

Note : *Answer all the questions. Illustrate your answers wherever required.*

1. Write the name(s) of any ***two*** of the following and information sought in that case : $2\times2\frac{1}{2}=5$

   (a) The cell organelle in human beings responsible for the decomposition of H_2O_2 produced by the metabolic

reactions in a living body. Write the catalyst and the reactions involved in this process.

(b) The cell organelles responsible for maintaining the shapes of cells. Describe in brief their structures.

(c) The scientists who proposed the fluid mosaic model of the plasma membrane. Give the salient features of the plasma membrane.

2. Define and state the significance of any ***two*** of the following : $2\times2\frac{1}{2}=5$

(a) Urea cycle

(b) Iodine number

(c) Heteropolysaccharides

3. Answer any ***two*** of the following : $2\times2\frac{1}{2}=5$

   (a) Describe the structure and stereochemistry of peptide bond.

   (b) Describe in brief the central role of Kreb's cycle in metabolism.

   (c) Write the complete reaction involved in the β-oxidation pathway giving the enzyme involved. (No steps required).

4. Draw a neat labelled schematic diagram for any ***two*** of the following : $2\times2\frac{1}{2}=5$

   (a) The α-helical structure of proteins

   (b) DNA-replication showing the leading and the lagging strands

   (c) Cells and organs of the immune system

5. Write short notes on any ***two*** of the following : $2\times2\frac{1}{2}=5$

(a) Classification of amino acids on the basis of polarity of R group

(b) Glycolysis related disorders

(c) Characteristics of the genetic code

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