

B.Sc. Semester - 3 (CBCS) Examination
Oct/Nov - 2023 [NEW COURSE]
BioChemistry-BC301(Core)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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- Q-1 **A)** Answer the following. (Any one Out of Two) (07)
- 1) Write detail different type of polysaccharides.
 - 2) Explain: Structure and importance properties of monosaccharides.
- B)** Attempt any one. (Out of Two) (04)
- 1) Write stereoisomerisms and optical isomerism of sugars.
 - 2) Discuss: Ring structure and anomeric forms of mutarotation.
- C)** Attempt any three. (Out of Five) (03)
- 1) Define: Carbohydrates
 - 2) Chitin is heteropolysaccharides. (True/False)
 - 3) The general chemical formula of carbohydrate is _____.
 - 4) Maltose is a disaccharides of _____ and _____.
 - 5) Define: Epimer
- Q-2 **A)** Answer the following. (Any one Out of two) (07)
- 1) Classification of lipid.
 - 2) Discuss: Structure and function of phospholipids.
- B)** Attempt any one. (Out of two) (04)
- 1) Short note on: Triacylglycerols.
 - 2) Describe in short: Essential fatty acids.
- C)** Attempt any three. (Out of Five) (03)
- 1) Define: Lipid.
 - 2) In eukaryotes, fatty acid breakdown occurs in _____ (Mitochondria / cytosol)
 - 3) HDLs are synthesized in liver (True/False)
 - 4) Define: Glycerophospholipids
 - 5) Lipid are soluble in _____.
- Q-3 **A)** Answer the following. (Any one Out of two) (07)
- 1) Explain in detail: Classification of Amino acid.
 - 2) Primary and secondary structure of Protein.
- B)** Attempt any one. (Out of two) (04)
- 1) Structure and biological functions of haemoglobin.
 - 2) Write short note on: Denaturation and renaturation of proteins.
- C)** Attempt any three. (Out of Five) (03)
- 1) Define: Protein
 - 2) How many amino acids make up a protein?
 - 3) What is a bond formation between amino acids?
 - 4) MRI techniques is used to determine the protein structures? (True/False)
 - 5) Keratins present in _____ in nature.

- Q-4 **A)** Answer the following. (Any one Out of two) (07)
- 1) Explain: Detailed structure of DNA.
 - 2) Structure and roles of different types of RNA.
- B)** Attempt any one. (Out of two) (04)
- 1) Denaturation and annealing of DNA.
 - 2) Central dogma of molecular biology.
- C)** Attempt any three. (Out of Five) (03)
- 1) Write the full form of DNA
 - 2) Which nitrogenous base is not present in RNA?
 - 3) Which of the nitrogenous base does thymine form hydrogen bonds in DNA?
 - 4) DNA is composed of repeating units of deoxyribonucleotides. (True/False)
 - 5) Define: Gene
- Q-5 **A)** Answer the following. (Any one Out of two) (07)
- 1) Detail note on water soluble vitamin.
 - 2) Explain: Fat soluble vitamin.
- B)** Attempt any one. (Out of two) (04)
- 1) Brief note on: Bile pigments
 - 2) Structure and function of Porphyrins
- C)** Attempt any three. (Out of Five) (03)
- 1) Define: Vitamins.
 - 2) Enlist fat soluble vitamin.
 - 3) A deficiency of thiamin produces the disease known as _____.
 - 4) Vitamin B₁₂ is only synthesized by Microorganism. (True/False)
 - 5) Define: Porphyrins.
