

B.Sc. Semester - 3 (CBCS) Examination
December. -2020 [OLD COURSE]
BIO-CHEMISTRY (CORE)

Time: 1:30 Hours**Marks: 42****Instructions:**

1. Figure to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any three of the following questions.
-

Q.1 A Write detailed answer for any one of the following questions [7]

1. Discuss structures, occurrence and functions of monosaccharides and disaccharides with suitable examples.
2. Write classification of carbohydrates with examples and write functions of carbohydrates.

Q.1 B Write the Answer in detail for any one of the following questions..... [4]

1. Describe in detail reducing and non reducing sugars.
2. Discuss epimers, anomers and enantiomers with suitable examples of sugars.

Q.1 C Answer any three the following questions in just one or two lines..... [3]

1. Name the organs/tissues in human body that stores glycogen.
2. Draw ring structure of glucose.
3. Name three biochemical tests used to identify reducing sugars.
4. Where do you find peptidoglycan in nature?
5. Identify the linear and unbranched homopolysaccharide that is made up of glucose molecules that are joined by (β - 1,4) linkage.

Q.2 A Write detailed answer for any one of the following questions [7]

1. Define rancidity, list different tests performed to determine rancidity, describe factors responsible for causing rancidity in oils and different ways and means to prevent rancidity in cooking oils.
2. Describe the important functions of triglycerides and phospholipids.

Q.2 B Write the Answer in detail for any one of the following questions..... [4]

1. Discuss process of saponification of lipids.
2. Describe the biochemical functions of cholesterol.

Q.2 C Answer any three the following questions in just one or two lines..... [3]

1. What is the difference between glycerophospholipids and sphingophospholipids?
2. What is the difference between fats and oils?
3. Write two examples of polyunsaturated fatty acids.
4. Draw the structure of six carbon saturated fatty acid.
5. Define essential fatty acids with suitable examples.

Q.3 A Write detailed answer for any one of the following questions [7]

1. Draw and explain titration curve of amino acids.
2. Write a short note on tertiary structure of proteins

Q.3 B Write the Answer in detail for any one of the following questions..... [4]

1. Describe alpha helix and beta pleated sheets in protein structure.
2. Write a short note on denaturation of proteins and describe different agents that can bring about protein denaturation.

Q.3 C Answer any three the following questions in just one or two lines..... [3]

1. Write an examples of aromatic amino acids
2. Which amino acid lacks asymmetric carbon atom in its structure?
3. How proline is different from other amino acids?
4. Define branched chain amino acids with suitable examples.
5. What do you understand by the term- zwitter ion?

Q.4 A Write detailed answer for any one of the following questions [7]

1. Discuss important characteristics of Watson and Crick model of β -DNA structure.
2. Write a short note on characteristics and functions of different types of RNA present in eukaryotic cells.

Q.4 B Write the Answer in detail for any one of the following questions..... [4]

1. Explain in detail: DNA denaturation and DNA renaturation.
2. Describe experiment and write experimental evidence that proved DNA as a genetic material.

Q.4C Answer any three the following questions in just one or two lines..... [3]

1. What is retrovirus? Write at least one example.
2. Write differences between purine and pyrimidine bases.
3. Which type of eukaryotic RNA has a clover leaf structure?
4. In a double stranded DNA sample if content of A was found to be 15%, calculate the % content for T, G and C.
5. Which of the following components of DNA contributes to maximum absorption of UV light at 260 nm ; nucleotide bases, deoxyribose sugar or phosphoric acid group?

Q.5 A Write detailed answer for any one of the following questions [7]

1. Discuss role of porphyrines in structure and functioning of various biomolecules with suitable examples.
2. Write properties, dietary sources, structure and biochemical functions of Vitamin D and discuss Rickets in children.

Q.5 B Write the Answer in detail for any one of the following questions..... [4]

1. Write a short note on Beriberi.
2. List rich dietary sources and biochemical functions of Vitamin A.

Q.5 C Answer any three the following questions in just one or two lines..... [3]

1. Why vitamin D is also known as a sunshine vitamin?
2. Why excess intake of fat soluble vitamins can cause toxicity?
3. Deficiency of which vitamin causes Pellagra?
4. Write the name of deficiency disease and two important symptoms of Vitamin C deficiency.
5. Name the bile pigment which accumulates in blood, skin and eyes during jaundice.
