

B.Sc. Semester - 3 (CBCS) Examination
December. -2020 [NEW COURSE]
BioChemistry-BC301(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. Describe the structure, occurrence and functions of cellulose.
2. Write short note on disaccharides: structure, occurrence and importance.

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

1. Define reducing sugars, classify the following sugars into reducing and non reducing sugars: glucose, galactose, maltose, lactose and sucrose.
2. Discuss enantiomerism in sugars using suitable examples.

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

1. What are epimers?
2. Write differences between pyranose and furanose ring structure of sugars.
3. What is invert sugar?
4. Briefly describe nature and occurrence of peptidoglycan.
5. In what form and where in our body polysaccharides are stored?

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

1. Write examples and functions of glycerophospholipids.
2. Discuss classification of lipids with examples.

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

1. What are essential fatty acids? Write their examples. What are the rich dietary sources for essential fatty acids?
2. List the factors that can cause rancidity in oils. Describe different methods to prevent the rancidity in cooking oils.

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

1. Define unsaturated fatty acids
2. Describe saponification.
3. What are sphingophospholipids?
4. Draw the structure of the short chain fatty acid: butyric acid.
5. Write physiological importance of cholesterol.

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

1. Discuss alpha helix and beta sheets structures of proteins.
2. Write a short note on various biological functions of proteins.

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

1. Describe denaturation of proteins and list different methods used to denature the proteins.
2. Discuss amino acids as zwitter ions and effect of pH on ionization of amino acids.

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

1. Draw a structure of glycine and explain why glycine can't occur in L and D forms?
2. Name the two acidic and two basic amino acids.
3. Write name of an amino acid that is lacking free amino group and called imino acid.
4. List the names of sulphur containing amino acids. What is their role in protein structure?
5. Describe peptide bond. How many peptide bonds are there in a hexapeptide?

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

1. Discuss Watson and Crick model of DNA structure and its important features.
2. Describe the experiment that helped proving DNA as a genetic material.

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

1. Discuss differences between DNA and RNA.
2. Describe DNA denaturation and discuss melting temperature of DNA using diagram.

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

1. Which sugars are present in backbone of DNA and RNA?
2. What are DNA viruses? Write at least one example of DNA virus.
3. Write the functions of t-RNA.
4. What is the role of an enzyme reverse transcriptase?
5. In a double stranded DNA sample if content of A was found to be 20%, calculate the % content for T, G and C.

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

1. What are bile pigments? How they are formed and under what conditions their levels in blood would increase?
2. Write dietary sources, different forms and biochemical functions of Vitamin A and discuss effects of deficiency of Vitamin A on eyes.

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

1. Write a short note on Pellagra.
2. List biochemical functions of Vitamin D and write its deficiency symptoms in children.

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

1. Write differences between water soluble and fat soluble vitamins.
2. What is the other name for vitamin C? Name one rich dietary source for vitamin C
3. Describe porphyrin ring structure.
4. Describe the structure and role of chlorophyll in plants.
5. Give the biological significance and deficiency symptoms of vitamin B 12.
