

B.Sc. Semester - 3 (CBCS) Examination**Oct/Nov. -2018****BIO-CHEMISTRY(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) Write detailed answer for any one of the following questions. (07)
- (1) Discuss giving examples different polysaccharides present in plants.
 - (2) Describe different types of isomerism of sugars with proper structures and suitable examples.
- Q-1(B) Write the answer in detail for any one of the following questions. (04)
- (1) Differentiate between reducing and non reducing sugars giving examples. Write the names of qualitative analysis tests performed to check presence of reducing sugars in the sample.
 - (2) Write examples of pentose sugars; describe their occurrence and biological functions.
- Q-1(C) Answer any three the following questions in just one or two lines. (03)
- (1) Sucrose is composed of which two monosaccharide's?
 - (2) Differentiate between pyranose or furanose ring structures.
 - (3) Write a name of sugar which is ketohexose and found in honey.
 - (4) Name the cell wall polysaccharide present in bacteria.
 - (5) What is Iodine test? Write its importance in qualitative analysis of carbohydrates.
- Q-2(A) Write detailed answer for any one of the following questions. (07)
- (1) Define lipids and describe classification of lipids by giving suitable examples.
 - (2) Describe glycerophospholipids with their examples and list the functions of phospholipids.
- Q-2(B) Write the answer in detail for any one of the following questions. (04)
- (1) Describe test for iodine number of fatty acids and its significance.
 - (2) Define Rancidity of oils, discuss factors responsible for causing rancidity and name different ways to prevent rancidity in oils.
- Q-2(C) Answer any three the following questions in just one or two lines. (03)
- (1) What is the difference between fats and oils?
 - (2) Draw the structure of 18 carbon monounsaturated fatty acid having double bond between carbons no 9 and 10.
 - (3) Define essential fatty acids with suitable examples.
 - (4) Name the alcohol present in sphingophospholipids.
 - (5) Describe process of soap formation from fat.
- Q-3(A) Write detailed answer for any one of the following questions. (07)
- (1) Define proteins and write a note on various biological functions of proteins.
 - (2) Discuss alpha helix and beta pleated sheets of protein structure.
- Q-3(B) Write the answer in detail for any one of the following questions. (04)
- (1) Discuss primary structure of proteins.
 - (2) What type of protein Keratin is? What is its role and where do you find it?
- Q-3(C) Answer any three the following questions in just one or two lines. (03)
- (1) Draw a structure of alanine.
 - (2) Name the two acidic amino acids.
 - (3) Write structural differences between phenyl alanine and tyrosine.
 - (4) Describe peptide bond. How many peptide bonds are there in a hex peptide?
 - (5) Write the name of biochemical test that is used to detect presence of amino acids in a sample.

- Q-4(A) Write detailed answer for any one of the following questions. (07)
- (1) Write a short note on Watson and Crick model of structure of DNA.
 - (2) Discuss experiment the proved DNA as a genetic material.
- Q-4(B) Write the answer in detail for any one of the following questions. (04)
- (1) Discuss differences between DNA and RNA
 - (2) Differentiate nucleosides and nucleotides with suitable structures and examples.
- Q-4(C) Answer any three the following questions in just one or two lines. (03)
- (1) Write the names of purine and pyrimiding bases present in RNA.
 - (2) In which viruses you find RNA as genetic material?
 - (3) Write the names of different types of RNA present in quukaryotes.
 - (4) In a double stranded DNA sample if content of A was found to be 20%, calculate the % content for T, G and C.
 - (5) Why do the DNA molecules with high GC content get denatured at higher temperatures compared to the DNA molecules with high AT content?
- Q-5(A) Write detailed answer for any one of the following questions. (07)
- (1) Write a short note on hemoglobin structure, its occurrence and its functions.
 - (2) Write properties, dietary sources, structure, biochemical functions of Vitamin A and discuss symptoms of deficiency of Vitamin A.
- Q-5(B) Write the answer in detail for any one of the following questions. (04)
- (1) Write a short note on Scurvy.
 - (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. (03)
- (1) What is biochemical name for Vitamin C? Write two rich dietary sources of Vitamin C.
 - (2) What are cytochromes? Write their functions.
 - (3) Deficiency of which vitamin causes Beriberi?
 - (4) Write the name of plant pigment important for photosynthesis and that has magnesium ion localized centrally in its structure?
 - (5) Increased blood levels of which bile pigments are indicative of jaundice?
