

B.Sc. Semester - 3 (CBCS) Examination
Oct/Nov. -2019 [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 Write detailed answer for any one of the following questions.**[7 marks]**

1. Write a short note on structural polysaccharides of plant cell walls.
2. Describe importance of glycogen in animal tissues. Draw structure of glycogen and describe the types of glycosidic linkages present in it.

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

1. Define reducing sugars, write examples of reducing monosaccharides and disaccharides.
Which biochemical tests are performed to find presence of reducing sugars in the sample?
2. Discuss optical isomerism in sugars using suitable examples.

Q.1 C Answer any three the following questions. in short.**[3 marks]**

1. Lactose is composed of which two monosaccharides? Write the source of Lactose in our diet.
2. Differentiate between aldo sugars and keto sugars.
3. Name the sugar that has furanose ring structure.
4. Name the cell wall polysaccharide present in gram positive bacteria.
5. Write the functions of chitin.

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

1. Define phospholipids and write the importance of phospholipids in animals.
2. Write a short note on classification of lipids with suitable examples for each classes.

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

1. Describe tests for detection of rancidity of oils. List the factors that are responsible for causing rancidity and what strategies are being used to prevent rancidity of cooking oils?
2. What are essential fatty acids? Write their examples. What are the rich dietary sources for essential fatty acids?

Q.2 C Answer any three the following questions. in short.**[3 marks]**

1. Define triglycerides.
2. Write functions of cholesterol in human body.
3. Which alcohol is present in sphingophospholipids?
4. Differentiate between cerebrosides and gangliosides.
5. Describe process of saponification.

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

1. Discuss different biological functions of proteins.
2. Write a short note on secondary structure of proteins.

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

1. Write a short note on salting in and salting out of proteins and discuss its importance.
2. Discuss using a neat diagram, titration curve of amino acids.

Q.3 C Answer any three the following questions. in short.

[3 marks]

1. Draw a structures of tyrosine and phenyl alanine.
2. Name the two basic amino acids.
3. Write name of an amino acid that lacks asymmetric carbon atom.
4. Describe peptide bond. How many peptide bonds are there in a octapeptide?
5. Define quaternary structure of proteins.

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

[7 marks]

1. Write a short note on DNA double helix structure and its important features.
2. How DNA was proven experimentally as a genetic material?

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

[4 marks]

1. Discuss differences between purine and pyrimidine nucleotides.
2. Write a detailed note on DNA denaturation and annealing. Discuss melting temperature of DNA.

Q.4C Answer any three the following questions. in short.

[3 marks]

1. Which nucleotide base is present in RNA but absent in DNA?
2. What are retro viruses? Write at least one example of retroviruses.
3. Describe the structure of t-RNA.
4. In a double stranded DNA sample if content of T was found to be 15%, calculate the % content for A, G and C.
5. Name the enzyme that can produce cDNA from mRNA.

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

[7 marks]

1. What are bile pigments? Describe examples and physiological significance of bile pigments.
2. Write properties, dietary sources, structure, biochemical functions of Vitamin D and discuss symptoms of deficiency of Vitamin D in children.

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

[4 marks]

1. Write a short note on Beriberi.
2. List biochemical functions of Vitamin A and write its deficiency symptoms.

Q.5 C Answer any three the following questions. in short.

[3 marks]

1. Write differences between water soluble and fat soluble vitamins.
2. Describe porphyrine ring structure.
3. Deficiency of which vitamin causes Scurvy?
4. Describe the function of haem part in haemoglobin.
5. Name two rich sources for Vitamin C.
