

B.Sc. Semester - 3 (CBCS) Examination**Oct/Nov - 2022 [NEW COURSE]****Biochemistry-BC301(Core)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

-
- Q.1(a) Answer the following Any ONE (out of two) : (07)
- (1) Write on starch and glycogen.
 - (2) Explain in details bacterial cell wall polysaccharides.
- Q.1(b) Attempt any ONE (out of Two) : (04)
- (1) Write on proteoglycans
 - (2) Discuss optical isomerism in sugars.
- Q.1(c) Attempt any THREE (out of Five) : (03)
- (1) What is the monomer of chitin.
 - (2) What are epimers?
 - (3) True or false : Lactose is a reducing sugar.
 - (4) The interconversion of α and β anomers of D-glucose in aqueous solution is due to a process called....
 - (5) Agar is made up of
- Q.2(a) Answer the following Any ONE (out of two) : (07)
- (1) Write on classification of lipids.
 - (2) Write on : triacyl glycerols.
- Q.2(b) Attempt any ONE (out of Two) : (04)
- (1) Write in brief on phospholipids.
 - (2) Discuss biological significance of lipids.
- Q.2(c) Attempt any THREE (out of Five) : (03)
- (1) what are unsaturated fatty acids?
 - (2) What are steroids?
 - (3) True or false : Biological waxes have wide applications in cosmetics and pharmaceutical industries.
 - (4) Which of the following are neutral glycolipids?
(A) Cerebrosides (B) Globosides (C) both (D) none of these
 - (5) What will happen if lipid-rich foods are exposed too long to the oxygen in air?
- Q.3(a) Answer the following Any ONE (out of two) : (07)
- (1) Discuss amino acid sequencing.
 - (2) Explain Tertiary structure of proteins.
- Q.3(b) Attempt any ONE (out of Two) : (04)
- (1) Discuss in brief : Fibrous proteins.
 - (2) Write on : Nonpolar, aliphatic R group containing amino acids.
- Q.3(c) Attempt any THREE (out of Five) : (03)
- (1) Which of the following is/are uncommon amino acid?
(A) desmosine (B) 5-hydroxylysine (C) 4-hydroxy proline (D) all of these
 - (2) Amino acids have characteristic titration curves. -True or false.
 - (3) Name two aromatic aminoacids.
 - (4) True or false: Disulfide bonds between amino acids can be reversible.
 - (5) How many peptide bonds would be there in a peptide containing 20 amino acids?

- Q.4(a) Answer the following Any ONE (out of two) : (07)
- (1) Explain double helical structure of DNA.
 - (2) Contribution of Hershy and Chase in establishing DNA as genetic material.
- Q.4(b) Attempt any ONE (out of Two) : (04)
- (1) Explain central dogma of molecular biology.
 - (2) Explain structure of t-RNA.
- Q.4(c) Attempt any THREE (out of Five) : (03)
- (1) What is a gene?
 - (2) True or false : Once denatured, DNA can never be renatured.
 - (3) True or false : A genome may contain non-geneic regions also.
 - (4) True or false : Ribosomes always contain r-RNA.
 - (5) True or false : Eukaryotic genome organization is more complex than that of prokaryotes.
- Q.5(a) Answer the following Any ONE (out of two) : (07)
- (1) Discuss classification of porphyrins and naturally occurring metallo-porphyrins.
 - (2) Write on : Water soluble vitamins.
- Q.5(b) Attempt any ONE (out of Two) : (04)
- (1) Explain chemical nature and physiological significance of bile pigments.
 - (2) Discuss deficiency symptoms of vitamins A and E.
- Q.5(c) Attempt any THREE (out of Five) : (03)
- (1) Name the vitamin which is essential the blood-clotting process.
 - (2) Vitamin D2 is
 (A) Retinol (B) Ergocalciferol (C) Ascorbic acid (D) polypeptide
 - (3) True or false : Absorption spectra are useful in detection of porphyrins.
 - (4) Porphyrin structures characteristically contain.....
 (A) exclusive aliphatic chain (B) tetrapyrrol ring
 (C) either of these (D) None of these
 - (5) Deficiency of which vitamin leads to scurvy?
