

**B.Sc. Semester - 3 (CBCS) Examination**  
**Nov/Dec. -2021 [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 Answer the following (Any one out of two) (07)**
- (i) Write a detailed note on: Isomerism of sugars.
  - (ii) Discuss: Various sugar reactions involving hydroxyl group.
- Q-1 B Attempt any One (Out of two) (04)**
- (i) Discuss the conformational structure of agar.
  - (ii) Discuss the conformational structure of glycogen.
- Q-1 C Attempt any Three (Out of five) (03)**
- (i) Name any two sugar alcohols.
  - (ii) Which is the repeating unit of chitin?
  - (iii) What are proteoglycans?
  - (iv) Which enzyme is used to hydrolyze starch?
  - (v) Define: Isomers.
- Q-2 A Answer the following (Any one out of two) (07)**
- (i) Write on: Essential fatty acids.
  - (ii) Discuss: Properties and functions of steroids.
- Q-2 B Attempt any One (Out of two) (04)**
- (i) Write on: Different classes of lipids.
  - (ii) Write on: Nomenclature of lipids.
- Q-2 C Attempt any Three (Out of five) (03)**
- (i) What is rancidity?
  - (ii) What is the function of phosphatidyl serine?
  - (iii) Give any two examples of unsaturated fats.
  - (iv) What is saponification value?
  - (v) Mention the significance of Glycolipids in the body.
- Q-3 A Answer the following (Any one out of two) (07)**
- (i) Discuss: Amino acid sequence determination.
  - (ii) Discuss the role of various fibrous proteins in the body.
- Q-3 B Attempt any One (Out of two) (04)**
- (i) Write on: Titration of amino acid.
  - (ii) Write on: Denaturation and re-naturation of proteins.
- Q-3 C Attempt any Three (Out of five) (03)**
- (i) What are the different shapes of proteins?
  - (ii) What is meant by 'standard amino acid'?
  - (iii) What decides the solubility of amino acid in water?
  - (iv) What is the peculiarity of quaternary protein structure?
  - (v) Name any two globular proteins.
- Q-4 A Answer the following (Any one out of two) (07)**

- (i) Discuss: Meselson and Stahl experiment.
- (ii) Write on: Features of DNA double helix.
- Q-4 B Attempt any One (Out of two) (04)**
- (i) Write on: Findings of Griffith's experiment.
- (ii) Write on: Size of DNA in prokaryotes and eukaryotes.
- Q-4 C Attempt any Three (Out of five) (03)**
- (i) What is C value paradox?
- (ii) What is the extension of central dogma?
- (iii) Which one, out of DNA and RNA, is more fragile? Why?
- (iv) What is the reason of anti-parallel nature of DNA duplex?
- (v) Define: Genome.
- Q-5 A Answer the following (Any one out of two) (07)**
- (i) Discuss: Classification of vitamins.
- (ii) Discuss: Important metalloporphyrins.
- Q-5 B Attempt any One (Out of two) (04)**
- (i) Draw neat diagram of porphyrin nucleus.
- (ii) Write on: Functions of bile pigments.
- Q-5 C Attempt any Three (Out of five) (03)**
- (i) Name any two water soluble vitamins.
- (ii) Enlist functions of cobalamin in the body.
- (iii) Vitamin C is anti-oxidant. Why?
- (iv) What is Beriberi?
- (v) What is the function of vitamin E in the body?

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