



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours 1st Semester Examination, 2021-22

**BOTACOR02T-BOTANY (CC2)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.*

**GROUP-A**

1. Answer **all** questions briefly from the following: 1×3 = 3
- (a) Define ionic bond with example.
- (b) How does protein denaturation can be induced?
- (c) Write the definition of prosthetic group.
2. Answer any **four** questions from the following: 3×4 = 12
- (a) Write down the name of homopolysaccharide and heteropolysaccharide with their monomer. Draw the chemical structure of pentose sugar. (1+1)+1
- (b) What are Peptides? With proper diagram describe the formation of Peptide bond. 2+1
- (c) State the differences between oils and fats. What do you mean by rancidity of fats? 2+1
- (d) Draw the basic structure of any nucleotide and label its components. 2+1
- (e) What do you mean by exothermic and endothermic reactions? 1½ +1½
- (f) Prove that the pH of pure water is 7. What is Henderson-Hasselbalch equation? 2+1
3. Answer any **one** question from the following: 5×1 = 5
- (a) State the theories of mechanism of enzyme action.
- (b) Discuss different levels of protein structure mentioning the bonds involved.

**GROUP-B**

4. Answer **all** questions briefly from the following: 1×3 = 3
- (a) What happens at the S phase?
- (b) What is flip-flop movement?
- (c) Mention the importance of signal sequence in protein targeting.

5. Answer any **four** questions from the following: 3×4 = 12
- (a) Discuss the structure of plant cell wall with emphasis on chemical composition. 3
  - (b) Nucleosome concept — Explain with a diagram in brief. 3
  - (c) Discuss the role of channels and carrier proteins in membrane transport. 3
  - (d) Briefly describe the cell cycle checkpoints in yeast. 3
  - (e) Why is fluid mosaic model considered as the best model? What are the factors that affect membrane fluidity? 1+2
  - (f) Mention the expected chromosome number in root tip cells, pollen mother cells, pollen cells and anther wall cells of a diploid plant with chromosome number  $2n = 16$ . What is bivalent? 2+1
6. Answer any **one** question from the following: 5×1 = 5
- (a) Write the structure of nuclear pore complex with proper diagram.
  - (b) With suitable diagram describe the formation of 1400 nm metaphase chromosome.

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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