



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 1st Semester Examination, 2020, held in 2021

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) How many stereoisomers are possible for a carbohydrate with six chiral centers?
 - (b) Name a non-protein enzyme and the reaction it catalyses.
 - (c) What do you mean by Gibbs free energy?

2. Answer any **four** questions from the following: 3×4 = 12
 - (a) Write a note on the mechanism of buffer action. 3
 - (b) What is epimer? Name and draw the structure of two epimers of D-Glucose. 1+2
 - (c) Name one aromatic amino acid. “The peptide bond is rigid and planar” — Explain the statement. 1+2
 - (d) Compare among A-, B- and Z-DNA on the basis of base pairs per helical turn, nature of helix and topology of groove. 3
 - (e) ATP is called the “Energy Currency of the cell” — Justify the statement. 3
 - (f) What are Omega fatty acids? Why are they important? 3

3. Answer any **one** question from the following: 5×1 = 5
 - (a) Write the classification of carbohydrate with example in brief. 5
 - (b) Draw and mention the unique features of Lineweaver-Burk plot for competitive inhibition and noncompetitive inhibition. 5

GROUP-B

4. Answer **all** questions briefly from the following: 1×3 = 3
 - (a) What is nucleoid?
 - (b) Mention the chemical nature of middle lamella.
 - (c) State an evidence in favour of semiautonomous nature of chloroplast.

5. Answer any **four** questions from the following: 3×4 = 12
- (a) Distinguish between microfilaments and microtubules. 3
 - (b) Write down the role of cholesterol on membrane fluidity and importance of membrane fluidity. 3
 - (c) Mention types of protein glycosylation with their site of occurrence. What is the significance of KDEL sequence in protein trafficking? 2+1
 - (d) Write down the major differences between peroxisome and lysosome. 3
 - (e) What are lamins? State the functions of NPC. 3
 - (f) Illustrate the different steps of co-translational translocation with suitable diagram and proper labelling. 3
6. Answer any **one** question from the following: 5×1 = 5
- (a) Discuss in brief molecular organization of chromatin with proper diagram. 2+3
 - (b) What is MPF? What role does it play in regulation of the cell cycle? 5

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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