



WEST BENGAL STATE UNIVERSITY  
B.Sc. Honours, 1st Semester Examination, 2018

**BOTACOR02T-BOTANY (CC2)**

**BIOMOLECULES AND CELL BIOLOGY**

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*

1. Answer *all* questions briefly from the following: 1×5 = 5
- (a) Give example of one reducing and one non-reducing sugar.
  - (b) What is B-form of DNA?
  - (c) What is ribozyme?
  - (d) What is nuclear lamina?
  - (e) What is G<sub>1</sub> phase?

2. Answer any *five* questions from the following: 3×5 = 15  
(At least *two* questions from each group)

**GROUP-A**

- (a) What do you mean by cis-trans fatty acids? 3
- (b) Define epimer and anomer with example. 1.5+1.5
- (c) Explain the molecular structure of  $\alpha$ -helix structure of protein. 3
- (d) How does the structure of ATP contribute to its function? 3

**GROUP-B**

- (e) Mention the three main types of passive transport. What is the source of energy used in the active transport through biological membrane? 2+1
- (f) Define cytoskeleton. Differentiate between microtubules and microfilaments. 1+2
- (g) State the significance of meiotic cell division. 3
- (h) What is endosymbiotic hypothesis? To which cellular organelles the hypothesis can be applied? 2+1

3. Answer any *four* questions from the following: 5×4 = 20  
(At least *two* questions from each group)

**GROUP-A**

- (a) Define carbohydrate. Classify them with suitable example. 1+4  
(b) Outline the structure of DNA as proposed by Watson and Crick. 5  
(c) Describe in short the Michaelis-Menten equation of enzyme action. 5

**GROUP-B**

- (d) Describe briefly the structure of nuclear pore complex with suitable diagram. 3+2  
(e) What is MPF? Discuss the role of MPF in regulating the cell cycle of Yeast. 1+4  
(f) What is peroxisome? State the role of peroxisome in photorespiration. 5

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