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: $1\times5 = 5$

   (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_0 phase?

2. Answer any ***five*** questions from the following: $3\times5 = 15$
   (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 α-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: $5 \times 4 = 20$
(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

——×——