

B.Sc. Semester I (Honours) Examination, 2018-19

BOTANY

Course ID : 11312

Course Code : SHBOT-102C-2(T)

Course Title : Biomolecules and Cell Biology

Time: 1 Hour 15 Minutes

Full Marks: 25

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer *any five* questions from the following: 1×5=5
 - (a) Mention the salient features of Z-DNA.
 - (b) Mention an example of sugar enantiomer.
 - (c) Name the products of lipid hydrolysis.
 - (d) At which stage of cell division homologous chromosomes synapse and disjunct?
 - (e) Mention the name of one microbody and what is the function of its?
 - (f) What are the components of nucleosome core particles?
 - (g) Write down the structure of simplest amino acid.
 - (h) What is the function of 'ligase' type of enzyme.

2. Answer *any two* questions from the following: 5×2=10
 - (a) What are pyranose and furanose sugars? Give example for each type. How are reducing and non-reducing sugars distinguished on the basis of their structures. 2+1+2=5
 - (b) How does DNA structurally differs from RNA? Briefly describe the structure of t-RNA. 2+3=5
 - (c) What is nuclear pore complex? Describe the structure of nuclear envelope with suitable diagram. 1+4=5
 - (d) What do you mean by secondary structure of Protein? What are PUFA and MUFA? Give examples. 2+3=5

3. Answer *any one* question from the following: 10×1=10
 - (a) Describe with suitable diagrams, the ultrastructure of a chloroplast. How pH, temperature and substrate concentration affect enzyme activity? 6+4=10
 - (b) Describe with sketches the Prophase-I of meiotic cell division. How does a covalent bond differs from hydrogen bond? Mention few biological roles of proteins with suitable examples. 6+2+2=10