



# CBGS SCHEME

18BT34

## Third Semester B.E. Degree Examination, Jan./Feb. 2021 Introduction to Biomolecules

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Discuss the various types of Isomerism exhibited by Carbohydrates. (10 Marks)  
b. What are Fatty Acids? Explain its classification and nomenclature. (10 Marks)

OR

- 2 a. Write the structures of : i) Lactose ii) Sucrose iii) Amylopectin iv) Cellulose. (10 Marks)  
b. Write the structures of : i) Oleic acid ii) Phosphatidyl choline  
iii) Sphingomyelin iv) Cholesterol. (10 Marks)

### Module-2

- 3 a. Based on the polarity of side chains, describe the classification of Amino acids. (10 Marks)  
b. Write a note on various forces that holds the structure of proteins. (10 Marks)

OR

- 4 a. What is Torsion Angle? Explain the salient features of  $\alpha$  - helix and  $\beta$  - pleated sheet. (10 Marks)  
b. What is Ramachandran plot? Explain its features and importance. (10 Marks)

### Module-3

- 5 a. Write the structure of i) 3' - dATP ii) 5' - TTP. (06 Marks)  
b. Define Glycosidic bond. Describe rotational isomers. (04 Marks)  
c. With a neat diagram, explain the structures of B - DNA, A - DNA and Z - DNA. (10 Marks)

OR

- 6 a. What is Base Pairing? Discuss its types. (10 Marks)  
b. With a neat labeled diagram, describe the secondary structure of t - RNA. (10 Marks)

### Module-4

- 7 a. With structure, summarize the properties of ATP as high energy compound. (10 Marks)  
b. Write a critical note on light dependent reactions in photosynthesis. (10 Marks)

OR

- 8 a. What is Coupled reaction? Explain with suitable reaction. (10 Marks)  
b. With a neat reaction outline, describe Calvin cycle. (10 Marks)

### Module-5

- 9 a. With a neat illustration, explain the mechanism of  $\text{Na}^+$  -  $\text{K}^+$  ATPase pump. (10 Marks)  
b. Explain the Fluid Mosaic Model of membrane, with a neat diagram. (10 Marks)

OR

- 10 a. Define Symporter. Write a critical note on Amino Acid transporters and its mechanism. (10 Marks)  
b. What is Action Potential? Discuss the role of Voltage gated channel and in the development of action potential. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.