B-003-1131004 Seat No. _____

M. Sc. (Biotechnology) (Sem. I) (CBCS) Examination

March - 2021

BT-104 : Biochemistry

Faculty Code : 003

Subject Code : 1131004

Time : Hours] [Total Marks : **70**

Instruction : Answer any five from the following.

1 Answer the following : **2×7=14**

(a) Explain structure and function of Pectin.

(b) What is Bioenergetics concept?

(c) Briefly discuss Homotropic regulation.

(d) Draw detailed structure of Lactose and Maltose.

(e) What is Gluconeogenesis? Write the step of pathway.

(f) List the names of high energy compounds.

(g) Name the smallest aldose and ketose sugars.

2 Answer the following : **2×7=14**

(a) Give physical properties of protein.

(b) What is peptide bond?

(c) What are hydroxylic aminoacids? Give examples.

(d) What are the important products of the Pentose Phosphate Pathway?

(e) Give names of sulfur containing amino acids.

(f) Write the net reaction for TCA.

(g) What are salient features of competitive inhibition?

3 Answer the following : **2×7=14**

(a) Describe fatty acid oxidation.

(b) What are glycans? Discuss with suitable examples.

4 Answer the following : **2×7=14**

(a) Discuss various levels of protein organization.

(b) Highlight the basic roles of Protein as a macromolecule.

5 Answer the following : **2×7=14**

(a) Describe the biological importance of polysaccharides.

(b) What are complex lipids? Discuss briefly.

6 Answer the following : **2×7=14**

(a) State the importance of Ramachandran Plot in the structural elucidation of a protein.

(b) Discuss complexity of Globular Proteins with suitable example.

7 Answer the following : **2×7=14**

(a) Provide an account of semi-conservative nature of DNA.

(b) Discuss in detail base-pair helical structure of RNA.

8 Answer 'the following : **2×7=14**

(a) Give an Account of Calvin cycle.

(b) Explain the reaction mechanism of nitrogenase-catalyzed nitrogen fixation.

9 Answer the following : **2×7=14**

(a) Write a note on Prokaryotic mRNA.

(b) Illustrate the differences between different structural forms of DNA.

10 Answer the following : **2×7=14**

(a) What is Hatch-Slack Pathway? Give the difference between C4 and CAM pathways.

(b) Give details of the biochemistry of nitrogen fixation.
