

B.Sc. 4th Semester (Honours) Examination, 2023 (CBCS)**Subject : Botany****Course : CC-IX****(Biomolecules and Cell Biology)****Time: 2 Hours****Full Marks: 40**

*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: 2×5=10
- (a) What are PUFA and MUFA? Give one example for each of these two.
 - (b) Why does glycine have no D or L form?
 - (c) What is the difference between B-DNA and Z-DNA?
 - (d) Draw a typical clover leaf model of t-RNA, label its different parts.
 - (e) What is the full form of IUB system? Illustrate E. C. numbers' with 1.2.4.1 for oxidoreductase.
 - (f) What are hydrophobic interactions?
 - (g) What is the difference between coenzyme and prosthetic group?
 - (h) Mention any two functions of Golgi apparatus.
2. Answer *any two* questions from the following: 5×2=10
- (a) What are secondary and tertiary structure of proteins? How does changes in pH affect the function of a protein? 2+3
 - (b) Briefly explain— does mitochondria known as the power-house of the cell.
 - (c) Describe the structure of Triacyl glycerol and mention its function.
 - (d) Give short notes on *any two* of the following:
 - (i) Metalloenzyme
 - (ii) Endergonic reactions
 - (iii) Glycosidic bond
 - (iv) Chaperones

3. Answer *any two* questions from the following: 10×2=20
- (a) Explain the Michaelis-Menten approach to enzyme kinetics. What is the relationship between V_{\max} and k_m ? 8+2
- (b) What is nucleosome? Give an account of structure of chromosome at molecular level. 2+8
- (c) Write an illustrated report on different types of cell membrane-proteins with their specific functions.
- (d) What are the various checkpoints in cell-cycle? How are phosphorylation and dephosphorylation important in different phases of cell cycle? 5+5