2 Hours

Total Marks: 50

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculators** is **allowed**.

Q.1 Attempt any two out of three 10

a. Write a short note on the structure and types of sphingolipids.

b. Define liposomes. Explain any two classical methods for preparation of liposomes.

c. With a neat labeled diagram explain the principle and application of FRAP technique.

Q.2 Attempt any two out of three 10

a. Explain insertion of membrane proteins in ER.

b. Explain the protein quality control processes in the ER concisely.

c. Discuss the sorting of proteins in chloroplast.

Q.3 Attempt any two out of three 10

a. Write short notes on the following DNA binding domains:

1. Zn fingers
2. Leucine Zippers

b. Discuss the Salvage Pathway of nucleotide synthesis.

c. Explain one method to study DNA-protein interactions.

Q.4 Attempt any two out of three 10

a. Draw pathway and explain biosynthesis of Phenylalanine

b. Discuss the coupled interconnecting reactions in metabolism

c. Explain the Strategies of energy metabolism in liver

Q.5 Attempt any one out of three 10

a. What are N- linked glycoproteins? Give a brief account of assembly and synthesis of N- linked oligosaccharide precursor on dolichol phosphate in ER.

b. Write an essay on "The secretory and endocytic pathways of protein sorting."

c. Write an essay on 'Methods to study protein–protein interactions'.

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