

(b) Expand the following (any five) : (1×5=5)

(i) NES

(ii) MAPs

(iii) SEM

(iv) SRP

(v) NLS

(vi) PPLO

(c) Match the following : (1×5=5)

A

B

(i) Lysosome

(a) density gradient

(ii) Smooth ER

(b) Golgi body

(iii) Glycosylation

(c) Tubulin

(iv) Microtubule

(d) Acid phosphatase

(v) Sucrose

(e) detoxification by p450

2. Differentiate between any five of the following : (3×5=15)

(i) Heterochromatin and euchromatin

(ii) Confocal and fluorescence microscopy

(iii) Prokaryotic cell and eukaryotic cell

(iv) Microtubules and microfilaments

- (v) Nucleoid and Nucleus
 - (vi) Peroxisomes and lysosomes
 - (vii) Differential and density gradient centrifugation
3. Write short notes on **any three** of the following : (3×5=15)
- (i) Protein import into the mitochondrial matrix
 - (ii) Signal hypothesis
 - (iii) Ion exchange chromatography
 - (iv) Mechanism of protein folding and processing
 - (v) Protein glycosylation within Golgi
4. (a) Mention the types and functions of intermediate filaments. (5)
- (b) Describe the structure of Nuclear Pore Complex with suitable diagrams. (5)
- (c) Describe selective transport of proteins to and from nucleus. (5)
5. (a) Describe briefly the Nucleolus and rRNA processing. (7½)
- (b) Explain the mechanism of vesicular transport with reference to cargo selection, coat proteins and vesicle budding. (7½)
6. (a) Draw well labelled diagram of ultrastructure of Mitochondrion along with the electron transport chain components. Discuss the functions of this organelle. (9)
- (b) Describe the structure and function of lysosomes. (6)

7. (a) Discuss the ultrastructure, chemical composition and main functions of Chloroplast. Add a note on semiautonomous nature of chloroplast. (8)
- (b) Explain the principle and discuss the application of TEM. (7)