

M. Sc DEGREE END SEMESTER EXAMINATION - OCT 2020 : FEBRUARY 2021**SEMESTER 1 : BOTANY****COURSE : 16P1BOTT04 : CELL BIOLOGY***(For Regular - 2020 Admission and Supplementary - 2016/2017/2018/2019 Admissions)*

Time : Three Hours

Max. Marks: 75

PART A**Answer any 8 (2 marks each)**

1. What are ABC transporters?
2. Give an account on the fatty acid chains in membrane lipids.
3. Write a short note on nuclear basket FG-domain.
4. Write a short note on the significance of nuclear lamina.
5. What are DNA damage checkpoints?
6. Meiosis I is known as reduction division. Why?
7. What is synaptonemal complex?
8. What is protochloroplast?
9. What are proto-oncogenes? Give examples.
10. What are tumor-suppressor genes? Give examples.
11. State the functions of plant cell vacuoles.
12. What is meant by an effector in signalling pathway?

(2 x 8 = 16)**PART B****Answer any 7 (5 marks each)**

13. Explain the structure and functions of aquaporins.
14. Explain the structure and functions of ATPase pumps.
15. Briefly explain the mechanism of transport of RNA from nucleus to cytoplasm.
16. Explain the structure of mitochondrial genome.
17. Explain the process of conversion of proto-oncogenes to cellular oncogenes.
18. Differentiate N-Glycosylation and O-glycosylation in ER protein modification.
19. Give an account on coat vesicles in protein trafficking.
20. What are microtubule-associated protein? Give its role in microtubule arrangement.
21. Explain the various types of signalling based on extracellular messengers.
22. Explain the various steps occurring in the process of apoptosis.

(5 x 7 = 35)**PART C****Answer any 2 (12 marks each)**

23. Explain the transport of proteins from cytoplasm to the nucleus.
OR
24. Explain the process of muscle contraction along with its mechanism.
25. Explain the evolutionary origin of mitochondria and chloroplast. Give an account on the structure and functions of mitochondria and chloroplast.
OR
26. Explain the development and structure of chloroplast.

(12 x 2 = 24)