

M.Sc. (Botany) Semester - 1 (CBCS) Examination**Nov/Dec-2023 (SYLLABUS YEAR JUNE-2023)****Cell Biology (Core)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Q.1 Answer the following (any 7) 14**
- (1) Explain the function of microtubules.
 - (2) What are 'porins' in Mitochondria?
 - (3) What are Auto-phagosomes?
 - (4) State different special types of chromosomes.
 - (5) What is the difference between oncogenes and proto-oncogenes?
 - (6) What is exocytosis?
 - (7) Define the term diffusion.
 - (8) State the function of actin and myosin
- Q.2 Answer the following (any two) 14**
- (1) State the difference between microbial and plant cell walls with appropriate labeled diagrams
 - (2) Write a note on Cyclins and cyclin-dependent kinase
 - (3) Describe the ultrastructure of the nucleus and explain the nuclear complex
- Q.3 Answer the following (any two) 14**
- (1) Describe the ultrastructure of Chloroplast
 - (2) Explain in detail the working mechanism of the GERL system
 - (3) Write a note on the biogenesis of Mitochondria
- Q.4 Answer the following (any two) 14**
- (1) Write a note on the ultrastructure of microfilaments and associated proteins
 - (2) Explain the functions of intracellular junctions.
 - (3) Describe the role of antiports and symports in the transport across the cell membrane
- Q.5 Answer the following (any two) 14**
- (1) Explain in detail GPCR and Ion-gated channel cell surface receptors with their mode of action.
 - (2) What is 'Programmed Cell Death'? Explain different types of pathways of apoptosis.
 - (3) Discuss the mechanism of retrovirus in the context to 'AIDS' in cell biology
