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MZO-001

MASTER OF SCIENCE (ZOOLOGY)

(MSCZOO)

Term-End Examination

December, 2025

MZO-001 : MOLECULAR CELL BIOLOGY

Time : 2 Hours

Maximum Marks : 50

Note : (i) *Attempt any five questions.*

(ii) *All questions carry equal marks.*

1. (a) Explain the structure of microtubules and their functions in the eukaryotic cytoskeleton. 5

- (b) Describe how intermediate filaments are assembled, disassembled and regulated. 5
2. (a) Explain how glucose is transported into the intestinal cell. 5
- (b) Describe how proteins are sorted into mitochondria. 5
3. (a) Give an overview of the G₁-phase of cell cycle. 5
- (b) Write a brief note on any *one* secretory gland found in the brain. 5
4. Write short notes on the following :
4×2½=10
- (a) Biological significance of actin cytoskeleton
- (b) Membrane fluidity

- (c) Tumor suppressor gene
- (d) G-Protein Coupled Receptor (G-PCR)
5. Differentiate between the following pairs of terms : 4×2½=10
- (a) Primary and Secondary lysosome
- (b) Chemical synopsis and Electrical synopsis
- (c) Primary and Secondary cell culture
- (d) Apoptosis and Necrosis
6. (a) Discuss the different subphases of Meiosis I. 5
- (b) Discuss the structure of the extra-cellular matrix and its functions. 5

7. (a) Explain the role of ubiquitin in protein turnover. 5
- (b) Explain how the K_d value of the cell surface receptor is determined. 5

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