

No. of Printed Pages : 4

MZO-001

MASTER OF SCIENCE (ZOOLOGY)

(MSCZOO)

Term-End Examination

December, 2024

MZO-001 : MOLECULAR CELL BIOLOGY

Time : 2 Hours

Maximum Marks : 50

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

(ii) All questions carry equal marks.

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1. (a) Describe the structure and function of
Endoplasmic reticulum and Golgi
apparatus. 5

- (b) Describe the fluid mosaic model of membrane using a suitable diagram. 5
2. (a) Explain the process of meiosis in oogenesis and spermatogenesis in animals using suitable diagrams. 5
- (b) Discuss the various applications of animal cell culture. 5
3. (a) Discuss the intrinsic pathway of apoptosis with suitable diagrams. 5
- (b) Explain the role of Cadherin in cell-cell adhesions. 5
4. Write short notes on the following : $4 \times 2\frac{1}{2} = 10$
- (a) Intermediate Filament-Associated Proteins (IFAPs)
- (b) Pinocytosis

(c) Role of mannose 6-phosphate residues in protein sorting

(d) Gap junction

5. Differentiate between the following pair of terms :

$$4 \times 2\frac{1}{2} = 10$$

(a) Excitatory and inhibitory postsynaptic potentials

(b) G-protein coupled receptors and tyrosine kinase receptors

(c) Adherent and suspension cell culture

(d) Secretory and endocytic pathways of protein sorting

6. (a) Describe how ATP is utilized during actin treadmilling. 5

(b) How do the cell organelles maintain their optimum pH ? 5

7. (a) Give a brief account of lysosomal proteolysis. 5
- (b) Describe any *five* diseases resulting from mutations in intermediate filament genes. 5

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