

MSc DEGREE END SEMESTER EXAMINATION - OCTOBER 2024**SEMESTER 3 : ZOOLOGY****COURSE : 21P3ZOOT10 ; CELL AND MOLECULAR BIOLOGY***(For Regular 2023 Admission and Supplementary 2022/2021 Admissions)*

Duration : Three Hours

Max. Weights: 30

PART A**Answer any 8 questions****Weight: 1**

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| 1. | What is the significance of G ₁ phase? | (U, CO 6) |
| 2. | Diffrentiate separase and securin. | (U, CO 4) |
| 3. | What is laminin? | (R) |
| 4. | Expand RISC. | (U) |
| 5. | Sketch out the structure of mitochondria and mark its parts. | (A) |
| 6. | Elaborate the structural details of GPCR. | (An) |
| 7. | Examine the role of gene therapy in cancer prevention and treatment. | (A) |
| 8. | Explain Wobble hypothesis. | (R) |
| 9. | What is meant by non muscle motility? Mention any two of it. | (R) |
| 10. | Write briefly on barrel proteins. | (U) |

(1 x 8 = 8)**PART B****Answer any 6 questions****Weights: 2**

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|-----|---|------------|
| 11. | Justify chromatin remodelling as a mechanism of gene regulation. | (E, CO 4) |
| 12. | Enlist few metabolic processes in which Calcium ions are important. How their availability in cells is regulated? | (R) |
| 13. | Explain the various steps in cell cycle | (A) |
| 14. | Comment on molecular organisation of adherens junctions and desmosomes. | (U) |
| 15. | Discuss the role of lysosomes in autophagy. | (E, CO 3) |
| 16. | Discuss the molecular organization and functions of gap junctions. | (U) |
| 17. | Give a comparative account of the three structural elements of cytoskeleton. | (An) |
| 18. | How cell membrane is kept in a dynamic state? | (An, CO 1) |

(2 x 6 = 12)**PART C****Answer any 2 questions****Weights: 5**

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|-----|---|------------|
| 19. | Describe fluid mosaic model of cell membrane. Co- relate it with important cell - membrane functions. | (An, CO 1) |
| 20. | Elucidate the mechanism of transcriptional level of regulation in Eukaryotes. | (An, CO 2) |
| 21. | Cell cycle check points are a system of sensors to recognize DNA damage and cellular abnormalities. Substantiate the statement. | (A, CO 3) |
| 22. | Write an essay on the process of transcription in eukaryotes. Add note on post trancriptional modifications. | (U) |

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Understand the structure of a living cell and its associations at molecular level	U	18, 19	7
CO 2	Appreciate the role played by various cell organelles and cytoskeleton	U	20	5
CO 3	Analyze the role played by cell signaling pathways	U	15, 21	7
CO 4	Describe the process involved in cell cycle and molecules involved	U	2, 11	3
CO 6	Examine the concept of gene expression	An	1	1

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;