

M. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024**SEMESTER 2 - ZOOLOGY****COURSE : 21P2ZOOT07 - DEVELOPMENTAL BIOLOGY***(For Regular 2023 Admission and Improvement/Supplementary 2022/2021 Admissions)*

Duration : Three Hours

Max. Weights: 30

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

1. Prepare an explanatory note on Siamois protein. (E, CO 3)
2. Discuss the ethical issues associated with ART. (E, CO 7)
3. What is the role of the pumilio protein and the bract protein? (U, CO 2)
4. Expand TGF β (R, CO 3)
5. Explain compensatory regeneration. (An, CO 5)
6. Write briefly on Stem cell banks. (U, CO 8)
7. Explain Hemimetabolus metamorphosis. (An, CO 5)
8. Comment on gene –phene relationship. (A)
9. Define Zygotic genes. (R, CO 3)
10. Point out the role of calcium in sperm attraction during external fertilization. (A, CO 1)

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

11. Describe the process of morpholatic regeneration in hydra. (An, CO 5)
12. Comment on the mechanisms to ensure monospermy in animals. (U, CO 1)
13. Write about the role of genes in drosophila dorsal axis specification. (An)
14. Discuss Spemann's transplantation experiment. (An, CO 3)
15. Explain the process of IVF. (An, CO 7)
16. Write about the molecular process that allows Drosophila to have alternate engrailed and wingless expression. (E)
17. Explain the role of stem cells in therapeutic cloning. (U, CO 8)
18. Explain how alcohol, pathogens and heavy metals act as teratogens. (An)

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

19. Explain germ cell determination and germ cell migration insects and mammals. (U, CO 1)
20. Hormonal regulation of metamorphosis in insects. (An, CO 5)
21. Describe the role of maternal genes in the specification of the anterior posterior axis in Drosophila. (U, CO 2)
22. How Spemann reached in the conclusion that an organizer is working in the early development of a vertebrate? (A, CO 3)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1		An	10, 12, 19	8
CO 2		An	3, 21	6
CO 3		U	1, 4, 9, 14, 22	10
CO 5		U	5, 7, 11, 20	9
CO 7		A	2, 15	3
CO 8		A	6, 17	3

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