

Reg. No

Name

25P2039

M. Sc. DEGREE END SEMESTER EXAMINATION - APRIL 2025

SEMESTER 2 : ZOOLOGY

COURSE : 24P22ZOOT07 : DEVELOPMENTAL BIOLOGY

(For Regular - 2024 Admission)

Time : Three Hours

Max. Weights: 30

PART A

Answer any 8 questions

Weight: 1

1. Describe Holometabolus metamorphosis. (An)
 2. Importance of dedifferentiation in regeneration. (A)
 3. Comment on GIFT? (An)
 4. Define syncytial blastoderm. (R)
 5. When did the initial axis specification in *Drosophila* happen? (U)
 6. Explain Notch signaling (An)
 7. What is the difference between a unipotent and an oligopotent stem cell? (U)
 8. Explain the process of germ cell determination in *C. elegans*. (An)
 9. Explain Inductive cascade. (E)
 10. Highlight how environmental oestrogens act as teratogens. (U)
- (1 x 8 = 8)**

PART B

Answer any 6 questions

Weights: 2

11. Write about the difference between a segment polarity gene and a pair rule gene in *Drosophila*? (An)
 12. Explain the process of IVF. (An)
 13. Evaluate the advantages of *C. elegans* as a model organism. (E)
 14. Write a short note on ethical issues associated with stem cells. (U)
 15. Describe Wnt signalling pathway. Reflect on the influence of beta catenin in the pathway (A)
 16. Discuss the significance of capacitation in fertilization. (A)
 17. Explain the mechanism of epimorphic regeneration in salamander leg. (U)
 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. Illustrate with examples different types of cleavage and cell movements in gastrulation. Add a note on the molecular mechanism behind this. (An)
20. Write an essay on the segmentation or zygotic genes? (U)

21. What is embryonic induction? Discuss the molecular mechanism behind the action of embryonic induction. (A)
22. Elaborate on metamorphosis in amphibians. (An)
- (5 x 2 = 10)**

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
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Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;