QP CODE: 20000678

20000678

Reg No : .....

Name : .....

MSc DEGREE (CSS)EXAMINATION , NOVEMBER 2020

Second Semester

M Sc ZOOLOGY

CORE - ZL010202 - DEVELOPMENTAL BIOLOGY

2019 Admission Onwards

8F1E5364

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Comment on mosaic development in autonomous specification.
2. What is the French Flag problem?
3. What is genomic equivalence?
4. Briefly explain the function of the anchor cells.
5. What are pair rule genes?
6. What is an organiser? Give its functions.
7. Inactivation of BMPs is essential for neuralizing the ectoderm.Why?
8. What is signal transduction ?
9. Briefly explain heterochrony with example .
10. What are the unique properties of stem cells?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Explain genomic imprinting highlighting the role of IGF2 in mouse.
12. Explain the embryonic development seen in the process of cleavage in *Drosophila*.
13. Discuss the experiments that showed how underlying vegetal cells induced the mesoderm or organiser and dictated the mesoderm polarity.
14. Briefly describe the localization and role of the 'Dorsal signal' in Amphibians.

15. Explain different paracrine factors in signal transduction pathway.

16. Write a short note on different types of regeneration.

17. Comment on polarity in regeneration.

18. Describe antagonistic pleiotropy with example.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain the events of sea urchin fertilization in detail.

20. Describe in detail the dorsal ventral patterning in *Drosophila* with suitable diagrams.

21. Explain how the three axes of tetrapod limb are formed.

22. Describe the mechanism of lens regeneration in amphibians.

(2×5=10 weightage)