

**PAPER CODE: ZOO-51T-201**

**COMPARATIVE ANATOMY & DEVELOPMENTAL BIOLOGY OF VERTEBRATES**

**PART I**

1. Give two examples of Jawless vertebrates (2024)
2. Write the function of alveoli of lungs. (2024)
3. Write the modification of salivary glands. (2024)
4. What is loop of Henle's. (2024)
5. What are the benefits of scales in fishes. (2024)
6. What do you mean by contour feathers. (2024)
7. What is milk dentition in mammals. (2024)
8. Enumerate epidermal derivatives of Integuments in Mammals (2023)
9. Differentiate between monocondylic and dicondylic skull.
10. What do you mean by cloaca
11. Enumerate any four types of feathers found in birds.
12. What do you mean by heterocercal tail found in fishes.
13. Write the names of three bones that composed the pelvic girdle.
14. Write down the function of Bursa Fabricius.
15. Name the parts of alimentary canal of pigeon.
16. What are peyers patches.
17. How is pigeon's milk formed.
18. What is the function of air bladder in fishes.\*
19. Define double circulation.
20. Write the dental formula of rabbit.
21. Explain Synsacrum.
22. Write a note on (i) types of teeth (ii) types of horns
23. Write on types of skull in vertebrates based on temporal opening.
24. Distinguish between Single circulation and Double circulation.
25. Write on swim bladder.

**PART II**

1. Give detailed account on different type of jaw attachment in vertebrates.
2. Give a detail account on epidermal derivatives.
3. Give a detailed account on the structure & function of integument.
4. Give detailed account of vertebral column in vertebrates.
5. Give a comparative account of Heart in vertebrates/ Give a detailed account on evolution of heart.
6. Give a detailed account on the evolution of aortic arches.
7. Give a comparative account of alimentary canal and digestive glands in different vertebrates/ digestive system of vertebrates.
8. Give a detailed account on respiratory system of pigeon. (RU)
9. Give a detailed account of respiratory system in vertebrates.

10. Write short note on : (a) Brain of frog (b) Female reproductive tract of labeo (RU)
11. Give a detailed account on digestive system of rat. (RU)
12. Describe the evolution of excretory system/ evolution of urinogenital ducts.
13. Give a detailed account of succession of kidney in vertebrates.
14. Write short notes on the following: (a) Vertebral column of Varanus (b) Brain ventricles (RU)
15. Explain accessory respiratory organ of vertebrates. (RU)
16. Give a comparative account on integument of Frog & Rabbit. (RU)
17. Write short notes on: (a) Cutaneous respiration in frog (b) Alimentary canal of rabbit (RU)
18. Give a comparative account of brain in vertebrates.
19. Explain visual receptors in man.
20. Explain the different types of receptors across vertebrates.

## **DEVELOPMENTAL BIOLOGY**

### **PART I**

1. What is the concept of preformationism (2022)
2. Differentiate specification and determination.
3. What is differentiation.
4. How many types of eggs are categorized on the basis of distribution of yolk. (2022)
5. What is haploid parthenogenesis? (2022)
6. What is embryonic induction. (2022)
7. What is the function of allantois extra embryonic membrane. (2022)
8. Differentiate between determinate and indeterminate cleavage? (2022)
9. What is therapeutic cloning? (2022)
10. State two special characteristics of stem cells.
11. Write on significance of stem cells (2022)
12. What do you understand by recapitulation theory (2023)
13. What are cleidoic eggs (2023)
14. Superficial meroblastic cleavage is found in which animal? (2023)
15. Define competence (2023)
16. What do you mean by polyspermy (2023)
17. Write the function of Chalaze (2023)
18. Define totipotent cells (2023)
19. Write full form of SCNT and ICSI. (2023)
20. Which type of placenta found in monkey. (2023)
21. Who is the Father of embryology
22. What is germplasm theory?
23. What do you mean by polyspermy.
24. Write the name of mammalian blastula.
25. What are Fate Maps.
26. Write the name of extraembryonic membranes.
27. What is Syncytial specification?

## PART II

1. What is gametogenesis. Discuss in brief oogenesis and spermatogenesis.
2. What is cleavage? Describe the patterns of cleavage with suitable examples.
3. Discuss various types of morphogenetic movements with help of suitable diagrams.
4. Draw and describe in detail the structure of Hen's egg.
5. What is vitellogenesis? Write on the types of eggs of various animals.
6. Describe embryonic development of frog.
7. What is gametogenesis? Describe the process of spermatogenesis with the help of suitable diagrams
8. Write short notes on: (a) Types and function of egg membranes (b) Acrosomal reaction and penetration
9. What is parthenogenesis? Discuss in detail the different types of parthenogenesis
10. What are characteristics of cleavage? Describe its various types with suitable examples.
11. Write a detail account on embryonic induction.
12. Write on Classification of placenta in mammals/ formation, types and functions of placenta in mammals\*
13. Describe nuclear transfer technique of cloning in detail.
14. Describe the mechanism of fertilization and add a note on its significance.
15. Write short notes on: (a) Parthenogenesis (b) Vitellogenesis (2023, 2016)
16. Describe the mechanism of Oogenesis with the help of suitable diagram.
17. Describe in detail the extra embryonic membrane in chick.
18. Write short notes on: (a) Embryonic Induction (b) Patterns of cleavage
19. What are fate maps? Describe various methods for the construction of fate maps.
20. Describe stem cells and their types in detail.
21. What is spermatogenesis? Describe the process of spermatogenesis with the help of suitable diagrams.
22. Define fertilization. Explain the process of fertilization with the help of suitable diagrams.
23. What is cleavage. Describe the patterns of cleavage with suitable examples.(2016)
24. Define the placenta and classify on the basis of histology.
25. Write short notes on the following: Blastulation, Embryonic Induction
26. Write short notes on (a) Stem cells (b) Nuclear transfer techniques (2016)
27. Explain blocking mechanism to polyspermy.
28. Explain early development of frog up to gastrula.
29. Explain early development of chick upto 96 hours.
30. Explain Fate Maps and the Fate of germ layers.
31. Explain metamorphic events in life cycle of frog and its hormonal regulation.
32. Explain applied aspects of developmental biology: (a) Stem cells (b) Cloning (c) Assisted Reproductive Techniques (ART)

Prepared by –

**Dr. Juniet Maria Jose**

Assistant Professor of Zoology

Department of Science

St. Xavier's College

Nevta, 302029,

Rajasthan, India