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[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 774

B

Unique Paper Code : 42231202

Name of the Paper : Comparative Anatomy and
Developmental Biology of
Vertebrates

Name of the Course : **B.Sc. (Programme) Life
Sciences**

Semester : II

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Question No. 1 is compulsory
3. There are **two** sections, **Section A** and **Section B**. Attempt **two** questions from each section.
4. Attempt **five** questions including question 1.
5. Draw well-labeled diagrams wherever necessary.

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774

1. (a) Define the following terms :

(1×6=6)

- (i) Arbor vitae
- (ii) Fovea centralis
- (iii) Unguis
- (iv) Organizer
- (v) Gray crescent
- (vi) Zona pellucida

(b) Differentiate between the following (any 5) :

(2×5=10)

- (i) Horns and Antlers
- (ii) Physostomous and Physoclistous
- (iii) Crista and Macula
- (iv) Epigenesis and Preformation
- (v) Epitheliochorial placenta and Haemochorial placenta
- (vi) Invagination and Involution

(c) Give the exact location and function of the following :

(1×6=6)

- (i) Meibomian glands
- (ii) Proprioceptors
- (iii) Spiral valve

- (iv) Corpus luteum
- (v) Inner cell mass
- (vi) Chorionic villi

(1×5=5)

(d) Fill in the blanks (any five) :

- (i) Mammary glands are modified _____ glands.
- (ii) _____ is a unique sensory structure in snakes for detecting infrared radiations.
- (iii) _____ scales are found on the skin of sharks, skates and rays.
- (iv) The notochord in a developing embryo is derived from _____ .
- (v) _____ is a method of tracing cell lineages.
- (vi) Mammalian blastula is known as _____ .

SECTION A

- 2. (a) Describe the succession of kidney in vertebrates.
- (b) Give the comparative account of brain in amphibians and reptiles. (6+6=12)
- 3. (a) Trace the evolution of aortic arches in vertebrates.
- (b) Discuss the various types of feathers. (8+4=12)

P.T.O.

774

4. Write a note on the following (any 3) : (4×3=12)
- (a) Types of Centra in vertebral column
 - (b) Visceral arches
 - (c) Digestive glands
 - (d) Avian Lungs

SECTION B

5. (a) What is spermatogenesis? Explain diagrammatically the different phases of spermatogenesis.
- (b) Enumerate the various planes and patterns of cleavage. Describe the role of egg yolk in early embryonic divisions. (6+6=12)
6. (a) Elucidate the methods of prevention of polyspermy.
- (b) Discuss the morphological changes associated with metamorphosis in frog. (8+4=12)
7. Write a note on the following (any 3) : (4×3=12)
- (a) Implantation
 - (b) Fate Maps
 - (c) Vitellogenesis
 - (d) Gastrulation in frog

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