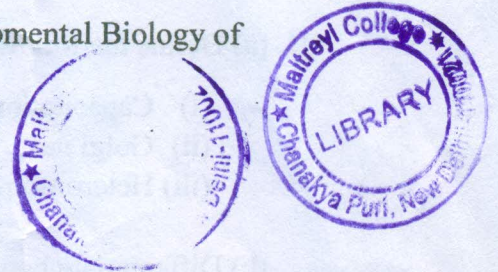


S1 No of QP 1621

Roll No.....

Unique Paper Code : 42231202  
Name of the Paper : Comparative Anatomy and Developmental Biology of Vertebrates  
Name of the Course : B.Sc. (Prog.) Life Sciences [LOCF]  
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.
4. Attempt five questions in all, two questions from each section
5. Draw neat, labelled diagrams wherever necessary.
6. Use separate sheets for Section A and Section B

**Section A**

**Q1. (i) Define the following terms:**

4

- (a) Carapace
- (b) Proprioceptors.
- (c) Arbor vitae
- (d) Infundibulum

**(ii) Differentiate between the following:**

10

- (a) Claws and Nails
- (b) Digitigrade and Plantigrade
- (c) Foramen of Monero and Iter
- (d) Crop and Gizzard
- (e) Wolffian and Mullerian duct

**Q2. (a) With the help of diagrams describe the changes in the aortic arches of vertebrates during transformation from aquatic to terrestrial mode of life.**

8

**(b) Describe dentition in mammals.**

4

**Q3. (a) What are receptors? Classify them with suitable examples.**

8

**(b) Briefly describe the structure and function of air sac in birds.**

4

**Q4. Write short note on any three of the following:**

3x4=12

- (a) Scales in fishes
- (b) Hepatic portal system
- (c) Jaw suspension
- (d) Swim Bladder



## Section B

(To be answered on separate sheet)

**Q1. (a)** Define the following terms:

3

- (i) Capacitation
- (ii) Golgi nest
- (iii) Heteromorphosis

**(b)** Differentiate between the following terms (Any **Three**):

2x3=6

- (i) Superficial and interstitial implantation
- (ii) Neoteny and progenesis
- (iii) Invagination and Involution
- (iv) Rotational cleavage and radial cleavage

**(c)** Fill in the blanks:

4

- (i) ..... is the hormone required for amphibian metamorphosis
- (ii) Acrosome of spermatozoon is derived from.....
- (iii) Set of physiological changes by which the sperm becomes competent to fertilize the egg is called.....
- (iv) Type of morphogenetic movement that leads to the formation of ectoderm.....

**Q2. (a)** What is a cortical reaction? Discuss its role to block polyspermy.

6

**(b)** Distinguish between spermatogenesis and oogenesis

6

**Q3. (a)** Describe the development of frog from fertilized egg to gastrula with the help of suitable diagrams

8

**(b)** Discuss the fate of mesoderm during development.

4

**Q4.** Write short notes on any **three** of the following:

3x4=12

- (i) Pre formation theory
- (ii) Biochemical changes in frog metamorphosis
- (iii) Effect of yolk on cleavage
- (iv) Spermiogenesis