

## MISSION M.B.B.S

Date: 03/08/2022

Subject: ZOOLOGY

Topic : ANIMAL KINGDOM L6

Class: Standard XI

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Instructions:

A

1. The notochord is persistent throughout life in

- A. urochordates and cephalochordates
- B. cephalochordates
- C. urochordates and vertebrates
- D. all chordates

The notochord is persistent throughout life in cephalochordates. It is a supporting rod-like structure present on the dorsal side of the chordates. In cephalochordates, the notochord extends from head to the tail region and is persistent throughout the life of the organism.

In urochordates, the notochord is present only in the tail of the larva. The larva undergoes a metamorphosis. Metamorphosis is a process of transformation of an immature larva into a mature adult. When the larva undergoes metamorphosis, the adult loses its tail and hence the notochord is lost.

In the vertebrates, the notochord is present in the embryonic stage. It gets replaced by the vertebral column in the adult stage.

Hence, the notochord is persistent throughout the life in cephalochordates.

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2. Identify the correct statement.

- A. Cranium is present in all chordates
- B. Metamerism is found in chordates
- C. Two pairs of limbs are present in all tetrapods
- D. Nerve cord is present on the ventral side in chordates

Metamerism refers to the division of the body into segments and linear repetition of certain body parts. Metamerism is found in muscles, vertebrae and ribs of all chordates.

Cranium is a bony box that encloses the brain. Cranium is present only in vertebrates but not all chordates.

Vertebrates that have two pairs of limbs are called tetrapods. Some amphibians and snakes lack limbs but still are considered as tetrapods because they have evolved from their ancestors who had four limbs.

Dorsal nerve cord is present in chordates and ventral nerve cord is present in non-chordates. Dorsal refers to the backside of the organism and ventral refers to the front or the abdominal side of the organism.

3. The common feature of all vertebrates is the presence of:

- A. limbs for locomotion
- B. a closed circulatory system
- C. a persistent notochord
- D. direct development into the adult stage after fertilization

All vertebrates have a closed circulatory system wherein blood flows through closed blood vessels.

Limbs are absent in jawless vertebrates and Pisces. They have fins for locomotion.

Among the vertebrates, the notochord is present only in embryonic stages. It gets replaced by the vertebral column in adults.

In amphibians (vertebrates), the development is indirect. Indirect development refers to the development of an organism in which a larval stage is present. Direct development is the absence of a larval stage during the development of the embryo.

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4. Which among the following is a common feature shared between *Betta* and *Carcharodon*?

- A. Chambers in heart
- B. Mode of embryo development
- C. Presence of air bladder
- D. Cartilaginous endoskeleton

*Betta* is a bony fish and *Carcharodon* (the great white shark) is a cartilaginous fish. All fishes have a two-chambered heart with one auricle and one ventricle.

Cartilaginous fishes differ from bony fishes in the mode of embryo development. Sharks are ovoviparous and bony fishes are oviparous. In ovoviparous animals, embryo development is inside the body of the mother but nourishment is not provided by the mother rather it is from the yolk. In other words, oviparous animals lay eggs and viviparous animals give birth to young ones.

The air bladder is present in bony fishes and absent in sharks. Air bladder helps in the regulation of buoyancy and prevents the animal from sinking.

Endoskeleton is cartilaginous in sharks and made up of bones in Osteichthyes.

5. The vertebral column is cartilaginous in:

- A. Osteichthyes
- B. Cyclostomes
- C. Urochordates
- D. Cephalochordates

The vertebral column is cartilaginous in cyclostomes, the first vertebrates. The vertebral column is made up of bones in Osteichthyes.

The vertebral column is absent in urochordates and cephalochordates as both are invertebrates, belonging to the phylum Chordata.

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6. Match the following.

Column I	Column II
A. <i>Exocoetus</i>	I. Rohu
B. <i>Pterophyllum</i>	II. Sea horse
C. <i>Labeo</i>	III. Angelfish
D. <i>Hippocampus</i>	IV. Flying fish

- A. A-I, B-II, C-III, D-IV
- B. A-IV, B-III, C-II, D-I
- C. A-IV, B-III, C-I, D-II
- D. A-III, B-IV, C-I, D-II

*Exocoetus* is commonly called flying fish as the pectoral fin is modified into a wing-like structure.

*Pterophyllum* is commonly called angelfish and is kept in aquariums.

*Labeo* is a freshwater fish and is commonly called rohu.

*Hippocampus* is commonly called sea horse. It swims vertically. Males have a brood pouch and exhibit parental care.

7. Operculum is absent in

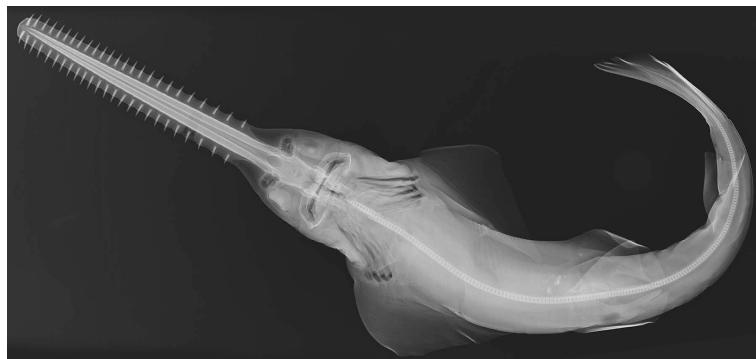
- A. *Labeo*
- B. *Pristis*
- C. *Exocoetus*
- D. *Betta*

Operculum (gill cover) is present in bony fishes and absent in cartilaginous fishes. *Pristis* is a cartilaginous fish and it lacks an operculum.

*Labeo*, *Exocoetus* and *Betta* are bony fishes and possess operculum.

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8. Identify the animal in the image.



- A. *Exocoetus*
- B. *Pristis*
- C. *Scoliodon*
- D. *Trygon*

The animal shown in the image is *Pristis*. It has an elongated snout studded with teeth resembling a saw. Hence it is commonly called sawfish.

9. Vertebrates without jaws are included in the class:

- A. Agnatha
- B. Cyclostomata
- C. Hemichordata
- D. Chondrichthyes

Jawless vertebrates are included in the class Cyclostomata and division Agnatha.

Hemichordates are called as half chordates as they have some characteristics of chordates and lack some.

Chondrichthyes includes cartilaginous fishes which are the first jawed vertebrates. Jawed vertebrates include Pisces, amphibians, reptiles, birds and mammals.

## MISSION M.B.B.S

10. Identify the correct statement:

- A. All chordates are vertebrates
- B. All vertebrates are chordates
- C. All triploblastic animals are coelomates
- D. All chordates have cranium (brain box)

The presence of notochord is the characteristic feature of all chordates. All vertebrates are chordates as they have a notochord during their embryonic stages. The presence of the vertebral column is a characteristic feature of all vertebrates. All chordates are not vertebrates as the protochordates, urochordates and cephalochordates do not have a vertebral column.

The coelom is the space present between the body wall and gut wall lined by mesoderm. All triploblastic (having the three germ layers such as ectoderm, mesoderm and endoderm) animals are not coelomates (with a true coelom). Flatworms belong to phylum Platyhelminthes and roundworms belong to phylum Nematoda and members of both these phyla are triploblastic. But, flatworms are acoelomates (coelom absent) and roundworms are pseudocoelomates (false coelom).

Only vertebrates have cranium which encloses the brain.