ZOO513 – ANIMAL DIVERSITY: CHORDATES

FINAL TERM MOST IMPORTANT QUESTIONS

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1. Write some examples of annelids.

Some common examples of annelids are Earthworm, Leeches, Lungworms and polychaetes.

2. What is preening?

Preening is a body-maintenance behavior seen in birds, which involves use of the bill to support health and structure of the feathers like positioning feathers, interlock feather barbules, clean and keep parasites in check. The main function of preening behavior is to waterproof the feathers by distributing preen oil from the uropygial gland at the base of the tail to the feathers.

3. What is aestivation?

Aestivation is cessation or slowing of activity during the summer; especially slowing of metabolism in some animals during a hot or dry period. Aestivation is generally defined as a type of dormancy, which is a survival strategy used to sustain lack of food and other extreme conditions. Animals that aestivate become inactive and stop feeding in response to warm temperatures.

4. What is hibernaculum?

Hibernaculum is a place in which a creature seeks refuge, such as a bear using a cave to overwinter. The word can be used to describe a variety of shelters used by many kinds of animals, including insects, toads, lizards, snakes, bats, rodents, and primates of various species.

5. What is Hibernation?

Hibernation is a deep sleep that helps them to save energy and survive the winter without eating much. During hibernation the animal's body temperature drops, and its heartbeat and its breathing slow down so that it does not use much energy. During Hibernation, hypothalamus of the brain slows the metabolic rate, heart rate and respiratory rates.

6. What is plumage?

Plumage is a layer of feathers that covers a bird and the pattern, color, and arrangement of those feathers. The pattern and colors of plumage differ between species and subspecies and may vary with age classes. Within species, there can be different color morphs.

7. What is lateral line system?

Lateral line system, also called lateralis system, a system of tactile sense organs, unique to aquatic vertebrates from cyclostome fishes (lampreys and hagfish) to amphibians, that serves to detect movements and pressure changes in the surrounding water. It is made up of a series of mechanoreceptors called neuromasts (lateral line organs) arranged in an interconnected network along the head and body. This network is typically arranged in rows; however, neuromasts may also be organized singly. At its simplest, rows of neuromasts appear on the surface of the skin; however, for most fishes, they lie embedded in the floor of mucus-filled structures called lateral line canals.

8. Differentiate between homodont and heterodont.

HOMODONT:

Animals whose all teeth are of same type are called homodont. Usually, reptiles are homodonts.

HETERODONT:

Animals having different morphological teeth specialized for different functions are called heterodonts. Usually, all mammals are heterodonts.

9. What are spectacles?

During ecdysis, when reptiles shed their skin, the spectacle is formed from fused eyelids that have become clear. Spectacle also forms during embryonic stage of lizards and reptiles where it forms a protective window of clear skin.

10. Differentiate between ventriculus and proventriculus.

VENTRICULUS:

The ventriculus or stomach (also known as gizzard), serves as stomach in some animals. Ventriculus contains two opposing sets of muscles used for grinding food.

PROVENTRICULUS:

The proventriculus (also known as the true stomach) is the glandular stomach where digestion primarily begins. Hydrochloric acid and digestive enzymes, such as pepsin, are added to the feed here and begin to break it down more significantly than the enzymes secreted by the salivary glands.

11. What are orders of reptiles?

Class reptilian is further divided into four different orders naming: Squamata (including Snakes and lizards), Testudines (including turtles and tortoises), Crocodilia (including crocodiles and alligators) and Rhynchocephalia (including Tuataras).

12. Write characteristics of mammals?

- Females of mammals have specialized mammary glands to feed their young ones. These mammary glands produce milk.
- Presence of hair is a unique character in mammals.
- A muscular diaphragm separates the heart and lungs from abdominal cavity.
- Mammals possess Non-nucleated RBCs while all other animals have nucleated RBCs.

- Mammals are viviparous and have a reproductive cycle that helps in internal fertilization and successful development of fetus.
- Mammals have external ear or pinna which all other vertebrates lack.
- Sweat glands are present in skin to regulate water content.
- Metanephric kidneys are present to which allow mammals to excrete urea without excessive loss of water.

13. Explain counter current heat exchange.

Countercurrent heat-exchange systems may help regulate heat loss from exposed areas. Arteries passing peripherally through the core of an appendage are surrounded by veins that carry blood back toward the body. When blood returns to the body through these veins, heat transfers from arterial blood to venous blood and returns to the body rather than being lost to the environment. When excess heat is produced, blood is shunted away from the countercurrent veins toward peripheral vessels, and excess heat is radiated to the environment.

14. What are types of flight?

GLIDING FLIGHT:

In gliding flight, the wings are held out to the side of the body and do not flap. As the wings move through the air, they are held at a slight angle, which deflects the air downwards and causes a reaction in the opposite direction, which is lift.

FLAPPING FLIGHT:

Flapping flight is a far more complicated process than gliding. During flapping flight, the bird's wings systematically change shape. Flapping involves up and down movement of the wings. During the downstroke (or power stroke), the wings move downward and forward.

SOARING FLIGHT:

Soaring flight is a special kind of glide, in which the bird flies in a rising air current. Because the air is rising, the bird can maintain its height relative to the ground. Soaring flight can only occur at special places and times. For example, warm air heated by the sun can rise up from the hot ground and into the sky. This rising air current is called a thermal. Thermals often rise up along the slope of a hill, but they can also form over flat ground. As the air rises, it also expands and cools. (This results from the lower pressure at altitude.) Eventually, the water vapor in the thermal may become cold enough to condense, forming the tiny droplets of liquid water that make up a cloud. When you have a sunny day with puffy clouds, it's probably a good day for thermals, and you may see hawks or vultures soaring overhead.

HOVERING FLIGHT:

Hovering refers to stationary flight at zero net forward speed, which can be achieved by animals through muscle powered flapping flight. Small bats capable of hovering typically do so with a downstroke in an inclined stroke plane and with an aerodynamically active outer wing during the upstroke. Birds like humming bird are best example while talking of hovering flight.

15. Explain Negative Pressure Mechanism.

In most reptiles, a negative-pressure mechanism is responsible for lung ventilation. A posterior movement of the ribs and the body wall expands the body cavity, decreasing pressure in the lungs and drawing air into the lungs. Air is expelled by elastic recoil of the lungs and forward movements of the ribs and body wall, which compress the lungs. The ribs of turtles are a part of their shell; thus, movements of the body wall to which the ribs attach are impossible. Turtles exhale by contracting muscles that force the viscera upward, compressing the lungs. They inhale by contracting muscles that increase the volume of the visceral cavity, creating negative pressure to draw air into the lungs.

16. What are unique characters of chordates?

- Chordates are bilaterally symmetrical.
- They are deuterostomate animals.
- There are four unique characters which are present at some stage of the life: notochord, pharyngeal gill slits or pouches, dorsal tubular nerve cord and post-anal tail presence of an endostyle or thyroid gland.
- The phylum is named after the presence of notochord.
- In adult chordates, cartilage or bone replaces the partial or entire notochord.

17. What are advantages of viviparity?

Viviparity (give birth to live young) is good because the embryo can develop inside the mother where temperatures and nutrients are stable, thus enabling the young a greater chance to survive. This is especially true in cold weather.

18. Explain reproduction and development in cephalochordates.

REPRODUCTION:

Cephalochordates are dioecious. Gametes are shed into the atrium and leave the body through the atriopore. External fertilization leads to a bilaterally symmetrical larva.

19. What is metamorphosis?

Metamorphosis is a biological process by which an animal physically develops including birth transformation or hatching, involving a conspicuous and relatively abrupt change in the animal's body structure through cell growth and differentiation. There are two types of metamorphosis: Complete metamorphosis and incomplete metamorphosis.

20. Explain shivering and non-shivering mechanism.

Shivering thermogenesis is muscular activity that generates large amounts of heat but little movement. Non-shivering thermogenesis involves heat production by general cellular metabolism and the metabolism of special fat deposits called brown fat.