9.DIVERSITY OF ANIMAL LIFE

Teaching Task (Page 85 – 86)

1) Who classified organisms in five kingdom system?

Answer: A) Whittaker

Explanation: Robert H. Whittaker proposed the five-kingdom classification system in 1969, dividing organisms into Monera, Protista, Fungi, Plantae, and Animalia based on characteristics like cell structure, nutrition, and organization.

2) Which of the following group of animals have cell aggregate body plan?

Answer: A) Sponges

Explanation: Sponges (Phylum Porifera) have a cell aggregate body plan, lacking true tissues and organs. Their body consists of loosely organized cells that perform specific functions.

3) Organ system grade of body organization is found in:-

Answer: C) Arthropodes

Explanation: Arthropods (Phylum Arthropoda) exhibit an organ-system level of organization, with specialized systems like circulatory, nervous, and digestive systems. Sponges and protozoa lack this level, and platyhelminthes have a simpler organization.

4) Which of the following is incorrectly matched?

Answer: D) Nematoda - Taenia solium

Explanation: Taenia solium is a flatworm (Phylum Platyhelminthes), not a nematode (Phylum Nematoda). The other matches are correct: Sycon (Porifera), Hydra (Coelenterata), and Fasciola (Platyhelminthes).

5) Stinging cell organelles - nematocysts are found only in:-

Answer: A) Phylum – Coelenterata

Explanation: Nematocysts are specialized stinging cells unique to Phylum Coelenterata (Cnidaria), used for defense and capturing prey, as seen in organisms like Hydra and jellyfish.

6) In which phylum pseudocoelom is present?

Answer: C) Aschelminthes

Explanation: Aschelminthes (e.g., roundworms like Ascaris) have a pseudocoelom, a body cavity not fully lined by mesoderm. Coelenterates lack a coelom, Annelida and Mollusca have a true coelom.

7) Flatworms are found in:-

Answer: C) Phylum – Platyhelminthes

Explanation: Flatworms, such as Fasciola and Taenia, belong to Phylum Platyhelminthes, characterized by a flattened body and lack of a coelom.

8) Star fish is the member of:-

Answer: D) Echinodermata

Explanation: Starfish belong to Phylum Echinodermata, characterized by radial symmetry and a water vascular system, distinct from Pisces, Mollusca, or Coelenterata.

9) Balanoglossus is an example of:-

Answer: C) Hemichordata

Explanation: Balanoglossus is a hemichordate, a phylum with chordate-like features (e.g., pharyngeal gill slits) but not true vertebrates. It is not part of Urochordata, Cephalochordata, or Vertebrata.

10) Which of the following is not a bony fish?

Answer: D) Chimera

Explanation: Chimera is a cartilaginous fish (Class Chondrichthyes), whereas Labeo rohita, Anabas, and Hippocampus are bony fish (Class Osteichthyes).

11) Which statement is not correct for amphibians?

Answer: D) They have two chambered heart

Explanation: Amphibians have a three-chambered heart (two atria, one ventricle). The other statements are true: they were the first vertebrates to transition to land, are cold-blooded, and lack scales.

12) Which class includes snakes and lizards?

Answer: B) Reptilia

Explanation: Snakes and lizards belong to Class Reptilia, characterized by scaly skin and cold-blooded metabolism, distinct from Amphibia, Mammalia, or Pisces.

13) In which class birds are included?

Answer: D) Aves

Explanation: Birds belong to Class Aves, characterized by feathers, wings, and warm-blooded metabolism.

14) Sound producing organ in birds is:-

Answer: C) Syrinx

Explanation: The syrinx is the vocal organ in birds, located at the base of the trachea, enabling sound production. Trachea, pneumatic bones, and plumage are not involved in sound production.

15) Which statement(s) is (are) true for mammals?

Answer: D) All of the above

Explanation: Mammals are warm-blooded, have a diaphragm for breathing, and possess mammary glands for nursing their young, making all statements correct.

Learners Task (Page 88 - 86)

1) In Earthworm the body is divisible into:

Answer: D) 100-120 segments

Explanation: An earthworm's body typically has 100–120 segments (metameres), which are externally visible as rings.

2) Earthworm has an unsegmented band called:

Answer: A) Clitellum

Explanation: The clitellum is a thickened, unsegmented glandular band in earthworms, involved in reproduction, typically around segments 14–16.

3) Clitellum occur in segments:

Answer: C) 14-16

Explanation: In earthworms, the clitellum is located in segments 14–16, though this can vary slightly in some species.

4) Setae occur all over the body except segments:

Answer: D) All the above

Explanation: Setae (bristles for locomotion) are absent in the first segment, last segment, and clitellar segments of an earthworm.

5) Earthworm belongs to phylum:

Answer: A) Annelida

Explanation: Earthworms belong to Phylum Annelida, characterized by segmented bodies and a true coelom.

6) Earthworm has characteristic of annelida:

Answer: C) Both A and B

Explanation: Annelids, including earthworms, have a true coelom (body cavity lined by mesoderm) and metameric segmentation (repeating body segments). They do not have an open circulatory system.

7) Cockroach has a pair of long jointed thread-like appendages over the head. They are:

Answer: A) Antennae

Explanation: Antennae in cockroaches are long, jointed, thread-like structures used for sensory purposes, located on the head.

8) Male cockroach can be distinguished from the female in possession of:

Answer: B) Anal styles

Explanation: Male cockroaches have anal styles (small appendages near the abdomen's end), which females lack. Both sexes have anal cerci and wings.

9) Mouth parts of Cockroach are of type:

Answer: A) Biting and chewing

Explanation: Cockroaches have biting and chewing mouthparts, adapted for consuming solid food, unlike piercing, siphoning, or sponging types.

10) Cockroach is:

Answer: C) Omnivorous

Explanation: Cockroaches are omnivorous, feeding on both plant and animal matter, including decaying organic material.

11) The major characteristics of arthropods are:

Answer: A) Jointed appendages and chitinous exoskeleton

Explanation: Arthropods are defined by jointed appendages and a chitinous exoskeleton. They do not have a chitinous endoskeleton.

12) Bony fish can stay in water at any depth without any effort due to presence of:

Answer: A) Air bladder

Explanation: The air bladder (swim bladder) in bony fish regulates buoyancy, allowing them to maintain depth without effort.

13) Body of the bony fish does not show gills as they are covered by:

Answer: B) Operculum

Explanation: In bony fish, gills are covered by a bony plate called the operculum, which protects them and aids in respiration.

14) Fins help the fish in:

Answer: C) Both A and B

Explanation: Fins in fish assist in locomotion (movement through water) and steering (directional control).

15) An important character of chordata is presence of:

Answer: D) All the above

Explanation: Chordates are characterized by a dorsal notochord, dorsal hollow nerve cord, and post-anal tail at some stage of development.

16) The body of a bird is covered by:

Answer: B) Feathers

Explanation: Birds are covered by feathers, which aid in flight, insulation, and waterproofing, unlike dermal scales or hair.

17) Flight adaptation of bird is:

Answer: D) All the above

Explanation: Birds have multiple flight adaptations, including a streamlined body, feathery covering, and wings, all contributing to efficient flight.

18) Number of teeth found in a beak of bird is:

Answer: D) Nil

Explanation: Birds lack teeth; their beaks are adapted for feeding, and digestion occurs in the gizzard.

19) Birds have kept their weight low due to presence of:

Answer: B) Pneumatic bones

Explanation: Pneumatic bones (hollow bones with air spaces) reduce a bird's weight, aiding flight. Streamlined bodies and small tails contribute to aerodynamics, not directly to weight reduction.

20) Earthworm is used in:

Answer: D) Both B and C

Explanation: Earthworms aid in composting organic matter (vermicomposting) and ploughing soil (aeration and nutrient mixing through burrowing).

21) Matrix Matching Type: Key and Solutions

Match the items in **Column I** with the correct options in **Column II**.

Column I	**Column II**	**Explanation**
(i) Flightless bird	(e) Ostrich	Ostriches are flightless birds, unable to fly due to their large size and reduced wings.
(ii) Egg laying mammal	(i) Duckbilled platypus	The duckbilled platypus is a monotreme, a mammal that lays eggs.
(iii) Hydra	(o) Fresh water coelenterate	Hydra is a freshwater member of Phylum Coelenterata (Cnidaria).
(iv) Cnidoblasts	(k) Coelenterates	Cnidoblasts (nematocysts) are stinging cells found only in Coelenterates.
(v) Pseudocoel	(l) Roundworms	Roundworms (Phylum Aschelminthes) have a pseudocoelom, a false body cavity.
(vi) Ascaris	(d) Endoparasite of intestine	Ascaris is a roundworm, an endoparasite commonly found in the intestines.
(vii) Sea urchin	(a) Echinoderm	Sea urchins belong to Phylum Echinodermata, characterized by spiny skin.

Column I	Column II	Explanation
(viii) Jawless vertebrate	(g) Lamprey	Lampreys are jawless vertebrates (Class Agnatha) with a cartilaginous skeleton.
(ix) Limbless reptile	(b) Snake	Snakes are limbless reptiles (Class Reptilia).
(x) Cartilage fish	(h) Shark	Sharks are cartilaginous fish (Class Chondrichthyes) with a skeleton of cartilage.
(xi) Leech	(n) Hirudin	Leeches produce hirudin, an anticoagulant, and belong to Phylum Annelida.
(xii) Millipedes	(m) Segmented arthropods	Millipedes are segmented arthropods with two pairs of legs per segment.
(xiii) Nephridia	(f) Earthworm	Nephridia are excretory organs in earthworms (Phylum Annelida).
(xiv) Pneumatic bones	(c) Birds	Pneumatic (hollow) bones are a feature of birds, reducing weight for flight.
(xv) Pouched mammal	(j) Kangaroo	Kangaroos are marsupials (pouched mammals) with a pouch for carrying young.