INDIAN SCHOOL AL WADI AL KABIR		
CLASS: XI	**DEPARTMENT: SCIENCE 2025 – 2026** **SUBJECT: BIOLOGY**	**DATE: 17/01/2026**
WORKSHEET NO. 16	**TOPIC: ANIMAL KINGDOM**	**NOTE:** **A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE-TYPE QUESTIONS

1. The following is not a characteristic of Chordates:
   A. The presence of a notochord
   B. A dorsal hollow nerve cord
   C. They possess a post-anal tail and a closed circulatory system
   D. These are radially symmetrical, diploblastic, and acoelomate.
2. Ascaris is characterised by:
   A. Presence of true coelom and metamerism
   B. Presence of a true coelom, but the absence of metamerism
   C. Absence of true coelom and metamerism
   D. Absence of true coelom but the presence of metamerism.
3. Which of the following characters is not typical of the class Mammalia?
   A. Alveolar lungs
   B. Seven cervical vertebrae
   C. Thecodont dentition
   D. Ten pairs of cranial nerves
4. Identify figures a and b given below

a

b

   A. (a) Aurelia (b) Adamsia
   B. (a) Physalia (b) Adamsia
   C. (a) Aurelia (b) Obelia
   D. (a) Gorgonia (b) Mandarina
5. Radial symmetry is found in

A. Coelenterates and Platyhelminthes
B. Coelenterates and Echinodermata
C. Arthropoda and Mollusca
D. Porifera and Coelenterata

6. Select the correct pathway of water current in the sponge:
   A. Ostia -> osculum -> spongocoel -> outside
   B. Ostia -> spongocoel -> osculum -> outside
   C. Osculum -> spongocoel -> ostia -> outside
   D. Spongocoel -> osculum -> ostia -> outside
7. Flame cells are the excretory structures for:
   A. Annelida
   B. Coelentrates
   C. Platyhelminthes
   D. Echinodermata
8. Metameric segmentation is characteristic of?
   A. Mollusca
   B. Annelida
   C. Echinodermata
   D. Cnidaria
9. Notochord occurs throughout life and all through the length of the body in:
   A. Cephalochordates
   B. Hemichordates
   C. Urochordata
   D. Vertebrata
10. The rasping feeding organ found in the mouth of most molluscs is called:
   A. Mantle
   B. Radula
   C. Ctenidia
   D. Nephridia

For the following questions, two statements are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below:

i) Both A and R are true, and R is the correct explanation of the assertion.
ii) Both A and R are true, but R is not the correct explanation of the assertion
iii) A is true, but R is false.
iv) A is false, but R is true

11. Assertion (A): Tapeworm, roundworm, and pinworm are endoparasites of the human intestine.
    Reason (R): Improperly cooked food is the source of intestinal infections.
12. Assertion (A): Sponges have a water transport or canal system.

Reason (R): This pathway of water transport is helpful in food gathering, respiratory exchange, and removal of waste.

13. Assertion (A): Arthropods have an open circulatory system.
    Reason (R): Blood flows through blood vessels under high pressure.

II. VERY SHORT QUESTIONS (2M):

14. How do endo-parasites survive inside the body of the host?
15. Diagrammatically show the difference between diploblastic and triploblastic animals.
16. What do you understand about metagenesis? Explain with an example.
17. The animal kingdom is full of amazing creatures. This marine organism exhibits bioluminescence and has a transparent appearance.
    a) To which phylum does the above-mentioned organism belong?
    b) Mention any two other characteristics of this phylum.
18. Define a) Cnidoblasts b) Nephridia c) Polyp d) Operculum
19. List the salient features of Phylum Platyhelminthes.

III. SHORT ANSWER TYPE QUESTIONS: (3M)

20. A. Explain how the presence of an air bladder makes Osteichthyes more efficient swimmers than cartilaginous fishes.
    B. How important is the presence of an air bladder in Pisces?
21. What are the reasons that you can think of for the Arthropoda to constitute the largest group of the animal kingdom?
22. Param went to the jungle and identified a reptile that was long and slithery with no limbs. Which organism may it be, and what features must he have observed to classify it as a reptile? Write any 3 features of it. Give an example of any other organism belonging to the phylum.
23. Distinguish between intracellular and extracellular digestion.

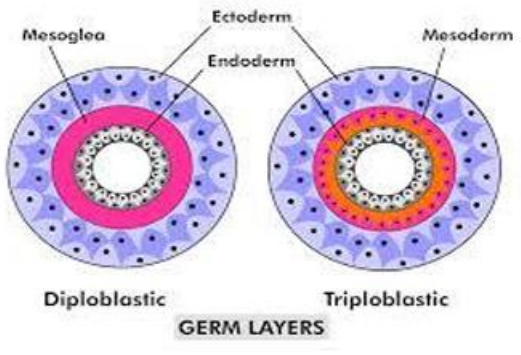
IV. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS

24. Aadhya, a student of class XI, has brought a crab and an apple snail from the beach. She had identified both as members of Phylum Mollusca, as they have a shell. As a senior student of biology, help her to identify the animals correctly.
    a. Name the phylum crab belongs to and the phylum that the apple snail belongs to.
    b. Name any two economically important arthropods.
    c. Write any four differences between the animals of the two phyla.

V. LONG ANSWER TYPE QUESTIONS. (5M)

25. Differentiate between -
    a. Open and closed circulatory system
    b. Oviparity and viviparity
    c. Direct and indirect development
    d. Acoelomate and pseudocoelomate
    e. Notochord and nerve cord
    f. Polyp and Medusa
26. How useful is the study of the nature of the body cavity and the coelom in the classification of animals?

27. What are the modifications that are observed in birds that help them fly?
28. a) What is the basis of the classification of Animalia?
    b) Mention any two features of Pisces.

ANSWER KEY	
I. OBJECTIVE-TYPE QUESTIONS	
1.	D. These are radially symmetrical, diploblastic, and acoelomate.
2.	C. Absence of true coelom and metamerism
3.	D. Ten pairs of cranial nerves
4.	A (a) Aurelia (b) Adamsia
5.	B. Coelenterates and Echinodermata
6.	B. Ostia -> spongocoel -> osculum -> outside
7.	C. Platyhelminthes
8.	B. Annelida
9.	A. Cephalochordates
10.	C. Euplectella – Calcareous spicules
11.	Both A and R are true, but R is not the correct explanation of A.
12.	Both A and R are true, and R is the correct explanation of A
13.	A is true, but R is false.
II. VERY SHORT QUESTIONS (2M):	
14.	The endo-parasites have the following features, which enable them to survive inside the body of the host: Anaerobic respiration. i) Exchange of gases through the body surface. ii) They possess specialized organs like hooks and suckers to maintain a firm grip on the host's internal tissues
15.	
16.	Metagenesis is the phenomenon of alternation of generations exhibited by certain cnidarians (coelenterates) that exist in two basic body forms: polyp and medusa. In this process: • The polyps produce medusae asexually. • The medusae form the polyps sexually. Example: *Obelia*

17.	a) Ctenophora b) Comb plate: eight rows of ciliated plates for locomotion. Reproduction: only by sexual means.
18.	a) Cnidoblasts or Nematoblasts are stinging cells found in Cnidaria. b) Excretory organ found in Annelids c) A polyp is a fixed, cylindrical structure that symbolizes the asexual stage of cnidarians. d) Bony covering over the gills found in Osteichthyes.
19.	They are dorsoventrally flattened, bilaterally symmetrical, triploblastic, acoelomate animals. They have organ-level organization, are mostly hermaphrodites, and show high regeneration capacity; free-living (e.g., Planaria) or parasitic forms exist.
III. SHORT ANSWER TYPE QUESTIONS: (3M)	
20.	A. The air bladder regulates buoyancy**,** allowing bony fishes to float without continuous swimming. This reduces energy expenditure and helps maintain depth. Cartilaginous fishes lack an air bladder and must swim continuously to avoid sinking. Thus, Osteichthyes show better energy efficiency in aquatic locomotion. B. Bony fishes have a sac-like outgrowth, the swim bladder, also called the air bladder, that arises as an outgrowth from the dorsal wall of the oesophagus. It is hydrostatic in function. It regulates buoyancy and helps them to swim up and down, thus preventing them from sinking. In some species air bladder also helps in respiration. It also serves as a resonating chamber to produce or receive sound
21.	1. Chitinous Exoskeleton: The body is covered by a hard, protective chitinous exoskeleton. This provides physical protection from predators and, crucially, prevents water loss (desiccation), allowing them to adapt and thrive in diverse terrestrial environments. 2. Jointed Appendages: The name "Arthropoda" refers to their jointed legs. These specialized appendages allow for highly efficient and versatile mobility, enabling them to perform various functions such as walking, swimming, feeding, and sensory perception. 3. Versatile Habitats and Adaptability: Their segmented body plan and varied respiratory systems (gills, book gills, book lungs, or tracheal systems) allow them to colonize virtually every habitat—including land, water, and air.
22.	Param might have observed a snake. Three characters of reptiles are- i) These are creeping and burrowing terrestrial animals with scales on their body. ii) They are cold-blooded animals found in most of the warmer regions of the world. iii) The body is divided into head, neck, trunk, and tail. Reptilia- Lizard, Crocodile.

23.

Intracellular digestion	Extracellular digestion
The digestion of food take place within the cell.	The digestion take place outside the cell in the cavity of alimentary canal.
Digestive enzymes are secreted by the surrounding cytoplasm into the food vacuole.	Digestive enzymes are secreted by special cells into the cavity of alimentary canal.
Products of digestion are diffused into the cytoplasm.	Products of digestion diffuse across the intestinal wall into different parts of the body.
It is a less efficient method and it does not show the regional differentiation.	It is a more efficient method and shows the regional differentiation.
It occurs in unicellular organisms.	It occurs in multicellular organisms.

IV. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS

24.

a. Crab- Arthropoda, Apple Snail- Mollusca.

b. Apis (Honeybee), Bombyx (Silkworm)

Arthropoda	Mollusca
Body is segmented into head, thorax, and abdomen	Body is not segmented
Have jointed appendages	Do not have jointed appendages
Have a Chitinous exoskeleton	Have a calcareous exoskeleton (if present)
Respire using gills, book gills, book lungs, and tracheal system.	Respire using ctenidia.

V. LONG ANSWER TYPE QUESTIONS. (5M)

25.

a) In the open circulatory system, the blood is pumped out of the heart and flows freely through cavities and is not confined to blood vessels. It is mainly found in vertebrates. In contrast, blood is circulated throughout the body with the help of a series of vessels in the closed circulatory system. It is present in vertebrates and echinoderms.

b) Laying fertilised and unfertilised eggs are called oviparous animals, whereas giving birth to young ones is classified under viviparous animals.

C) Direct development means young resemble adults and skip larval stages (e.g., mammals, birds, reptiles), while indirect development involves distinct larval stages (like caterpillars, tadpoles) that undergo metamorphosis to become adults (e.g., insects, amphibians, echinoderms), with key differences in yolk, egg size, and distinct life forms.

d) Coelomates are animals that do not possess a coelom, whereas pseudocoelomates contain a mesoderm layer, which is present between ectoderm and endoderm.

e) The Notochord is a mesodermally derived rod-like structure that is formed on the dorsal side during embryonic development, whereas the nerve cord is a solid strand of nervous tissue

f) Polyp is sessile and cylindrical. One of its most common examples is Hydra, whereas, on the other hand, Medusa is umbrella-shaped and free-swinging in nature. Its most common example is Jellyfish.

26.

The coelom is a fluid-filled space between the body wall and digestive tract. The presence or absence of a body cavity or coelom plays a very important role in the classification of animals. Animals that possess a fluid-filled cavity between the body wall and digestive tract are known

	as coelomates. Annelids, mollusks, arthropods, Echinodermata, and chordates are examples of coelomates. On the other hand, the animals in which the body cavity is not lined by mesoderm are known as pseudocoelomates. In such animals, mesoderm is scattered between ectoderm and endoderm. Aschelminthes is an example of pseudocoelomates. In certain animals, the body cavity is absent.
27.	• Birds have adapted to an aerial mode of life through the following modifications: • Streamlined body for rapid and smooth movement • Covering of feathers for insulation • Forelimbs modified into wings and hind limbs used for walking, perching, and swimming • Presence of pneumatic bones to reduce weight • Presence of additional air sacs to supplement respiration
28.	a) The basis of classification of Animalia is: - i) Notochord: It is basically a rod-like structure found in the chordates. However, it is not found in non-chordates. ii) Symmetry: It is basically about the arrangement of the body parts, i.e., how they are arranged. The arrangement is of three types, Asymmetrical, radially symmetrical, and bilaterally symmetrical. iii) Organisation: Animals have a cellular grade of organisation. So, their bodies are made up of cells, while others have tissues, organs, and organ systems. iv) Embryonic layers: Ectoderm, mesoderm, and endoderm are three embryonic layers that provide rise to different organs in the body. These are also called germinal layers. Some animals are diploblastic, for example, sponges, while others are triploblastic, having three germinal layers. b) The two features of Pisces: a) Streamlined body for swimming. b) Air bladder for buoyancy.

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