

NCERT Solutions for Class 11 Biology Chapter 4 Animal Kingdom

Q1. What are the difficulties that you would face in classification of animals, if common fundamental features are not taken into account?

Answer:

The fundamental characteristics are basically used to establish relationships between animals while specific characteristics show us how animals despite having similar fundamental characteristics differ from each other. For example, all animals lack a cell wall and are heterotrophs, these are the fundamental characters that put all animals together in kingdom Animalia. However, the presence of mammary glands is a specific character that differentiates mammals from other vertebrates and animals. If common fundamental features are not taken into account then

1. The interrelationship among different animals will not be traceable.
2. The picture of all animals at a glance will not be projected.
3. We won't be able to get a clear picture of how evolution occurred.

Q3. How useful is the study of the nature of body cavity and coelom in the classification of animals?

Answer:

The fluid-filled body cavity derived and lined by mesoderm is called coelom. The study of the nature of the body cavity and coelom is useful because it plays a prominent role in the classification of animals. The animals bearing a coelom are called coelomate while those lacking coelom are called acoelomate. A different type of coelom is also found in animals that are derived from blastocoel of blastula is called pseudocoelom.

This coelom is not lined by mesoderm. The coelomates include annelids, molluscs, arthropods, echinoderms, hemichordates, and chordates. Aschelminthes are pseudocoelomates. Acoelomates are poriferans, cnidarians, ctenophores and Platyhelminthes.

Q4. Distinguish between intracellular and extracellular digestion?

Answer:

The differences between intracellular and extracellular digestion are as follows

Intracellular digestion	Extracellular digestion
The process of digestion of food takes place inside the cells	The process of digestion of food takes place outside the cells in the alimentary canal.
Only a few enzymes are involved in the process of digestion	A number of enzymes are involved in extracellular digestion
The products of digestion are diffused into the cytoplasm	The products of digestion across the intestinal wall into the body parts
Mostly seen in unicellular animals	Mostly seen in multicellular animals

Q5. What is the difference between direct and indirect development?

Answer:

The differences between direct and indirect development are as follows

Direct development	Indirect development
In this type of development, an embryo develops into a young one without any intermediate larval stage	In this type of development, an embryo develops into a young one with some intermediate larval stages.
Young ones resemble the adult	Young ones do not resemble the adult
Seen in fishes, reptiles, birds and mammals	Seen in invertebrates and amphibians

Q6. What are the peculiar features that you find in parasitic Platyhelminthes?

Answer:

Platyhelminthes are mostly parasites. The peculiar features of Platyhelminthes are as follows

1. The body of Platyhelminthes is covered by thick body covering i.e. tegument. It protects the animal from the action of the digestive enzymes of the host.

2. The body of Platyhelminthes is dorsoventrally flattened.
3. Platyhelminthes possess adhesive structures such as suckers and hookers that are helpful in deriving nutrition from the host body
4. Locomotory organs are absent
5. The reproductive system is well developed. Mostly they are hermaphrodite.

Q7. What are the reasons that you can think of for the arthropods to constitute the largest group of the animal kingdom?

Answer:

The reasons for arthropods being the largest group of animals are as follows:

1. Presence of tough cuticle for protection of the body. It also helps in tolerating diverse terrestrial conditions.
2. Presence of striated muscles for quick movements
3. Tracheal respiration for direct supply of oxygen as in insects
4. Presence of jointed appendages for performing diverse functions
5. Well developed nervous system and sense organs.
6. Presence of pheromones for communication

Q8. Water vascular system is the characteristic of which group of the following:

- (a) Porifera

(b) Ctenophora

(c) Echinodermata

(d) Chordata

Answer:

(c). Echinodermata

Water vascular system is a characteristic feature of echinoderms which help in locomotion, respiration and capturing of food.

Q9. "All vertebrates are chordates but all chordates are not vertebrates" Justify the statement.

Answer:

Phylum chordata includes animals characterised by the presence of notochord. This phylum includes sub-phyla urochordata, cephalochordata and vertebrata. In vertebrates, the notochord is replaced by vertebral column, in urochordates and cephalochordates vertebral column is absent. Thus, all vertebrates are chordates but all chordates are not vertebrates as they can be urochordates and cephalochordates also.

Q10. How important is the presence of air bladder in Pisces?

Answer:

The air bladder is found to be present in the members of class Osteichthyes while it is absent in Chondrichthyes. The main function of air bladder is to regulate buoyancy and help the fishes to float in the water. It also prevents them from sinking in the water.

Since Chondrichthyes do not have air bladder they have to swim continuously to avoid sinking.

Q11. What are the modifications that are observed in birds that help them fly?

Answer:

Modifications in birds to help them fly are as follows:

1. The bones of birds are pneumatic. These contain air cavities making the bones light. This feature helps the birds in flying.
2. The body of birds is streamlined offering least resistance while flying.
3. Flight muscles are well developed
4. Forelimbs of birds are modified into wings to allow flying. Hindlimbs are used for walking, perching etc.
5. Additional air sacs are present to supplement respiration.

Q12. Could the number of eggs or young ones produced by an oviparous and viviparous mother be equal? Why?

Answer:

No, the number of eggs produced in oviparous animals and young ones in viviparous animals are not equal. It is because oviparous animals lay eggs outside the body of female in water, land etc so these eggs do not get the conditions that are necessary for the development and hatching of the eggs. Thus, due to the lack of parental care out of the total eggs produced the chances of survival are very low. To compensate for this

loss many eggs are produced. On the other hand, the embryos of viviparous animals are inside the body of a female and they get proper nourishment and conditions necessary for their growth and development. Even after they are born, they are provided with parental care. So, the chances of survival are high and only a few young ones could be supported.

Q13. Segmentation in the body is first observed in which of the following:

(a) Platyhelminthes

(b) Aschelminthes

(c) Annelida

(d) Arthropoda

Answer:

(c) Annelida

Q14. Match the following:

(a) Operculum (i) Ctenophora

(b) Parapodia (ii) Mollusca

(c) Scales (iii) Porifera

(d) Comb plates (iv) Reptilia

(e) Radula (v) Annelida

(f) Hairs (vi) Cyclostomata and Chondrichthyes

(g) Choanocytes (vii) Mammalia

(h) Gill slits (viii) Osteichthyes

Answer:

(a)-(viii), (b)-(v), (c)-(iv), (d)-(i), (e)-(ii), (f)- (vii), (g)- (iii), (h)- (vi)

(a) Operculum (viii) Osteichthyes

(b) Parapodia (v) Annelida

(c) Scales (iv) Reptilia

(d) Comb plates (i) Ctenophora

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Q15 . Prepare a list of some animals that are found parasitic on human beings.

Answer:

Taenia (Tapeworm)

Ascaris (roundworm)

Ancylostoma (hookworm)

Enterobius (pinworm)

Wuchereria (filarial worm)