



NCERT Solutions for 11th Class Biology:Chapter 4- Animal Kingdom



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Exercises

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

Answer

If we consider specific characteristics instead of fundamental features then each organism will be placed in a separate group and the entire objective of classification would not be achieved.

Classification of animals is also important in comparing different organisms and judging their individual evolutionary significance. If only a single characteristic is considered, then this objective would not be achieved.

2. If you are given a specimen, what are the steps that you would follow to classify it?

- First Step: Look for the presence or absence of vertebral column.
- Second Step: Identify the level of organization.
- Third Step: Look for symmetry, i.e. radial or bilateral or asymmetrical.
- Fourth Step: Look for presence or absence of body cavity.

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

Answer

The presence or absence of the body cavity gives a clue about a particular animal's position in evolutionary ladder. The absence of coelom indicates that the animal is yet to develop a functional division of labour to carry out various activities. This indicates towards a simplicity of activities going on

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inside the body. The presence of coelom paves the way for evolution of a more complex and more efficient organ system for various activities.

4. Distinguish between intracellular and extracellular digestion?

Answer

Intracellular digestion

The digestion of food occurs within the cell.

Digestive enzymes are secreted by the surrounding cytoplasm into the food vacuole.

Digestive products are diffused into the cytoplasm.

It is a less efficient method.

It occurs in unicellular organisms.

Extracellular digestion

The digestion occurs in the cavity of alimentary canal.

Digestive enzymes are secreted by special cells into the cavity of alimentary canal.

Digestive products diffuse across the intestinal wall into various parts of the body.

It is a more efficient method of digestion.

It occurs in multicellular organisms.

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

Answer

Direct development

Indirect development

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It is a type of development in which an embryo develops into a mature individual without involving a larval stage.

Metamorphosis is absent.

It occurs in fishes, reptiles, birds, and mammals.

It is a type of development that involves a sexually-immature larval stage, having different food requirements than adults.

Metamorphosis involving development of larva to a sexually-mature adult is present.

It occurs in most of the invertebrates and amphibians.

6. What are the peculiar features that you find in parasitic platyhelminthes?

Answer

Peculiar features in parasitic platyhelminthes are:

→ They have dorsiventrally flattened body and bear hooks and suckers to get attached inside the body of the host.

→ Their body is covered with thick tegument, which protects them from the action of digestive juices of the host.

→ The tegument also helps in absorbing nutrients from the host's body.

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

Answer

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Arthropods are the first phylum to have well developed systems to carry out different activities. There is distinct system for respiration, locomotion and reproduction. Their survival capacity is great because of elaborate system. This has helped them survive in diverse conditions. This can be one of the reasons why arthropods are the largest group among the animal kingdom.

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

(a) Porifera (b) Ctenophora (c) Echinodermata (d) Chordata

Answer

(c) Phylum, Echinodermata is having water vascular system. This system is used for locomotion, food and waste transportation, and respiration in this group. This system consists of Madreporite, Stone canal, Circular ring canal, Radial canals, Lateral canals and Tube feet.

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

Answer

The characteristic features of the phylum, Chordata, include the presence of a notochord and paired pharyngeal gill slits. In sub-phylum Vertebrata, the notochord present in embryos gets replaced by a cartilaginous or bony vertebral column in adults. Thus, it can be said that all vertebrates are chordates but all chordates are not vertebrates.

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

Answer

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Gas bladder or air bladder is a gas filled sac present in fishes. It helps in maintaining buoyancy. Thus, it helps fishes to ascend or descend and stay in the water current.

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

Answer

The modifications in birds help them fly:

- 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.

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

Answer

The numbers of eggs produced by an oviparous mother will be more than the young ones produced by a viviparous mother because in oviparous animals, the development of young ones takes place outside the mother's body. Their eggs are more prone to environmental conditions and predators. Therefore, to overcome the loss, more eggs are produced by mothers so that even under harsh environmental conditions, some eggs might be able to survive and produce young ones. On the other hand, in viviparous organisms, the development of young ones takes place in safe

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conditions inside the body of the mother. They are less exposed to environmental conditions and predators. Therefore, there are more chances of their survival and hence, less number of young ones is produced compared to the number of eggs.

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

(a) Platyhelminthes (b) Aschelminthes (c) Annelida (d) Arthropoda

Answer

The body segmentation first appeared in the phylum, Annelida.

14. Match the following:

- | | |
|-----------------|--------------------------------------|
| (a) | (i) Ctenophora |
| Operculum | |
| (b) | (ii) Mollusca |
| Parapodia | |
| (c) Scales | (iii) Porifera |
| (d) Comb plates | (iv) Reptilia |
| (e) Radula | (v) Annelida |
| (f) Hairs | (vi) Cyclostomata and Chondrichthyes |

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- (g) Choanocytes (vii) Mammalia
(h) Gill slits (viii) Osteichthyes

Answer

- (a) Operculum (viii) Osteichthyes
(b) Parapodia (v) Annelida
(c) Scales (iv) Reptilia
(d) Comb plates (i) Ctenophora
(e) Radula (ii) Mollusca
(f) Hairs (vii) Mammalia
(g) Choanocytes (iii) Porifera
(h) Gill slits (vi) Cyclostomata and Chondrichthyes

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

Answer

Ascaris, Wucheraria, Acylostoma, Taenia, Fasciola.

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