

1. Which organisms are called primitive and how are they different from the so-called – advanced organisms?

Ans: Organisms with simple cellular structure and no division of labour are called primitive. Advanced organisms, like mammals, have millions of cells and there are different organs and organ systems for different biological functions.

2. How do animals of Porifera differ from coelenterate animals? **Ans:**

- Animals from Porifera show the cellular level of organization, while those from Coelenterata show the tissue level of organization.
- In Porifera, there is no division of labour, while in Coelenterata some division of labour is seen.
- Porifera do not have a coelom, while Coelenterata has a coelom.

3. What are the differences between animals belonging to the Aves group and those in the mammalian group?

Ans.

Aves	Mammalia
1. Body is covered with feathers.	Body is covered with hairs.
2. Beak is present, teeth absent.	Teeth present, beak absent.
3. Forelimbs modified for flying.	Forelimbs modified for various activities.
4. Hollow bones for flying.	No hollow bones.
5. Streamlined body.	Body is not streamlined, except in whales.

4. What are the advantages of classifying organisms? **Ans:** Advantages of classification:

- Better categorization of living beings based on common characters.
- Easier study for scientific research.
- A better understanding of human relations and dependency on other organisms.
- Helps in cross-breeding and genetic engineering for commercial purposes.

5. How would you choose between two characteristics to be used for developing a hierarchy in classification?

Ans: Gross Character will “form the basis of the start of the hierarchy and fine character -will -form “the basis of further steps of single the hierarchy.

Example:

1. The presence of vertebral columns in human beings can be taken under Vertebrata.
2. The presence of four limbs makes them members of Tetrapoda.
3. The presence of mammary glands keeps them under Mammalia.

6. Explain how animals in Vertebrata are classified into further subgroups.

Ans: Vertebrata is divided into two superclasses, viz. Pisces and Tetrapoda. Animals of Pisces have streamlined bodies with fins and tails to assist in swimming. Animals of Tetrapoda have four limbs for locomotion.

Tetrapoda is further classified into the following classes:

- (a) **Amphibia:** Are adapted to live in water and on land. It can breathe oxygen through the skin when underwater.
- (b) **Reptilia:** These are crawling animals. Skin is hard to withstand extreme temperatures.
- (c) **Aves:** Forelimbs are modified into wings to assist in flying. Beaks are present. The body is covered with feathers.
- (d) **Mammalia:** Mammary glands present to nurture young ones. Skin is covered with hair. Most of the animals are viviparous.

7. Write three important characteristics of the kingdom

Monera. **Ans:** (a) Organisms are unicellular; do not have a defined

nucleus.

- (b) Organisms may have a cell wall or may not have a cell wall.
- (c) The mode of nutrition is either autotrophic or heterotrophic.

8. Write three important characteristics of the kingdom Protista.

Ans: (a) Organisms are unicellular and eukaryotic.

- (b) Use appendages for locomotion like cilia, flagella, etc.
- (c) Nutrition is either autotrophic or heterotrophic.

Example: algae, protozoa.

9. Give general characteristics of Porifera.

Ans: (a) Animals with pores all over the body.

- (b) The body is not well differentiated.
- (c) Non-motile animals remain attached to a solid support.
- (d) The body is covered with a hard outer skeleton. For example, sponges.

10. Give general characteristics of

'Platyhelminthes'? **Ans:** (a) These are flatworms.

- (b) Most of them are parasites.
- (c) Animals are triploblastic
- (d) No true internal body cavity.

Example: Tapeworm, Planaria, Liver fluke.

11. Give specific characteristics of

Coelenterata. **Ans:** (a) Water living animals.

- (b) The body is made of two layers of cells.
- (c) Some of them live in colonies (corals), while others have solitary life-span {Hydra}.
- (d) Body cavity present.

12. Give the characteristics of Arthropoda with 2

examples. **Ans:** (a) Arthropoda means jointed legs.

(b) Animals are bilaterally symmetrical and segmented.

(c) It has an open circulatory system.

(d) This is the largest group of animals.

Example: Spider, Scorpions, Crabs, house flies.

13. Give the characteristic features of

Echinodermata. **Ans:** (a) Spikes present on the skin.

(b) Free-living, marine animals.

(c) Triploblastic and have a coelomic cavity.

(d) Have peculiar water-driven tube systems used for moving around?

(e) Have a hard calcium carbonate structure that is used as a skeleton.

Example: Starfish, Sea urchin.

14. Give the characteristics of mammals.

Ans: (a) Mammals are warm-blooded animals.

(b) Four-chambered heart.

(c) Mammary glands for the production of milk to nourish their younger ones.

(d) The skin has hairs, sweat glands, and oil glands.

(e) Most of them produce their young ones (viviparous).

15. What are the conventions followed for writing the scientific

names? **Ans:** The conventions followed while writing the scientific names

are:

1. The name of the genus begins with a capital letter.

2. The name of the species begins with a small letter.

3. When printed, the scientific name is given in italics.

4. When written by hand, the genus name and the species name have to be underlined separately.

16. What are the characteristic features of mammals? **Ans:** Characteristics features of mammals:

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- (a) The body is covered with hair.
- (b) Skin is provided with sweat and sebaceous glands.
- (c) The heart is four-chambered.
- (d) Fertilization is internal.
- (e) Females have mammary glands to produce milk to nourish their young ones.
- (f) External ear—pinna, present.
- (g) Eyes have eyelids.
- (h) Warm-blooded.
- (i) Respiration through lungs,
- (j) Body cavity divided into- thorax and abdomen by muscular diaphragm.

17. What is the importance of classification? **Ans:** Classification is important because:

- (a) Classification makes the study of a wide variety, of organisms, systematic and easier.
- (b) It projects a picture of all organisms and their interrelation with each other.
- (c) It provides a base for the study of other branches of biology.
- (d) It is useful in the study of ecology, which deals with; the inter-relation of an organism with its environment.
- (e) It helps to establish a hierarchy of groups of organisms.

18. Give the characteristics of amphibians.

Ans: Amphibians are vertebrates that live on land and in water.

- (a) They are cold-blooded.
- (b) The heart is three-chambered.
- (c) Fertilization is external.

(d) Respiration through lungs on land and through moist skin when in water. n Frog, Toads.

19. Give the characteristics of

Aves. **Ans:** (a) Aves/birds can fly.

(b) Streamlined body.

(c) Hollow and light bones.

(d) Forelimbs are modified into wings.

(e) Warm-blooded animals, heart with four chambers.

(f) Egg-laying animals.

(g) Beak present, teeth are absent.

20. Why do most of the amphibians lay their eggs in water and reptiles lay their eggs on land?

Ans: Amphibians lay their eggs in water because the tadpoles or young, ones that hatch out of egg have gills at initial stages that allows them; to breathe in water.

In the case of reptiles, the young ones that hatch out do not have gills > and the hatching of eggs requires warmth that is given by the mother, the reptile.

21. What are the characteristic features of

reptiles? **Ans:** The characteristics of reptiles:

(a) Dry scaly, impermeable skin.

(b) Respiration through lungs.

(c) Cold-blooded

(d) Internal fertilization.

(e) The heart is three-chambered.

(f) Two pairs of pent dactyl limbs are present.

22. What is the basis for the classification of organisms?

Ans: The basis for classification are:

- (a) Presence or absence of a nucleus.
- (b) Organisms are unicellular, or multicellular.
- (c) Level of organization.
- (d) Autotrophic mode of nutrition or heterotrophic mode of nutrition.
- (e) Of the organisms that perform photosynthesis (Plants), their level, or organization of the body.
- (f) Of the animals, how does the individual's body develop and organize its different parts?

23. What is the difference between chromatin, chromosomes, and gene?

- Ans:** (1) **Chromatin:** It is a fine network of thread-like structures made up of DNA or RNA. It gets condenses to form chromosomes.
- (2) **Chromosome:** The chromosomes are made from chromatin material and are located in the cell.
- (3) Genes are found in chromosomes.

24. Give the difference between monocots and dicots.

Ans:

Monocots	Dicots
1. Seeds with one cotyledon.	1. Seeds with two cotyledons.
2. Leaves have parallel venation.	2. Leaves have reticulate venation.
3. Fibrous root system.	3. Taproot system.