Diversity in Living Organisms: In-Text Questions

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Q.1 Why do we classify organisms?

Sol. The millions of species are found on this earth. For everybody, it is very difficult to study about each of them in easiest way. Classification of organisms makes it easy to know about all the living organisms found on the earth. So, for easier study we classify the organisms.

Q.2 Give three examples of the range of variations that you see in life forms around you.

Sol. Three examples of the range of variations in life forms around us:

- Ants, cockroaches, spiders, houseflies, etc. live in the same houses. They look totally different from each other but they belong to Arthropoda.
- Humans, cow, cats and dogs live in the same neighbourhood area. They look totally different but they belong to Mammalia.
- In a park, wide variety of plants are found.

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Q.1 Which do you think is a more basic characteristic for classifying organisms?
(a) The place where they live.
(b) The kind of cells they are made of. Why?

Sol. The kind of cells an organism is made of is more basic characteristic of classifying organism because it gives a more accurate scientific angle for classification of the organisms. While, a particular living place can be full of organisms of a wide variety.

Q.2 What is the primary characteristic on which the first division of organisms is made?

Sol. Nature of cell or organisation of nucleus is the primary characteristic on which the first division of organisms is made. Based on this criteria, organisms can be classified into prokaryotic or eukaryotic.

Q.3 On what bases are plants and animals put into different categories?

Sol. Presence or absence of cell wall, mode of nutrition and locomotion are the bases on which plants and animals are classified.

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

Sol. An organism which have simple cellular structure and no division of labour is called primitive. While, an organism which have high level of division of labour by formation of organs and organ system is called advanced.

Q.2 Will advanced organisms be the same as complex organisms? Why?

Sol. Yes, advanced organisms will be the same as complex organisms because complexity in body design evolves because of necessity to adapt according to the changing atmosphere. Thus, a complex organism would be an advanced one.

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Q.1 What is the criterion for classification of organisms as belonging to kingdom Monera or Protista?

Sol. The criterion for classification of organisms as belonging to kingdom Monera or Protista is the presence or absence of well-defined nucleus. Organisms which do not have well defined nucleus belong to the kingdom Monera. While, organisms which have well defined and unicellular belong to the kingdom Protista.

Q.2 In which kingdom will you place an organism which is single-celled, eukaryotic and photosynthetic?

Sol. An organism which is single-celled, eukaryotic and photosynthetic, we will place this organisms in kingdom Protista Kingdom.

Q.3 In the hierarchy of classification, which grouping will have the smallest number of organisms with a maximum of characteristics in common and which will have the largest number of organisms?

Sol. In the hierarchy of classification, Kingdom Monera will have the smallest number of organisms with a maximum of characteristics in common and the kingdom- Animalia will have the largest number of organisms.

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Q.1 Which division among plants has the simplest organisms?

Sol. Division Thallophyta or algae have the simplest organisms.

Q.2 How are pteridophytes different from the phanerogams?

Sol. In pteridophytes, the reproductive organs are naked embryo and inconspicuous. They do not produce seeds. While in phaenrogams, reproductive organs are covered embryo and conspicuous. They produce seeds.

Q.3 How do gymnosperms and angiosperms differ from each other?

Sol. Gymnosperms and angiosperms are different:

Gymnosperms	Angiosperms
1. Seeds are naked.	1. Seeds are covered.
2. Gymnosperms do not bear flowers.	2. Angiosperms bear flowers.

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Q.1 How do poriferan animals differ from coelenterate animals?

Sol. Poriferan animals differ from coelenterate animals:

Poriferan	Coelenterate
1. Body of the organisms have numerous pores.	**1.** Pores are absent on body of organisms.
2. Coelm absent	**2.** Coelm present
3. Division of labour is not observed.	3. Division of labour is observed.

Q.2 How do annelid animals differ from arthropods?

Sol.

Annelid	Arthropods
1. The body is segmented into rings.	**1. Body is s**egmented into head, the thorax region and abdomen.
2. Skeleton is absent.	**2. Exoskeleton is present.**

Q.3 What are the differences between amphibians and reptiles?

Sol. The differences between amphibians and reptiles:

Amphibians	Reptiles
1. Amphibians require water to lay eggs.	**1.** Reptilians do not require water to lay eggs.
2. Fertilization is external.	**2.** Fertilization is internal.
3. Amphibians breathe through both skin and lungs.	**3.** Reptilians breathe through only lungs.

Q.4 What are the differences between animals belonging to the Aves group and those in the mammalian group?

Sol. The differences between animals belonging to the Aves group and those in the mammalian group are:

Aves group	Mammalian group
1. Body is covered with feathers.	**1.** Body is covered with hairs.
2. Mammary glands are absent	2. Mammary glands are present.
3. Modified forelimbs for fly.	3. Modified forelimbs for different activities.
4. Aves are oviparous	4. Most of the mammals are viviparous.