NCERT Solutions for Class 11 Biology

Chapter 1 – The Living World

1. Why are Living Organisms Classified?

Ans:

- The classification of living organisms makes it easier to study the various living organisms as they have a huge diversity, making it difficult to study them. The different living organisms are classified into multiple categories based on their common characteristics.
- Classification helps scientists and researchers to study them easily and systematically. Studying various living organisms will benefit humankind as it will help discover multiple things, including new medicines and the introduction of better-yielding varieties of crops.
- With millions of species and various local names, confusion arises. Scientists use a standardised naming system to categorize and identify organisms worldwide to address this.

2. Why are the Classification Systems Changing Every Now and Then?

Ans: The classification systems change according to the need as they arise. There are millions of plants, animals, and microorganisms found on earth while several new species have been identified by scientists every now and then.

The world consists of huge numbers of species that are still left to be discovered. As they get discovered, they consist of new characters so they need to be classified by a new system of

classification which needs to be prepared based on their characters. Thus, it results in the change in the previous system of classification leading to the formation of the new classification system.

3. What Different Criteria Would You Choose To Classify People That You Meet Often?

Ans: When we meet different people daily in our day-to-day life then we classify and categorize them based on various physical and characteristic features that include their level of education, their profession, their native place from where they belong, gender, physical features, etc.

4. What Do We Learn From the Identification of Individuals and Populations?

Ans: Following things we learn by identifying individuals and populations:

- Skin color
- Native place
- Sex
- Mother tongue
- Caste
- Religion
- Food habit

5. Below is the Scientific Name of Mango. Identify the Correctly Written Name.

1. **Mangifera Indica**
2. **Mangifera indica**

Ans: The two names of an individual are called the binomial system of nomenclature, here the two name includes the generic name which is written first, its first letter must be written in the capital letter while the second name is the specific names whose first letter must be written in the small letter. Here, the Genus name is Mangifera, and the species name is indica which is always written in lowercase. Thus, the correct way to write the scientific name of Mango is Mangifera indica.

6. Define a Taxon. Give Some Examples of Taxa at Different Hierarchical Levels.

Ans: A taxon is the classification of the living beings that are arranged on the basis of a particular level of hierarchy. Thus, the basic level of classification can be written as species, followed by genus, family, order, class, phylum, or division, all these categories are arranged in ascending order.

The Following are the hierarchical levels arranged in descending order:

- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

7. Can You Identify the Correct Sequence of Taxonomic Categories?

(a) Species → Order → Phylum → Kingdom

(b) Genus → Species → Order → Kingdom

(c) Species → Genus → Order → Phylum

Ans: The correct sequence of taxonomic categories can be observed in the case of both (a) and (c) as the hierarchy includes Species, Genus, Family, Order, Phylum, and Kingdom that are arranged in an ascending manner. While in the case of option (b) Species need to be written first then Genus is to be written since species is the basic unit of classification. Thus, option (b) does not show the correct sequence of hierarchy.

8. Try To Collect All the Currently Accepted Meanings for the Word Species. Discuss With Your Teacher the Meaning of Species in the Case of Higher Plants and Animals on One Hand and Bacteria on the Other Hand.

Ans: Species generally is a biological term that means the basic unit of classification. It is the group that consists of organisms that are similar in character and can undergo the process of inbreeding among themselves even in natural conditions and then result in the formation of fertile offspring. Species are also found to be those organisms that have a similar gene pool as well.

9. Define and Understand the Following Terms:

Ans: The definition of the following terms is:

(i) Phylum: Phylum refers to a taxonomic hierarchy or a taxon with one or more classes of organisms with similar characteristics. It comes below Kingdom and above Class

(ii) Class: The class is a group that consists of closely related orders. For example, the class Mammalia belongs to the orders Primata and Carnivora.

(iii) Family: Family is a group of individuals that are closely related genera. For example, Apes, Monkeys, and Man are related species that belong to the family Hominidae contains while in the case of plants, based on the vegetative and reproductive features the families are categorized.

(iv) Order: Order is composed of an individual that has closely related families. For example, Felidae and Canidae families are closely related and they belong to the order Carnivora.

(v) Genus: Genus includes the group of those species that are closely related to each other. Genus has more characteristics in common in comparison to species of other genera. For example, several species like nigrum, melongena, tuberosum, etc come under the genus Solanum.

10. Why is a Key Helpful in the Identification and Classification of an Organism?

- **Ans:** The key is also known as the taxonomical strides or taxonomical aid that is used for the classification and identification of the various living organisms that are unknown. This will help the researchers to identify the organisms and then classify them.

- A key is used by beginning with the first couplet and selecting the statement which fits the specimen. It directs the couplet to another couplet which provides the identity of the specimen.

- For example, the presence or absence of hair on the body can give a clue if an animal belongs to mammals or not. Separate taxonomic keys are required for each taxonomic category such as family, genus, and species for the purpose of identification. There are three types of keys which are dichotomous, polyclave, and probability.

11. Illustrate the Taxonomic Hierarchy With Suitable Examples of a Plant and an Animal.

Ans:

Taxonomic Categories	**Classification of a Plant: Mango**	**Classification Animal: of Human**
Kingdom	Plantae	Animalia
Phylum/Division	Angiospermae	Chordata
Class	Dicotyledonae	Mammalia
Order	Sapindales	Primata
Family	Anacardiaceae	Hominidae
Genus	Mangifera	Homo
Species	Indica	Sapiens