NCERT Exemplar Solutions of Class 11 Biology – Chapter: 1 The Living World.

LONG ANSWER TYPE QUESTIONS

1. What is meant by living? Give any four defining features of life forms.

Solution:

Living refers to the ability of an object to **self-replicate and self-regulate**.

Four defining characteristics of life:

1. Growth: Two types exist:

- **Extrinsic:** Material deposited on outer surface (non-living)
- **Intrinsic:** Growth from within the cell (living)

2. Reproduction: Biological process where organisms give rise to individuals similar to themselves:

- **Asexual reproduction:** Single parent
- **Sexual reproduction:** Two parents

3. Metabolism: Sum total of all chemical and biological reactions occurring simultaneously inside cells:

- **Catabolism:** Breakdown of molecules
- **Anabolism:** Building up of biomolecules

4. Consciousness: Ability of the body to sense and respond to external stimuli. This includes responsiveness to environmental changes, irritability, and awareness of surroundings.

2. A scientist has come across a plant which he feels is a new species. How will he go about its identification, classification and nomenclature?

Solution:

The scientist should follow these systematic steps: **1. Identification:**

- Use taxonomic aids (keys, flora, monographs)
- Compare morphological and anatomical features
- Study reproductive structures
- Examine microscopic characteristics

2. Classification:

- Determine taxonomic position in hierarchy
- Compare with closely related species
- Establish phylogenetic relationships
- Use molecular techniques if necessary

3. Nomenclature:

- Follow binomial nomenclature rules by Carl Linnaeus
- Assign genus and species names
- Ensure names follow ICBN rules
- Publish in recognized scientific journal
- Deposit type specimen in herbarium

3. Brassica campestris Linn

a. Give the common name of the plant.

b. What do the first two parts of the name denote?

c. Why are they written in italics?

d. What is the meaning of Linn written at the end of the name?

Solution:

a.Mustard

b. The first name (Brassica) represents the **genus** and the second (campestris) represents the **specific epithet**

c. They are written in italics to **indicate their Latin origin** and to distinguish scientific names from common text

d. "Linn" refers to **Linnaeus**, indicating that Linnaeus was the first scientist to describe and name this plant species. It gives credit to the author of the scientific name.

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