	INDIAN SCHOOL AL WADI AL KABIR	
Class: XI	**Department: SCIENCE 2023 – 24** **SUBJECT: BIOLOGY**	**Date of submission:** **21.09.2023**
Worksheet No: 2 **WITH ANSWERS**	**Chapter: LIVING WORLD**	**Note:** **A4 FILE FORMAT**
NAME OF THE STUDENT	**CLASS & SEC:**	**ROLL NO.**

MULTIPLE CHOICE QUESTIONS

Q1. Question 1.
The term phylum was given by
(a) Cuvier
(b) Haeckel
(c) Theophrastus
(d) Linnaeus

Question 2.
Binomial nomenclature was given by
(a) Theophrastus
(b) Linnaeus
(c) R. H. Whittaker
(d) Aristotle

Question 3.
A group of closely related classes is called.
(a) Genus
(b) Phylum
(c) Family
(d) Order

Question 4.
Systematics refers to the study of
(a) Nomenclature and identification of plants and animals
(b) Different kinds of organisms and their classification

(c) Diversity of kinds of organisms and their relationships
(d) Identification and classification of plants and animals

Question 5.
Basic unit or smallest taxon of taxonomy/ classification is
(a) species
(b) kingdom
(c) family
(d) variety

Question 6.
As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics
(a) Remain same
(b) Will increase
(c) Will decrease
(d) May increase or decrease.

CASE STUDY

CASE 1

Taxonomy is the study of the classification, characterization, nomenclature, and identification of organisms and it is a branch of science. Systematics is another branch of science that includes the study of the classification, nomenclature, identification, and evolutionary history of an organism. Thus, the taxonomic characteristics of an organism along with its evolutionary history come under systematics. In 1813, A.P de Candolle was the first to introduce the term taxonomy while systematics was introduced as the time of human civilization.

The term Systematics is derived from the Latin word ‘systema’ which means the systematic arrangement of organisms. Linnaeus (father of taxonomy) published his book Systema Naturae where the classification of plants, animals were based on taxonomy.

Neo-systematics is the branch of systematics that deals with the species to be the product of evolution. In 1940, Julia Huxley was the one who developed this concept. It involves the known characteristics of an organism and also the known evidence from different fields of biology.

Identification – It is the method of pacing the organisms in their exact place based on their classification. The identification of organisms can be done with the help of taxonomic keys.

Classification – The classification is the process of grouping various living organisms based on the common features that they share. A single group consists of those organisms that have similar common features. To make classification easier various groups are forms in which different organisms are placed depending upon their characteristics.

Characterization – The studying and understanding of characters of organisms and categorizing them like external and internal structure (morphology and anatomy), the structure of the cell (cytology), developmental process (embryology), and ecological information (ecology) of the organism.

(1) Who is the Father of New Systematics?

(a) Aristotle

b) Linnaeus

(c) Theophrastus

(d) Julian Huxley

(2) Which of the following takes into account evolutionary relationships between organisms?

(a) Cladistics

(b) Artificial System of Classification

(c) Natural System of classification

(d) Systematics

(3) Who is the father of taxonomy?

(4) Define taxonomy.

(5) What is mean by Systematics?

CASE 2

The naming of living organisms is called nomenclature. There are two types of names, one is vernacular (common names) and the other is the scientific name. Local names are used in local languages or common language and are easy for the local peoples but these names are not used by biologists because:

- For many species a single local name is often used.

- The local names sometimes lead to incorrect meanings about the organism.
- In different regions of the country or world, different local names are used for one organism.

Scientific names: The names are given according to certain rules and are followed by the biologist all over the world. To make it familiar around the world various international codes have been established.

These codes are:

- ICBN-International Code of Botanical Nomenclature
- ICZN-International Code of Zoological Nomenclature

(1) What is the expansion of ICBN?

(a) International Code for Botanical Nomenclature

(b) International Code for Biological Naming

(c) Indian Code for Biological Naming

(d) International Council for Biodiversity and Nature

(2) Which among the following is involved in the naming of the animals scientifically?

(a) ICBN

(b) ICAN

(c) ICPN

(d) ICZN

(3) Define nomenclature.

(4) What is ICZN?

(5) What is the need of nomenclature?

SHORT ANSWER TYPE QUESTIONS

Q7. Amoeba multiplies by miotic cell division. Is this phenomenon growth or reproduction?

Q 8. How do the following reproduce asexually?
(a)Hydra (b) Planaria (c) Protonema of moss (d) Fungi

Q9. A plant may have different names in different regions of the country or world. How do botanists solve this problem?

Q10. Name the four processes that are basic to taxonomy.

LONG ANSWER TYPE QUESTIONS

Q11. Describe binomial nomenclature with an example.

Q12. Explain the guidelines principles for nomenclature.

Q13. Define and understand the following terms.

(i)Phylum (ii)Class

ANSWERS

A1. (b) Haeckel

A2. (b) Linnaeus

A3. b) Phylum

A4. (c) Diversity of kinds of organisms and their relationships

A5. (a) species

A6. (c) Will decrease

Case Study 1:

(1) D

(2) D

(3) Carolus Linnaeus is the father of taxonomy.

(4) Taxonomy is the study of the classification, characterization, nomenclature, and identification of organisms and it is a branch of science.

(5) Systematics is another branch of science that includes the study of the classification, nomenclature, identification, and evolutionary history of an organism. Thus, the taxonomic characteristics of an organism along with its evolutionary history come under systematics.

Case Study 2:

(a) a

(b) d

(c) The naming of living organisms is called nomenclature. There are two types of names, one is vernacular (common names) and the other is the scientific name.

(d) ICZN is International Code of Zoological Nomenclature

(e) There are different languages and so different regional names for an organism. Therefore, scientists came up with the idea of binomial nomenclature. Binomial nomenclature is introduced to standardize the name of a living organism.

A7. Explanation: Mitosis is the division of a cell resulting in two cells, each with the same number of chromosomes as the original cell. Amoeba is a single celled organism and mitosis results in an increase in the number of organisms, so it is a means of reproduction.

A8. a) hydra divides by regeneration
b) planaria divides by budding
c) protonema of moss reproduces by fragmentation
d) fungi reproduce by fragmentation/budding or by spores.

A9. Botanists have solved this problem by setting International Code for Botanical Nomenclature (ICBN). Scientific naming ensures that each organism has only name in any part of the world. ICBN ensures that such name has not been used for any other organism.

A10. Characterization, Identification, Nomenclature, and Classification are the four processes basic to taxonomy.

A11. Linnaeus established the practice of binomial nomenclature—t
hat is, the denomination of each kind of plant by two words,

the genus name and the specific name, as Rosa canina, the dog rose.

For example, binomial name for Mango is Mangifera Indica where 'Mangifera' denotes generic name (genus) and 'indica' represents specific epithet (species).

Binomial nomenclature is significant because it enables people from all over the world to communicate clearly about different plant and animal species. It also ensures that each scientific name is distinct.

A12. The universal rules of nomenclature are as follows:

1. Biological names are in Latin and are written in italics.
2. The first word in the name indicates the genus, while the second word denotes its specific epithet.
3. When the name is handwritten, both the words are separately underlined.
4. When printed, the name is in italics.
5. The first letter of the first word is always written in capital, while the first letter of the specific epithet, i.e. the second word, is a small letter.

Examples: Homo sapiens, Mangifera indica

A13. (i) Phylum- Phylum is a level of taxonomic rank that exists below the kingdom and above the class. e.g. phylum chordata.
Equivalent of phylum is division in plant kingdom.
(ii) Class- A class is a taxonomic rank that exists below the phylum and above the order. (Give any two example for each)