

1.THE LIVING WORLD

Evaluation

1. A living organism is differentiated from non-living structure based on

a. Reproduction b. Growth c. Metabolism **d. non of above**

2. A group of organisms having similar traits of a rank is

a. Species b. Taxon c. Genus d. Family

3. Every unit of classification regardless of its rank is

a. Taxon b. Variety c. Species d. Strain

4. Which of the following is not present in same rank?

a. Primata b. Orthoptera c. Diptera d. Insecta

5. What taxonomic aid gives comprehensive information about a taxon?

a. Taxonomic Key b. Herbarium c. Flora d. Monograph

6. Who coined the term biodiversity?

a. Walter Rosen b. AG Tansley c. Aristotle d. AP de Candole

7. Cladogram considers the following characters

a. Physiological and Biochemical **b. Evolutionary and Phylogenetic**

c. Taxonomic and systematic d. None of the above

8. Molecular taxonomic tool consists of

a. DNA and RNA b. Mitochondria and Endoplasmic reticulum

c. Cell wall and Membrane proteins d. All the above

9. Differentiate between probiotics and pathogenic bacteria

Probiotic Bacteria	Pathogenic Bacteria
1.Useful bacterias	1.Harmful bacterias
2.Convert Milk into Curd	2.Causes Disease in plants&animals
3.Eg: Lactobacillus	3.Eg:Vibrio cholerae(cholera)

10. Why mule is sterile in nature?

Some animals(Eg:Male donkey with Female Horse) which can produce **sterile offspring** because of mating with closely related species.

11. List any five salient features of the family *Felidae*

-Felidae is basically a cat family.

-They are obligate Carnivores.

-They have sharp teeth and claws to catch and eat prey.

-Mostly solitary, secretive and nocturnal.

-Acute sense-hearing,smell,vision and touch.

12. What is the role of Charles Darwin in relation to concept of species?

-In 1859 Charles Darwin in his book **Origin of species**.

-It explains the evolutionary connection of species by the process of natural selection.

13. Why elephants and other wild animals are entering into human living area?

Elephant and Wild animals living areas destroying by Human and animals entering into human living area For searching its foods and shelter.

14. What is the difference between a Zoo and wild life sanctuary?

Zoo	Wild Life Sanctuary
1.Animals are kept for public exhibition	1.Animals protected from possible dangers
2.Zoo is an Artificial Habitat	2.Natural Habitat of the animals

15. Can we use recent molecular tools to identify and classify organisms?

-Molecular techniques and approaches such as **DNA barcoding** (short genetic marker in an organism's **DNA** to identify it as belonging to a particular species),

-**DNA hybridization** (measures the degree of genetic similarity between pools of DNA sequences),

- **DNA fingerprinting** (to identify an individual from a sample of DNA by looking at unique patterns in their DNA),

- Restriction Fragment Length Polymorphisms (RFLP) analysis (difference in homologous DNA sequences that can be detected by the presence of fragments of different lengths after digestion of the DNA samples), and

- Polymerase Chain Reaction (PCR) sequencing (to amplify a specific gene, or portion of gene,) are used as taxonomical tools.

16. Explain the role of Latin and Greek names in Biology.

-**This** list of latin and greek words commonly used in Systematic names is instended to help those unfamiliar with classical languages to understand and remember the scientific names of organisms.

-The binomial nomenclature used for animals and plants is largely derived from Latin and Greek words,as are some of the names used for higher Taxa,such as Orders and above.

EXTRA QUESTIONS

- 1.The term biodiversity was first introduced by **Walter Rosen (1985)**, and defined by E.D. Wilson.
- 2.The word taxonomy was coined by **Augustin Pyramus de Candolle (1813)**.
- 3.**Aristotle** is called the father of taxonomy (classical) and **Carolus Linnaeus** is the father of modern taxonomy.
- 4.**Aristotle** (384 to 322 BC), was the first to classify all animals in his **History of Animals**
- 5.**Theophrastus** (372-287 BC) continued his research on the classification of plants, and he was known as the "Father of Botany."
- 6.**John Ray** (1627–1705) In 1682 he published the *Methodus Plantarum Nova*, which contained about **18,000** plant species.
- 7.The Swedish biologist **Carolus Linnaeus (1707 - 1788)** father of modern taxonomy and founder of modern systematic.
- 8.R.H.Whittaker (1969) proposed the **Five kingdom Classification**
- 9.Three domain classification was proposed by **Carl Woese (1977)** and his co-workers.
- 10.**Bacteria** cell wall contains peptidoglycans.
11. In 1987, **Cavalier-Smith** revised the six kingdom system to **Seven Kingdom system**.
- 12.Crosses between male horse and female donkey results in Hinny (Sterile).
13. Linnaeus books, ***Species Plantarum* (1753)** and ***Systema Naturae*, (1758)**.
14. In July, 2017, a 9 years old boy discovered a new Freshwater species of **Jellyfish** in the Kodaikanal lake, Tamilnadu.
15. Birdman of India, Ornithologist **Dr. Salim Ali**.
16. ALIS → Automated Leafhopper Identification System.
- 17.DAISY → Digital Automated Identification System.
- 18.ABIS → Automatic Bee Identification System.
- 19.SPIDA → Species Identified Automatically (spiders, wasp and bee wing characters).
20. PCR.....Polymerase Chain Reaction .

1.Ecosystem

Ecosystem is a community of living organisms (plants and animals), non-living environment (including minerals, climate, soil, water, sunlight) and their interrelationships (**A.G. Tansley, 1935**).

2.Taxa-The scientific term used for these categories is **taxa** (taxon–singular). Taxa indicates categories at different levels, for example Kingdom Animalia, includes multicellular animals such as reptiles, mammals, etc.

3.Taxonomy-All living organisms can be classified into different taxa. This science of classification is called **taxonomy**.-Taxonomy (G. *taxis*- arrangement ; *nomos*-law) is the science of arrangement of living organisms along with classification, description, identification, and naming of organisms which includes all flora and fauna including microorganisms of the world.

4.Cladogram

-Ernst Haeckel introduced the method of representing evolutionary relationships with the help of a tree diagram known as cladogram.

-Arranging organisms on the basis of their similar or derived characters which differ from the ancestral characters produced a phylogenetic tree or cladogram.

5.Define five kingdom classification

-R.H.Whittaker (1969) proposed the **Five kingdom Classification**, the Kingdoms defined by him were Monera, Protista, Fungi, Plantae, and Animalia based on the cell structure, mode of nutrition, mode of reproduction and phylogenetic relationships.

6.Extremophiles

The prokaryotes which have the ability to grow in extreme conditions like volcano vents, hot springs and polar ice caps, hence are also called **extremophiles**.

7. Taxonomical Hierarchy

-In biological classification, the taxonomical hierarchy includes seven major categories namely kingdom, phylum, class, order, family, genus and species.

8. Monotypic Genus

-In some genus there is only one species which is called as **monotypic genus** (e.g. Red panda is the only species in the genus *Ailurus* : *Ailurus fulgens*)

9.Polytypic Genus

-If there are more than one species in the genus it is known as **polytypic genus**,

- for example 'cats' come under the Genus *Felis*, which has a number of closely related species, *Felis domestica* (domestic cat), *Felis margarita* (jungle cat). *Felis silvestris* (wild cat).

10Tautonymy:

-The practice of naming the animals in which the generic name and species name are the same, is called Tautonymy. e.g. *Naja naja* (The Indian Cobra).

11.The basic need for classifications are:

To identify and differentiate closely related species

To know the variation among the species

To understand the evolution of the species

To create a phylogenetic tree among the different groups

To conveniently study living organisms

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