

Questions with Answers:

15 x 1 = 15

**Biology**

1. Biological organisation starts with

- (a) cellular level (b) organismic level (c) atomic level **(d) submicroscopic molecular level.**

**Explanation:**

Molecular assemblies are large organised sets of molecular units that make up parts of organelles. For example one common macromolecular assembly is the microtubule which is important in forming structure in the cell related to maintaining the cell structure or related to cell movement. The cell (plasma) membrane surrounds many organelles and the cell is a highly organised molecular assembly.

2. 'X' and 'Y' are the components of Binomial nomenclature. This naming system was proposed by 'Z'.

**(a) X- Generic name, Y- Specific epithet, Z- Carolus Linnaeus**

- (b) X- Specific epithet, Y- Generic name, Z- R.H. Whittaker (c) X- Specific epithet, Y- Generic name, Z- Carolus Linnaeus  
(d) X- Generic name, Y- Specific epithet, Z- R.H. Whittaker

**Explanation:**

Binomial nomenclature is a system of providing a name with two components- the Generic name (X) and the specific epithet(Y). This naming system given by Carolus Linnaeus (Z) is being practised by biologists all over the world.

3. Select the correctly written scientific name of Mango which was first described by Carolus Linnaeus.

- (a) Mangifera Indica (b) Mangifera indica Car. Linn. **(c) Mangifera indica Linn** (d) Mangifera indica

**Explanation:**

According to binomial nomenclature, the first word denoting the genus starts with a capital letter while the specific epithet starts with a small letter. E.g., scientific name of mango is Mangifera indica. Name of the author appears after the specific epithet, i.e., at the end of biological name and is written in an abbreviated form, e.g., Mangifera indica Linn. It indicates that this species was first described by Linnaeus

4. Which of the following is against the rules of ICBN?

- (a) Hand written scientific names should be underlined  
(b) Every species should have a generic name and a specific epithet.  
(c) Scientific names are in Latin and should be italicized.  
**(d) Generic and specific names should be written starting with small letters.**

**Explanation:**

According to International Code for Botanical Nomenclature (ICBN) the first word denoting the genus starts with a capital letter while the specific epithet starts with a small letter.

5. ICBN stands for

- (a) International Code of Botanical Nomenclature** (b) International Congress of Biological Names  
(c) Indian Code of Botanical Nomenclature (d) Indian Congress of Biological Names.

**Explanation:**

The International Code of Botanical Nomenclature (ICBN) is a set of rules and recommendations dealing with the formal botanical names given to plant. The foundations of ICBN are given in book written by C. Linnaeus named Philosophia Botanica. It is independent of zoological nomenclature

6. Biosystematics aims at

- (a) the classification of organisms based on broad morphological characters  
(b) delimiting various taxa of organisms and establishing their relationships  
**(c) the classification of organisms based on their evolutionary history and establishing their phylogeny on the totality of various parameters from all fields of studies**  
(d) identification and arrangement of organisms on the basis of their cytological characteristics

**Explanation:**

Biosystematics is the study of identification nomenclature, classification and relationships amongst living beings. In other words, it is the study of diversity of organisms, their comparative and evolutionary relationships based on comparative anatomy, ecology, physiology, biochemistry and other fields.

7. The book 'Genera Plantarum' was written by

- (a) Engler and Prantl **(b) Bentham and Hooker** (c) Bessey (d) Hutchinson.

**Explanation:**

Bentham and Hooker in their monumental work Genera Plantarum (1862-1883) have provided elaborate keys for the easy identification of 202 natural orders and genera.

8. Linnaeus evolved a system of nomenclature called

- (a) monomial (b) vernacular **(c) binomial** (d) polynomial.

**Explanation:**

Binomial nomenclature Was first given by C. Linnaeus (1735) in his book "Systema Naturae" and later in "Species Plantarum" (1753). He used two latin words for any organism, the first being generic name and the second is specific name. "The generic name begins with capital letter and the species name with small letter

9. Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature?

- (a) The names are written in Latin and are italicised. (b) When written by hand the names are to be underlined.

**(c) Biological names can be written in any language.**

(d) The first word in a biological name represents the genus name and the second is a specific epithet.

**Explanation:**

Biological names are derived either from Latin language or are latinised. This is because Latin language is a dead language and therefore it will not change in form or spellings with the passage of time.

10. House fly belongs to \_\_\_\_\_ Family.

- (a) Cyprinidae (b) Hominidae (c) Calliphoridae **(d) Muscidae**

**Explanation:**

Housefly belongs to Family Muscidae.

11. In the taxonomic categories which hierarchical arrangement in ascending order is correct in case of animals?

**(a) Kingdom, Phylum, Class, Order, Family, Genus, Species**

(b) Kingdom, Class, Phylum, Family, Order, Genus Species (c) Kingdom, Order, Class, Phylum, Family, Genus Species

(d) Kingdom, Order, Phylum, Class, Family, Genus, Species

**Explanation:**

Hierarchy of categories is the classification of organisms in a definite sequence of categories (taxonomic categories) in a descending order starting from Kingdom and reaching upto Species or an ascending order from Species to Kingdom. The number of similar characters of categories decreases from lowest rank (Species) to highest rank (Kingdom). The taxonomic hierarchy includes seven obligate categories-Kingdom, Division or Phylum, Class, Order, Family, Genus and Species.

12. Study the four statements (A-D) given below and select the two correct ones out of them,

A. Definition of biological species was given by Ernst Mayr.

B. Photoperiod does not affect reproduction in Plants.

C. Binomial nomenclature system was given by R.H. Whittaker

D. In unicellular organisms, reproduction is synonymous with growth.

The two correct statements are

- (a) B and C (b) C and D **(c) A and D** (d) A and B.

**Explanation:**

Photoperiod affects flowering and reproduction in plants. Binomial nomenclature system was given by Carolus Linnaeus.

13. The common characteristics between tomato and potato will be maximum at the level of their

- (a) family** (b) order (c) division (d) genus.

**Explanation:**

Potato (*Solanum tuberosum*) and tomato (*Lycopersicon esculentum*) both belong to Family Solanaceae, which is commonly called as the "potato family". Many plants belonging to this family are sources of vegetables, fruits, etc.

14. Which of the following is less general in characters as compared to genus?

- (a) Species** (b) Division (c) Class (d) Family

**Explanation:**

A taxonomic hierarchy is the sequence of arrangement of taxonomic categories in a descending order during the classification of an organism. There are seven obligate categories - kingdom, division, class, order, family, genus and species. Species is the lowest category while kingdom is the highest category. The number of common characters is maximum in case of organisms placed in the lowest category.

Number of common characters decreases with the rise in category. Species are the smallest group of individuals which can be recognized by ordinary methods as groups and which are consistently and persistently different from other groups because their characters are less general.

15. Taxon' is the unit of a group of

- (a) order **(b) taxonomy** (c) species (d) genes.

**Explanation:**

Taxon refers to all the categories in the taxonomic hierarchy. It may be a kingdom, class, order, family, genus or species. It is any level of grouping or organism. Each of these categories has divided further into intermediate categories like subkingdom, subdivision, superclass, subgenus, subspecies, etc.