

01

The Living World

TOPIC 1

Diversity and Taxonomy

01 The contrasting characteristics generally in a pair used for identification of animals in taxonomic key are referred to as

[NEET (Odisha) 2019]

- (a) lead (b) couplet
(c) doublet (d) alternate

Ans. (b)

Couplet is the contrasting characteristic generally in a pair used for identification of animals in taxonomic key. It represents the choice made between two opposite options, each half of a couplet is called lead. Separate taxonomic keys are required for each taxonomic category like family, genus species.

02 Match the items given in Column I with those in Column II and select the **correct** option given below

[NEET 2018]

Column I	Column II
1. Herbarium	(i) It is a place having a collection of preserved plants and animals.
2. Key	(ii) A list that enumerates methodically all the species found in an area with brief description aiding identification.

Column I	Column II
3. Museum	(iii) It is a place where dried and pressed plant specimens mounted on sheets are kept.
4. Catalogue	(iv) A booklet containing a list of characters and their alternates which are helpful in identification of various taxa.

- 1 2 3 4
(a) (ii) (iv) (iii) (i)
(b) (iii) (ii) (i) (iv)
(c) (i) (iv) (iii) (ii)
(d) (iii) (iv) (i) (ii)

Ans. (d)

Herbarium is a place where dried and pressed plant specimens, mounted on sheets are kept systematically. It is a repository or store house for future use. **Key** is a booklet containing list of characters and their alternates which are helpful in identification of various taxa-class, order, family, genus and species.

Museum is an institution where artistic and educational materials are exhibited to the public. The materials available for observation and study are called a collection.

Catalogue is a list or register that enumerates methodically all the species found in a particular place. It often possesses brief description of species that aids in identification. Therefore, option (d) is correct.

03 The label of a herbarium sheet does not carry information on

[NEET 2016, Phase II]

- (a) date of collection
(b) name of collector
(c) local names
(d) height of the plant

Ans. (d)

Herbarium is a collection of plants that usually have been dried, pressed, preserved plant on sheets and are arranged in accordance with any accepted system of classification for future reference and study. It does not have information on height of the plant.

04 Study the four statements (I-IV) given below and select the two correct ones out of them :

[NEET 2016, Phase II]

- I. Definition of biological species was given by Ernst Mayr.
- II. Photoperiod does not affect reproduction in plants.
- III. Binomial nomenclature system was given by RH Whittaker.
- IV. In unicellular organisms, reproduction is synonymous with growth.

The two correct statements are

- (a) II and III (b) III and IV
(c) I and IV (d) I and II

Ans. (c)

Statements I and IV are correct. The correct form of II and III are as follows:

- (II) Photoperiod does affect the reproduction in plants.
- (III) Binomial nomenclature was given by Carolus Linnaeus.

05 Biological organisation starts with
[CBSE AIPMT 2007]

- (a) sub-microscopic molecular level
- (b) cellular level
- (c) organismic level
- (d) atomic level

Ans. (a)

Biological organisation starts with sub-microscopic molecular level, where four types of molecules, i.e. carbohydrates, lipids, proteins and nucleic acids are organised into organelles of cell.

06 The living organisms can be un-exceptionally distinguished from the non-living things on the basis of their ability for
[CBSE AIPMT 2007]

- (a) responsiveness to touch
- (b) interaction with the environment and progressive evolution
- (c) reproduction
- (d) growth and movement

Ans. (b)

All living organisms interact with their environment and shows progressive evolution. They can sense and respond to environmental uses. On the other hand reproduction, growth and movement cannot be all inclusive defining properties of living organisms.

07 Which one of the following is an example of negative feedback loop in humans?
[CBSE AIPMT 2007]

- (a) Constriction of skin blood vessels and contraction of skeletal muscles when it is too cold
- (b) Secretion of tears after falling of sand particles into the eye
- (c) Salivation of mouth at the sight of delicious food
- (d) Secretion of sweat glands and constriction of skin blood vessels when it is too hot

Ans. (a)

Skin blood vessels constrict and skeletal muscles contract due to the cold is an example of negative feedback mechanism of homeostasis.

08 Carbohydrates the most abundant biomolecules on earth, are produced by [CBSE AIPMT 2005]

- (a) all bacteria, fungi and algae
- (b) fungi, algae and green plant cells
- (c) some bacteria, algae and green plant cells
- (d) viruses, fungi and bacteria

Ans. (c)

Some photosynthetic bacteria such as Rhodospseudomonas can prepare carbohydrates. But during this type of food synthesis O_2 is not evolved because, in this case hydrogen donor is other than H_2O .

Algae (green and blue-green) and all green plant cells prepare their food (carbohydrate) through photosynthesis. Here, hydrogen ions are donated by water molecules by the process of photolysis of water, i.e. O_2 is released during this type of food synthesis.

09 More than 70% of world's fresh water is contained in

- (a) antarctica [CBSE AIPMT 2005]
- (b) greenland
- (c) glaciers and mountains
- (d) polar ice

Ans. (d)

Three fourth surface of earth (about 71% of total) is occupied by oceans which contain 97.5% of total water. This is marine water with about 3.5% salt contents.

Rest water, i.e. 2.5% is freshwater which occurs on land. Most amount of this water (about 1.97%) occurs as Frozen ice caps and glaciers and 0.5% fresh water occurs as ground water.

10 There is no life on moon due to the absence of [CBSE AIPMT 2002]

- (a) O_2
- (b) water
- (c) light
- (d) temperature

Ans. (b)

Water is an essential constituent of cytoplasm of all living organisms. It helps in distribution of substances within the organism, elimination of waste products, maintenance of body temperature, etc. It is absent on the moon.

Anaerobic organisms that can live in the absence of O_2 . Light and temperature are already known to exist on the moon.

11 The most important feature of all living systems is to
[CBSE AIPMT 2000]

- (a) utilise oxygen to generate energy
- (b) replicate the genetic information
- (c) produce gametes
- (d) utilise solar energy for metabolic activities

Ans. (b)

Reproduction is necessary for continuity of life. However, production of gametes is not only method for this. A number of organisms reproduce asexually. In any case, cell division is necessary which involves replication of DNA.

12 Homeostasis is [CBSE AIPMT 1991]

- (a) tendency to change with change in environment
- (b) tendency to resist change
- (c) disturbance in regulatory control
- (d) plants and animals extracts used in homeopathy

Ans. (b)

Homeostasis (Gr. homeos = similar; stasis = standing) is the tendency of maintaining a relatively stable internal physiological environment in an organism, or steady-state equilibrium in a population or ecosystem. It is carried out by regulatory mechanisms which coordinate internal functions such as providing nutrients to cells and transporting substances.

13 Employment of hereditary principles in the improvement of human race is [CBSE AIPMT 1990]

- (a) Euthenics
- (b) Eugenics
- (c) Euphenics
- (d) Ethnology

Ans. (b)

Eugenics refers to improvement of human race by modifying fertility or employing the hereditary principles.

TOPIC 2

Binomial Nomenclature

- 14** Select the correctly written scientific name of Mango which was first described by Carolus Linnaeus. **[NEET (National) 2019]**
- (a) *Mangifera indica* Linn
 - (b) *Mangifera indica*
 - (c) *Mangifera Indica*
 - (d) *Mangifera indica* Car. Linn.

Ans. (a)

The correct form of writing the scientific name of mango as described by Carolus Linnaeus is *Mangifera indica* Linn.

As per binomial nomenclature rules, the name of an organism contains a generic and specific name. The former begins with capital letter while the later begins

with small letter. The name of taxonomist is written in Roman script and it is written in abbreviated form.

- 15** Which of the following is against the rules of ICBN? **[NEET (Odisha) 2019]**

- (a) Handwritten 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 italicised
- (d) Generic and specific names should be written starting with small letters

Ans. (d)

Statement (d) is against the rules of ICBN because the universal rule of nomenclature is that the first word denoting the genus starts with a

capital letter while the specific epithet starts with a small letter. It can be illustrated with the example of *Mangifera indica*.

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

[NEET 2016, Phase I]

- (a) The first word in a biological name represents the genus name and the second is a specific epithet
- (b) The names are written in Latin and are italicised
- (c) When written by hand, the names are to be underlined
- (d) Biological names can be written in any language

Ans. (d)

Biological names originate from Latin language and are printed in italics.