QB365

Important Questions - The Living World

11th Standard CBSE

Biology

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 50

Section-A

1) How do you living things grow? **1**

2) Write the name of any two organisms that show fragmentation **1**

3) Amoeba multiplies by mitotic cell division. Is this phenomenon growth or reproduction? Explain. **1**

4) Define metabolism. **1**

5) Why is it difficult to assign common names to all living organisms ? **1**

6) Why are living organisms classified? **1**

7) The concept of new systematics was developed by which scientist? **1**

8) Carolus Linnaeus is considered as father of taxonomy. Name two other botanists known for their contribution to the field of taxonomy. **1**

9) Which is the largest botanical garden in the world? Name a few well-known botanical gardens in India. **1**

10) How is key helpful in identification of living organisms? **1**

Section-B

11) Non-living things also grow. Explain the statement with example. **2**

12) Which organisms can sense and respond to their environment? How do humans sense their environment? **2**

13) Reproduction cannot be the defining characteristic of living organisms.Justify. **2**

14) Why is death considered as regulatory process on the earth? **2**

15) What different criteria would you choose to classify people that you meet often? **2**

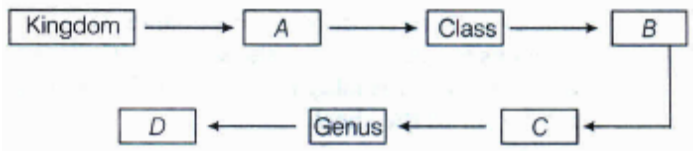
16) In which fields taxonomical aids are helpful? WHy taxonomic aids are used in these studies? Which different taxonomical aids are used by the biologists? **2**

17) Metabolic reactions can be shown outside the body in cell-free systems experimentally.Why are cells required in living organisms? **2**

18) Amoeba is a living matter and a sand particle is non-living matter.Explain. **2**

19) How do you prepare your own herbarium sheets? What are different tools you carry with you while, collecting plants for the preparation of a herbarium? What information should a preserved plant material on the herbarium sheet provide for taxonomic studies? **2**

20) Write the relation between taxonomic category and taxonomic hierarchy.Fill in the missing category in following hierarchical arrangement in ascending order. **2**



Section-C

21) Some of the properties of tissues are not the properties of constituents of its cells. Give three examples to support the statement. **5**

22) Brassica campestris Linn **5**

(i) Give the common name of the plant.

(ii) What do the first two parts of the name denote?

(iii) Why are they written in italics?

(iv) What is the meaning of Linn written at the end of the name?

23) Try to collect all the currently accepted meanings for the word 'species'. Discuss with your teacher the meaning of species in case of higher plants and animals on one hand and bacteria on the other hand. **5**

24) A scientist came across a plant, which he feels is a new species. How will he proceed towards its identification, classification and nomenclature? **5**

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Section-A

1) Living things grow either by increase n cell number or increase in cell mass. **1**

2) (i) Filamentous algae (ii) Peritonea of mosses **1**

3) **1**

In unicellular organisms like Amoeba, growth is synonyms with reproduction and takes place by increase in number of cells by mitotic cell division.

4) **1**

The sum total of all chemical reactions occurring in an organism due to specific interactions amongst different types of molecules within the cells, is called metabolism.

5) It is because of the great variability in languagea in different parts of the word. **1**

6) **1**

Living organisms are classified because (i) there are millions of organisms on the earth, which need a proper system of classification for their easy identification and methodical studies. (ii) A number of new organisms are discovered each year. They require a particular system to be identified and to find out their correct position in a group.

7) Julian Huxley **1**

8) George Bentham and Joseph Dalton Hooker. **1**

9) **1**

Largest botanical garden in the world is Royal Botanical Garden, Kew (London). Some well-known botanical gardens in India are (i) National Botanical Garden, Lucknow (ii) Lloyed Botanical Garden, Darjeeling (iii) Indian Botanical Garden, Sibpur, Kolkata

10) **1**

Key is a booklet containing a list of characters and their alternates, which are helpful in identification of various taxa, i.e., class, order, family, genus and species.

Section-B

11) **2**

Non- living things also show growth, e.g., a mountain or sand dune grows by accumulating material externally on surface. But, this growth is considered as external growth in comparison to the growth of living things which is internal.

12) **2**

All organisms from the prokaryotes to the most complex eukaryotes can sense and respond to their environment.

The human have five sense organs, which help them to sense their environment.These are eyes, ears, nose, tongue and skin.

13) **2**

There are many organisms, which never reproduce in their life, although all other characteristic of living things are present in them, e.g., sterile worker bees, mules, infertile human couples, etc., Hence, reproduction cannot be an all-inclusive defining property of living things.

14) **2**

Every organism which is born on this earth, has some role with respect to other organism, ecosystem and biospheres existing on earth. After performing its functional part in its life cycle it contributes to the cycle of nature and dies. This way natural control on all natural process are maintain. This is why death of organism is inevitable.

15) We can recognise and classify the people we often meet on the basis of their **2**

(i) language (ii) behaviour (iii) geographical distribution

(iv) sex (v) weight (vi) height, etc.

16) **2**

Taxonomical aids are helpful in various fields such as agriculture, forestry, industry and in knowingg our bioresources.

All the above mentioned studies need correct identification and classification of organisms. Identification of organisms require intensive laboratory and field studies.

Biologists use herbarium, botanical gardens, museum, zoological parks and taxonomical keys while doing taxonomical studies.

17) **2**

Metabolic reactions can be demonstrated outside the body in cell-free systems. When an isolated metabolic reaction is performed outside the body of an organism in a test tube, it is neither living nor non-living. Hence, while metabolism is a defining feature of all living organisms without exception, isolated metabolic reactions *in vitro* are not living things, but are living reactions. Here, it can also be said that cellular organisation of the body is the defining feature of life forms.

18) **2**

Amoeba shows various characteristics such as growth, reproduction, metabolism, etc., that are specific to living organisms. On the other hand, a sand particle does not show any reproduction and metabolism therefore, it is considered as non-living matter. Though, the sand particle shows growth which is also a characteristic of living things, but in this the growth is only external due to aggregation of many sand particles and not internal. Therefore, Amoeba is a living matter while a sand particle is a non-living matter.

19) **2**

For the preparation of herbarium sheets, a sheet of about 29 x 41 cm is cut from chart paper. Dried specimens are mounted on the sheets with the help of glue or cellotape. A label is pasted on sheets at lower right corner of the sheet.

Tools for collection are

(i) digger
(ii) pruning knife
(iii) scissors
(iv) vasculum
(v) polythene bags
(vi) old newspapers
(vii) blotting papers
(viii) plant press
(ix) field notebook
(x) magnifying glass

Information from herbarium sheets. The label of herbarium sheets has information like scientific name of plant, family, common and English name, local name, collector's name, place, time and date of collection.

20) **2**

The category is a part of overall taxonomic arrangement called taxonomic category.All the categories together constitute the taxonomic hierarchy.

A - Phylum, B - Order, C - Family and D - Species

Section-C

21) **5**

A living thing has multiple levels of organisation. Each lavel of organisation has its own properties, which are not found in its constituents.

Examples of three tissues supporting the statements are

(i) **Cardiac Muscle Tissue** It is contractile tissue present only in heart. Cell junctions fuse the plasma membrane of cardiac muscle cells and make them stick together. When one cell receives a signal to contract. It means a single cell cannot contract, while there are some fusion points, which allow the cells to contract as a unit.

(ii) **Blood** It is a fluid connective tissue. The individual components of blood, i.e., RBCs, WBCs and platelets have different properties but as a unit they make the blood, a tissue serving many functions.

(iii) **Bone** It is a hard connective tissue that forms the framework of the body. The individual cells inside the bone do not have this property.

22) **5**

(i) Common name Mustard.

(ii) Parts of the name First part represents the genus or generic name, while the second part represents the specific name.

(iii) Italics In order to highlight their Latin origin.

(iv) Linn It is the abbreviation of the name of scientist Linnaeus, who gave the name to the plant.

23) **5**

(i) Species is a basic unit of classification, where individuals share common characteristics.

(ii) It is a natural population or group of natural population of individuals having similar morphology, anatomy, physiology and cytology.

(iii) Species is an assemblage of structurally similar individuals, which can interbreed freely, but are reproductively isolated from members of other species.

Higher plants and animals These are sexually reproducing organisms. So, the third definition of species is applicable in case of higher plant and animals.

Bacteria The second definition of the species can be applied to bacteria. As bacteria do not reproduce sexually. Therefore, the criterion of free interbreeding and reproductive isolation cannot be applied to them.

24) The scientist will first identify the family to which the plant belongs **5**

He will further follow the given steps

(i) Using genus key, the genus is identified.

(ii) Using species key, identification is carried out

(iii) As the genus is known, the species is provided now with a latinised name as per guidelines.

(iv) Type specimen or holotype is placed in a recognised herbarium or museum.

(v) Name, description and report of the discovery is published in a reputed scientific journal.