



Solution SAQ - 1

- (a) Point Diversity - This is a diversity present on the smallest scale.
- (b) Alpha Diversity - Also known as local diversity and includes variety of organisms local to a particular habitat.
- (c) Gamma Diversity - It represents the diversity of a larger unit such as an island or a landscape.
- (d) Epsilon Diversity - It is also called regional diversity and includes total diversity of a group of gamma diversity areas.

Solution SAQ - 2

A single plant may be considered as a unit of alpha diversity; a leaf as an area of point diversity; a group of plants occurring together as an area of gamma diversity and the forest within which the plants are located as an area of epsilon diversity.

Solution SAQ - 3

Classification is essential to understand the inter-relationship among different groups of organisms.

Solution SAQ - 4

The basis of classification is to study the diversity among living organisms in an effective way.

Solution SAQ - 5

There are two broad categories of cell structure: Prokaryotic and Eukaryotic. Thus, two broad groups can be formed - one having prokaryotic cell structure and the other having eukaryotic cell structure.

Solution SAQ - 6

Seven categories of hierarchical classification are: Kingdom, Phylum, Class, Order, Family, Genus and Species.

Solution SAQ - 7

Features of plants:

- (a) The growth of plant body is often unlimited and continues till death.
- (b) The asexual reproduction or vegetative reproduction is common in the plants.

Features of animals:

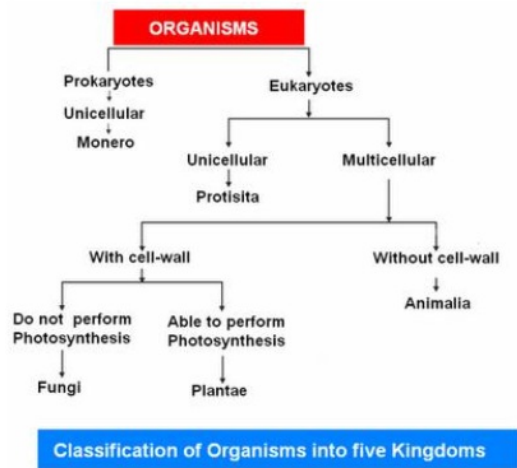
- (a) They have definite shape and size.
- (b) Animals have distinct excretory organs.

Solution SAQ - 8

The two kingdom system of classification was not found to be suitable to many scientists due to large diversity among the organisms and many other limitations. The main demerits of the system are -

- (i) Many protozoans possess characters of both plants and animals. For example, Euglena has animal characters but it contains chlorophyll.
- (ii) Bacteria and Cyanobacteria (blue-green algae) have many similarities between them and are quite different from other organisms. Thus, it is difficult to place them in their plant or animal kingdom.

Solution SAQ - 9



Solution SAQ - 10

Two characteristics of Kingdom Protista are:

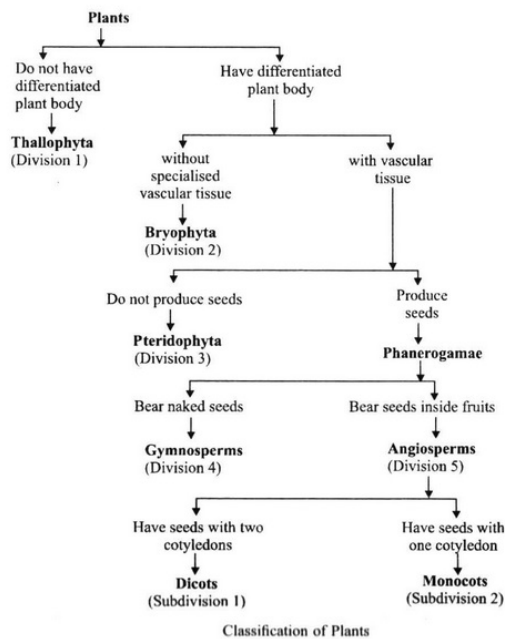
(i) Some of the organisms use appendages, such as hair-like cilia or whip-like flagellum.

(ii) Their mode of nutrition can be autotrophic or heterotrophic.

Solution SAQ - 11

Lichens occur in hostile habitats such as barren rocks, walls, tree trunks and icy regions where they can be seen as slow growing large coloured patches. They are a source of essences, dhup, havan samagri, some medicines and dyes.

Solution SAQ - 12



Solution SAQ - 13

Four General characters of Thallophyta are:

(i) It includes most primitive and simple plants.

(ii) There is no vascular system.

(iii) The reproductive organs are simple, single-celled.

(iv) There is no embryo formation after fertilization.

Solution SAQ - 14

Algae:

(i) They contain photosynthetic pigments.

(ii) Algae are autotrophic.

(iii) The cell wall is made of cellulose

Fungi:

(i) Photosynthetic pigments are absent in them.

(ii) Fungi are heterotrophic.

(iii) The cell wall is made of chitin

Solution SAQ - 16

Dicots:

- (i) Leaves of these plants have reticulate venation.
- (ii) Secondary growth occurs.
- (iii) The plants have tap root system.

Monocots:

- (i) Leaves of these plants have parallel venation.
- (ii) Secondary growth does not occur.
- (iii) The plants have adventitious root system.

Solution SAQ - 17

Bryophyta:

- (i) Plant body is gametophytic.
- (ii) Real stem and leaves are always absent.
- (iii) Fixation of plant body is carried out by rhizoids.
- (iv) Bryophytes are non-vascular in nature.

Pteridophyta:

- (i) Plant body is sporophytic.
- (ii) Real stem and leaves are present.
- (iii) Fixation of plant body is carried out by roots.
- (iv) Pteridophytes are vascular plants.

Solution SAQ - 18

- (i) Bryophytes are small multicellular green land plants. These simple land plants are confined to shady damp places.
- (ii) A true vascular system is absent in them.
- (iii) The sex organs are multicellular.
- (iv) An embryo is formed upon fertilisation.

Example: Riccia and Marchantia.

Solution SAQ - 19

- (i) They are found mainly in shady or damp places.
- (ii) The plant body is made up of root, stem and leaves.
- (iii) They have well developed vascular system (xylem and phloem) for the conduction of water and other substances, from one part of the plant body to another.
- (iv) These plants have no flowers and do not produce seeds.

Example: Club mosses - Selaginella and Ferns - Marselia.

Solution SAQ - 20

- (i) They are most primitive and simple seed plants.
- (ii) The seeds produced by these plants are naked and are not enclosed within fruits.
- (iii) They are usually perennial, evergreen and woody plants.
- (iv) Sporophylls are aggregated to form cones.

Solution SAQ - 21

- (i) Angiosperms are highly evolved plants.
- (ii) They produce seeds that are enclosed within the fruit.
- (iii) The reproductive organs (sporophylls) are aggregated in flower.
- (iv) Microscopes and megaspores are produced in the same or two different types of plants.

Solution SAQ - 22

Nonchordates:

- (i) Notochord is absent in them.
- (ii) Their central nervous system is solid and ventral.
- (iii) Their circulatory system is of open or closed type.
- (iv) Heart, if present in them, is dorsal in position.

Chordates:

- (i) Notochord is present in them at some of their developmental stage.
- (ii) Their central nervous system is hollow and dorsal.
- (iii) Their circulatory system is of closed type.
- (iv) Heart is always present and is ventral in position.

Solution SAQ - 23

Porifera differs from Cnidaria in following characters:

Porifera:

- (i) Cellular level of organisation.
- (ii) Digestion is intracellular.
- (iii) Appendages are absent in poriferans.
- (iv) They contain special cells called collar cells or choanocytes.

Cnidaria:

- (i) Tissue level of organisation.
- (ii) Digestion is both extracellular and intracellular.
- (iii) They have appendages in the form of tentacles.
- (iv) They contain special cells called cnidoblasts which contain nematocysts.

Solution SAQ - 24

A polyp is a cylinder with tentacles at the top. The Hydra looks like a tin can with slender arms coming from the top of its body. This body form does not move and the animals are trappers.

The medusa is an umbrella shaped structure with tentacles hanging down from it. The jellyfish is an example. These animals move.

During the reproductive stages of the jellyfish there is a time when they take on the polyp form. Then they bud off and become medusa.

Solution SAQ - 25

(i) Sessile, sedentary, and marine except one group that lives in fresh water. These are non-motile animals attached to some solid support.

(ii) Simplest multicellular, diploblastic animals.

(iii) The body design involves minimal differentiation and division into tissues.

(iv) Asymmetrical or radically symmetrical.

Example: Sponges and Sycon.

Solution SAQ - 26

(i) Cnidarians or coelenterates are multicellular, diploblastic animals with tissue grade of organisation. A gelatinous layer called mesoglea persists between the ectoderm and endoderm.

(ii) Body shows radial symmetry.

(iii) Respiratory, circulatory and excretory organs are absent.

(iv) Nervous system is primitive, has only network of nerve cells.

Example: Hydra and Aurelia (jelly-fish)

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