

6. Classification of plants

Extra Question

Q.1 Plants belonging to Thallophyta group are only unicellular. Is the following statement true or false ?

Ans- The following statement is false. Plants belonging to thallophyta group may be unicellular as well as multi-cellular.

Q.2 To which division does Nephrolepis belong ?

Ans- It belongs to division Pteridophyta.

Q.3 The seeds are covered by fruits, in Angiosperms.

Ans- The following statement is true.

Q.4 Dicotyledonous plants show reticulate venation.

Ans- False. Dicotyledonous plants show parallel venation.

Q.5 Answer the following and explain: What is called the amphibian of the plant kingdom?

Ans- Bryophyta. Bryophytes grow in moist soil, and need water for reproduction. Hence they are amphibians of the plant kingdom.

Q.6 Answer the following and explain: Male and female flowers are borne on different sporophylls of the same plant.

Ans- Gymnosperms, as they do not take aid of pollinators or vectors, the male and female flowers are present on different sporophyll of the same plant for reproduction.

Q.7 Differentiate between Bryophyta and pteridophyta

| Bryophyta | Pteridophyta |
|---|---|
| a) Bryophyta grow in moist soil, but need water for reproduction. | a) Pteridophytes grow in soil |
| b) Plant body is not differentiated in true roots, stem and leaves. | b) Plant body is differentiated into true roots, stem and leaves. |
| c) Conducting tissues for food and water absent e.g – Moss | c) Conducting tissues for food and water present e.g – Nephrolepis. |

Q.8 Write a note on Thallophyta

Ans- a) Thallophyta plants grow in water. A group of plants that do not have parts like root-stem-leaves and flowers, they are autotrophic due to chlorophyll are called as Algae.

b) Algae may be unicellular, multicellular, microscopic or even large in size.

c) Algae are found in fresh water and also in saline water.

d) The different types of fungi as yeasts or moulds, do not contain chlorophyll are also in this group.e.g- spriogyra, ulothrix, ulva etc.

Q.9 Write a note on Gymnosperms

- Ans- a) Gymnosperms are evergreen, perennial and also woody.
- b) Their stems do not have branches, and they have characteristic of leaves that form a crown
- c) These plants do not form fruits and hence are called as gymnosperms. The meaning of gymnosperms-gymnos means naked and sperms means seeds.
- d) Gymnosperms contain male and female flowers on different sporophylls of the same plant.
- e) These plants are named Gymnosperms because, the seeds of these plants do not have natural coverings eg cypripedium, pine (charisma tree), pinus (decodar).

Q.10 Write the characteristics of the plants that belong to division Bryophyta.

- Ans- a) Bryophyta group of plants grow in the moist soil. They need water for reproduction. Hence Bryophyta group of plants are called amphibians of the plant kingdom.
- b) These plants are called as Thalloid, multicellular and autotrophic.
- c) The reproduction is through spore-formation.
- d) Their plant body structure is flat, ribbon-like long, absence of true-roots, stem and leaves.
- e) They have stem-like or leaf like parts and root like rhizoids.
- f) For conduction of food and water they do not have any specific tissues. E.g Moss (Funaria), Anthoceros, Riccia etc

Q.11 Match the pairs

| | |
|-----------------|----------------|
| 1) Bryophyta | a) ulothrix |
| 2) Thallophyta | b) Mango |
| 3) Pteridophyta | c) Funaria |
| 4) Gymnosperms | d) Thuja |
| 5) Angiosperms | e) Selaginella |

Ans-

| | |
|-----------------|-------------|
| 1) Bryophyta | Funaria |
| 2) Thallophyta | Ulothrix |
| 3) Pteridophyta | Selaginella |
| 4) Gymnosperms | Thuja |
| 5) Angiosperms | Mango |

Q. 12 Why do certain ponds appear green in color?

Ans- The greenish color of some ponds is due to presence of greenish fiber in water. This plant is spirogyra. Hence few ponds appear greenish in color.

Q. 13 What are the reproductive organs in angiosperms?

Ans- In Angiosperms, the flowers that are produced by plants are their reproductive organs. The flowers develop into fruits, with the seeds closed inside them.

Q. 14 Which are the plants that do not have chlorophyll, but are yet classified under thallophyta.

Ans- Yeast and molds are the plants that do not have chlorophyll but yet are classified under thallophyta.

Q. 15 Which scientist proposed the Five kingdom classification of living organism?

Ans- Robert Whittaker.

Q. 16 Describe about the plant Marchantia and Funaria in brief.

Ans.-The thallus or the main body has two layers. The upper layer performs photosynthesis. The lower layer is used for storage. The rhizoids are root-like structures.

Funaria-It has leaf-like prostrate green, branched filamentous structure. This leaf-like structure has root-like rhizoids. The plant body gives rise to long stalk with a pear-shaped capsule that contains spores. The plant reproduces by spore formation.

Q. 17 Differentiate in the following Algae and Fungi.

| Algae | Fungi |
|--|--------------------------------------|
| 1) These are autotrophic organisms. | These are saprophytic organisms. |
| 2) It has presence of chlorophyll. | It has absence of chlorophyll |
| 3) Unicellular or multicellular plants | They are mostly multicellular plants |

Q. 18 Write any two examples of each of the following division.

a) Thallophyta b) Angiosperms c) Bryophyta d) Pteridophyta
e) Gymnosperms.

Ans- a) Thallophyta – Ulothrix, yeast

b) Angiosperms – Bamboo, Onion

- c) Bryophyta – Marchantia, Anthoceros
- d) Pteridophyta – Marsilea, Petrise
- e) Gymnosperms – Cycas, Picea.

Q. 19 Give reason plants are autotrophic

Ans- Plants contain chlorophyll pigments that are present in chloroplast in their cells. The chlorophyll pigments absorb the solar energy and convert it into chemical energy by the process of photosynthesis. They synthesize their own food. Hence plants are autotrophic.

Q. 20 Distinguish between cryptogams and phanerogams.

Ans-

| Cryptogams | Phanerogams |
|---|--|
| a) They include three divisions: thallophyta, bryophyte and pteridophyta. | They have two divisions: gymnosperms and angiosperms. |
| b) They do not produce seeds; they reproduce by spore formation. | They produce seeds and have special structures for reproduction. |
| c) Their reproductive organs are hidden. | They have well-differentiated, visible reproductive structures. |

Q. 21 Describe the special cell organelles that differentiate plant cells from animal cells?

Ans- There are special cell organelles that differentiate plant cells from animal cells.

1) Plastids- They are present in plant cells that contain pigments, help in the process of photosynthesis, and storing food material. These organelles are not present in animal cells.

2) Vacuoles- Plants have large central vacuole, and animals have small temporary vacuoles.

Q. 23 Write the classification of Hibiscus

| | |
|-----------|--------------|
| Hierarchy | Hibiscus |
| Kingdom | Plantae |
| Division | Angiospermae |
| Class | Dicotyledons |
| Order | Malvales |
| Family | Malvaceae |
| Genus | Hibiscus |
| Species | Rosa-sinesis |

Q.23 Write the classification of Tuberose.

| | |
|-----------|----------------|
| Hierarchy | Tuberose |
| Kingdom | Plantae |
| Division | Angiospermae |
| Class | Monocotyledons |
| Order | Asparagales |
| Family | Asparagaceae |
| Genus | Polianthus |
| Species | Tuberosa |

Q. 24 Find out the similarity between the plants of the groups, Thallophyta, Bryophyta and pteridophyta regardless of the difference in body structure

Ans- In Thallophyta, Bryophyta and pteridophyta reproduction occurs through spores. They do not have reproductive system. Hence they are called cryptogams.

Q. 25 Based on the number of cotyledons what are the groups of plants classified into ?

Ans- Monocotyledonous and Dicotyledonous are the groups of plants classified according to number of cotyledonous.

Q.26 Who classified the plants and describe the groups ?

Ans- Eicher classified the plants kingdom plantae in two sub kingdoms. Cryptogams and phanerogams.

Q. 27 What is the classification based on criteria if seeds are enclosed in a fruit or not?

Ans- Groups of plants are according to the number of cotyledons are Monocotyledonous and dicotyledonous plants.

Q. 28 What is the criteria to classify the lower groups of plants?

Ans- The criteria to classify the lower groups of plants is if the parts have body organs and if they have conducting tissues for conduction of water and food.

Q. 29 The number of cotyledone is taken into consideration in classifying the plants into angiosperms and gymnosperms. Is the following statement true?

Ans- The following statement is false.

Q. 30 What are filaments in spirogyra that contain green spiral shape called?

Ans- Chloroplasts.

Q. 31 Which scientist gave the plant classification ?

Ans- Carl Linnaeus.

Q. 32 What is the criteria is division of kingdom plantae done into cryptogams and phanerogams?

Ans- The seeds enclosed into fruit.

Q. 33 In which subkingdom are the plants belonging to Thallophyta, Bryophyta and pteridophyta

Ans- a) Subkingdom Cryptogams.

Q.34 Observe a plant of onion and describe it

Ans- Onion (*Allium cepa*)

Root- Fibrous

Stem – underground (bulb)

Leaves – Hollow and tubular

Flower – Complete, bisexual.

Perianth – 6 lobes, arranged in two whorls of 3 each.

Androecium -6 stamens, Epiphyllous

Gynoecium – Tricarpellary, syncarpous.

Q. 35 write a note on Botanist Eichler

Ans- In 1883 botanist Eichler classified kingdom plantae into sub-kingdom cryptogams and phanerogams. These two sub-kingdom were considered for the classification of plants.

Q.36 Describe the characteristics of subkingdom phanerogams.

Ans- a) Phanerogams are the plants that bear seeds. b)Seeds are used for reproduction, It contains embryo and store food. The stored food is used for growth of embryo during germination.c)Phanerogams are further divided as gymnosperms and angiosperms depending on the criteria if seeds are enclosed in the fruit or not.

Q. 37 Write a note on Gymnosperms

Ans- Plants belonging to Gymnosperms are perennial, woody and evergreen. The stems are not having branches and leaves are crown like. The male and female flower occur on different sporophyllsborne by the same plant. The seeds do not possess a natural covering they do not bear fruitseg.Cyas.

Q. 38 Write a note on Angiosperms

Ans- The plants in this category are herbs, shrubs and trees. They are annual, biennial and pernnial. The stems are branched, and have different types of leaves. The male and female reproductive organs occur in the same flower or different flower. The seeds possess a natural covering. They bear fruits eg. Maize

Q. 39 Write two examples of Gymnosperms

Ans- 1)Pinus 2)Thuja

Q.40 Write two examples of Angiosperms

Ans- Wheat, Mustard

Q.41 Write a note on Monocot.

Ans- Monocots have fibrous roots. Stems are unbranched. The leaves show parallel venation, Flower are trimerous type eg. Maize.

Q.42 Write a note on Dicaot

Ans- Dicots are Tap roots. Its stem are branched. Leaves have reticulate venation. Flowers are Tetra or pentamorous. Eg. Sunflower.

Q.43 Write two examples of Monocot

Ans-1)Wheat 2)Jowar

Q.44 Write two exmaples of Dicot

Ans- 1)Mustard 2)Beans

Q.45 Write examples of two plants belonging to Bryophytagroup

Ans-1)Marchantia 2)Anthoceros

Q.46 Write a note on spirogyra

Ans- a) Spirogyra is a green filamentous Algae it belongs to Thallophyta division

b) It grows in fresh water.

c) Due to presence of chlorophyll, it synthesizes its food by process of photosynthesis. It contains chloroplast that are spirally arranged thread like structure. In each chloroplast, there are many rounded bodies surrounded by starch. These rounded bodies are called pyrenoids.

Q.47 Write the classification of plants.

Ans- a) Kingdom plantae is divided into two subdivisions that are cryptogams and phanerogams. b) Cryptogams are divided into Thallophyta, Bryophyta and Pteridophyta. c) Phanerogams are divided into Gymnosperms and Angiosperms. d) Angiosperms are further divided into Dicotyledons and Monocotyledons.

Q.48 What is the main distinguishing character between wheat and beans?

Ans- Wheat has a single cotyledon in its seed and beans have double cotyledon in its seed.

Q.49 What is the shape of a moss capsule?

Ans- A moss capsule is pear shaped.

Q.50 What is the difference between mosses and Angiosperms?

Ans-

| Mosses | Algae |
|--|--|
| 1)All mosses are multicellular organisms | 1) Algae include unicellular multicellular, and colonial organisms |
| 2) Most mosses are mainly terrestrial | 2) Algae are mainly marine and freshwater plants. |
| 3) They posses rhizoids | 3) The lack rhizoids |
| 4)They have flat bodies | 4)They have soft and filamentous bodies. |
| 5) Mosses belong to Bryophyta | 5)Algae belongs to Thallophyta |
