Question-1

What are Rhizoids?

Solution:

Rhizoids are slender, unicellular or multi cellular hair-like structures, which penetrate in the moist soil and absorb water for plants.

Question-2

What features have led to the dominance of vascular plants?

Solution:

The features that have led to the dominance of vascular plants are,

(i) Development of deep roots capable of penetrating the soil.

(ii) Development of water-proofing material such as cutin on the aerial surfaces, to reduce water loss through evaporation.

(iii) Development of strong woody material to anchor and support above the ground structures.

Question-3

Write the important characters of gymnosperms.

Solution:

The important characters of gymnosperms have been listed below

(i) It is a group of vascular plants, which posses naked seeds attached to the surface of megasporophyll.

(ii) Since the megasporophyll is not folded to form an ovary, there is no fruit formation.

Question-4

What do you mean by Thallophyta? Name the two sub-divisions.

Solution:

Thallophyta includes algae and fungi in the two-kingdom classification. The body of thallophyta is known as thallus.

A thallus does not have root, stem and leaves.

The two sub-divisions of Thallophyta are,

(i) Algae and

(ii) Fungi.

Question-5

Distinguish between a zygospore and a zoospore.

Solution:

The difference between zygospore and zoospore are,

Zygospore	Zoospore
(i) Zygospore is a thick-walled resting spore.	(i) Zoospore is a naked spore produced within a sporangium.
(ii) Zygospore is the product of sexual reproduction by fusion of contents of two similar gametangia.	(ii) Zoospore is motile having one, two or more flagella.
(iii) It is found in a group of phycomycetes, zygomycetes fungi and all order of green algae.	(iii) It is found in some phycomycetes fungi and green brown algae.

Question-6

Write the characteristic features of bryophytes.

Solution:

The characteristic features of bryophytes are as follows

(i) Bryophytes are small, erect plants growing in moist shady places.

(ii) They have no leaf, stem or root-like structures.

(iii) Bryophytes have no vascular tissues.

(iv) Most plants are gametophytes. They develop from haploid spores. Spores develop into a protonema, which grows into a moss plant.

(v) Female sex organs are archegonia and male organs are antheridia.

Question-7

Describe the habit, habitat and morphology of moss

Solution:

Moss is a good example for a leafy bryophyte. It grows in moist shady places. The plant has a tiny stem with a number of small leaves. True roots are absent but rhizoids fix the plant to the ground and perform the functions of roots. The plant may be branched or unbranched. The leaves and stem bear chlorophyll with the help of which it manufactures food. The adult plant represents the gametophyte. It bears antheridia and archegonia, which produce antherozoids and egg. Fertilization takes place inside the archegonium of the plant. The zygote formed by the fusion of the two gametes develops into a saprophyte. It grows and consists of three parts, namely, foot, seta and capsule. In the capsule, spores are produced and it is covered by a delicate hood, the calyptra. On maturity, spores are liberated from the capsule. These grow into a moss plant when they come across suitable conditions. The life cycle shows two distinct phases.

They are (i) gametophyte generation (haploid) and (ii) sporophytic generation (diploid).

Question-8

Write a brief note on cyads and conifers.

Solution:

Cycads belong to a group of gymnosperms with an unbranched stem having a crown of palm-like leaves. It had diocious terminal cones and motile male gametes, **e.g**. Cycas.

Conifers belong to gymnosperms. They have monopodial branching, resin canals, small or pointed leaves frequently borne on dwarf shoots and unisexual cones never present on the tips of main branches, **e.g.** Pinus, Cedrus, Araucaria, Picea, Abies, Juniperus, etc.

Question-9

How do red algae prepare their food?

Solution:

Red algae are marine and mostly occur in oceans. The photosynthetic pigments are phycoerythrin and phycocyanin along with chlorophyll and carotenoids. Red algae are photoautotrophic in their mode of nutrition. They synthesize food in the presence of chlorophyll in their chromatophores or chloroplasts.

Question-10

Give the general characters of Liverworts.

Solution:

The general characters of Liverwort are,

(i) Gametophyte is thalloid or foliose and leaf-shaped.

(ii) Rhizoids are unbranched as well as unicellular.

(iii) Vascular tissues are lacking in them.

(iv) Sex organs are embedded in the thallus. Sex organs are developed on stalked receptacles in Marchantia.

(v) Saprophyte is a parasite on gametophyte.

(vi) Protonema stage is totally absent.

Question-11

To which group does Volvox belong?

Solution:

Volvox belongs to Green algae.

Question-12

Name the plant from which Ephedrine is extracted. What are its uses? To which group does this plant belong?

Solution:

Ephedrine is a drug obtained from the plant Ephedra. Ephedrine is used for the treatment of respiratory troubles and asthma. It is a conifer, gymnosperm.

Question-13

State the characteristics of disciflorae.

Solution:

The characteristic features of disciflorae are

(i) Sepals are either gamosepalous or polysepalous.

(ii) Hypogynous flowers are with superior ovary.

(iii) Nectariferous disc encloses the base of ovary.

Question-14

"Algae and bryophytes are different from each other". Point out the main differences between them.

Solution:

Algae	Bryophytes
Mostly aquatic.	Mostly terrestrial, found in damp, shady places.
Thallus is single-celled to branched filaments.	Thallus is made of parenchymatous cells.
Stomata absent.	Stomata present.
Rhizoids absent.	Rhizoids present.
Asexual reproduction is present.	Asexual reproduction is absent.
No embryo is formed after fertilization.	Embryo is formed after fertilization.

Question-15

Write in brief the structure of spirogyra.

Solution:

The body of the plant is filamentous. Each filament is long and unbranched. It consists of a number of cylindrical cells placed one above the other and the filament is covered over by mucilage. The cell wall is made up of cellulose and pectin.

Question-16

Write a detailed account of Green algae.

Solution:

There are about 7,000 species of Green algae. Some are unicellular and flagellated like chlamydomonas, some are unicellular and non-flagellated like chlorella and some are colonial like volvox. Some are filamentous like spirogyra and some are unicellular like acetabularia. They live in both fresh and marine water. Few are terrestrial and occur on damp surfaces. Few are epiphytic, living on other plants. Green algae contain chlorophyll a and b and small amounts of carotenoid pigments are also present in the grana of the chloroplasts. They store starch in the cellulosic cell wall. They reproduce both sexually and asexually.

Question-17

What is the role of capsule in the life history of Moss?

Solution:

Capsule of moss is an essential structure of the sporophyte. Spores are produced in the capsule. When the capsule ripens its dehiscence takes place and the spores are liberated by wind. The spores develop under favourable conditions into the protonema.

Question-18

What is Thallus?

Solution:

Thallus is a plant body, which is not differentiated into root, stem and leaves.

Question-19

Define Haustoria.

Solution:

Haustoria are specialized root like out growths of the parasites in the host cell, which perform the function of absorbing food from the host.

Question-20

What are Phycobilins?

Solution:

Phycobilins are photosynthetic pigments present in red algae.