QB365

Important Questions - Plant Kingdom

11th Standard CBSE

Biology

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

Time : 01:00:00 Hrs

Total Marks : 50

Section-A

1) What are seed located in gymnosperm? **1**

2) How are algae classified in Whittakere's classification? **1**

3) Food is stored as fluoride starch in Rhodophyceae. Similarly Mannitol is the reserve food material of which group of algae? **1**

4) How are conifer needles helpful in soil erosion? **1**

5) In which plant coralloid roots are present? **1**

6) How are mosses considered ecologically important? **1**

7) How does the natural system of classification provide detailed information about the groups? **1**

8) Which angiosperm lives underground?How does it get nourishment? **1**

9) Give one example of marine angiosperm **1**

10) What is Kingdom - Plantae? **1**

Section-B

11) List any two advantage of artificial system of classification **2**

12) Write the types of thallus found in members of Rhodophyceae **2**

13) Write one feature each of liveworts and mosses. **2**

14) Write few important features of mosses **2**

15) On which criteria chemotaxonomy is based ?Can it be used for classification? **2**

16) On the basis of which three features, Selaginella shows traits of seed habit? **2**

17) Differentiate between homosporous and heterosporous pteridophytes **2**

18) Which is the most highly evolved gymnosperms? What are its features? **2**

19) Which algae belong to class- Chlorophyceae? **2**

20) Describe the type of photosynthetic pigment in red algae, green algae and brown algae. **2**

Section-C

21) Algae are known to reproduce asexually by a variety of spores under different environmental condition. Name these spores and the conditions under which they are produced. **5**

22) Mention the ploidy of the following. **5**

Protonemel cell of a moss, primary endosperm nucleus in dicot, leaf cell of moss, prothallus of a fern, gemma cell in Marchantia, meristem cell of monocot, ovum of a liverwort and zygote of a fern.

23) What role vascular plants play in keeping the earth green. Which features help them to dominate the earth? **5**

24) How is natural system different from artificial system of classification? List some features. **5**

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Section-A

1) Seed lie naked or exposed on the surface of megasporophyll **1**

2) **1**

In Whittaker's classification algae are grouped in three Kingdoms (i) Monera (blue- green algae) (ii) Protista (dinoflagellates, diatoms, euglenoids) (iii) Plantae (red algae, brown algae, and green algae)

3) Phaeophyceae. **1**

4) Conifer needles fall down and cover the soil and absorb rainwater **1**

5) Cycas have coralloid root in which nitrogen-fixing cyanobacteria is present **1**

6) **1**

Mosses, along with lichens are the first organism to colonise rocks, hence are ecologically important to develop an ecosystem in bare places.

7) **1**

This system is based on common characters of group of organisms, so it can give more or detailed information about the groups of organisms.

8) **1**

A small orchid lives underground. it has a mycorrhizal association which help it in obtaining nourishment from decaying organic matter

9) Zostera **1**

10) **1**

Kingdom - Plantae includes multicellular eukaryotic organisms with the photosynthetic mode of nutrition, cell wall cellulose and plastids containing starch as the main reserve food.

Section-B

11) Two advantages of artificial system of classification are **2**

(i) Artificial system is very easy to remember as it uses only one or a few characters for comparison.

(ii) It is practical and is akin to use of Keys for identification of various taxa.

12) The thallus structure in Rhodophyceae varies from unicellular to pseudoparenchymatous thallus. **2**

(i) Unicellular thallus (Porphyridium).

(ii) Filamentous thallus (Polysiphonia)

(iii) Pseudoparenchymatous thallus (Gelidium).

13) **2**

In liverworts, the plant body is thalloid, eg., Marchantia. The thallus is dorsiventral and closely appressed to the substrate.

In mosses, the predominant stage is the gametophyte.

It has two phases

(i) Protonema stage which develops directly from a spore.

(ii) Leafy stage which develops from the secondary protonema as a leaf bud.

14) **2**

Features of mosses

(i) Erect, radially symmetrical leafy body produced from filamentous or thalloid juvenile stage is called protonema.

(ii) They bear multicellular branched rhizoids.

(iii) Sporop[hyte contains large amount of green tissue and is partially dependent upon the gametophyte

15) **2**

Chemotaxonomy or biochemical taxonomy is based on the protein and serum analysis and on the chemical constituents of the organisms. This type of taxonomy is particularly utilized in the classification of plants, as Chemical constituents of plant species are stable and do not change easily.

16) Selaginella shows seed habits because of **2**

(i) heterospory

(ii) formation of two types of gametophytes, male and female.

(iii) only one megaspore mother cell is functional.

17) **2**

Difference between homosporous and hetrosporous pteridophytes are given below

Homosporous Pteridophytes	**Hetrosporous Pteridophytes**
These produce only one kind of spores.	These pteridophytes produce microspore and megaspores.
Each spore germinates into a monoecious prothallus, that bears both antheridia and archegonia,e.g., Dryopteris	Microspores germinates into make gametophyte and megaspores germinate into female, e.g.Selaginella. Salvinia.

18) **2**

The most highly evolved gymnosperms is Gnetum looks like an angiosperm tree with reticulate venation in leaves and branching pattern, vessels in xylem and presence of archegonia in female gametophyte.

19) Green algae belong to class-Chlorophyceae, **2**

Eg, Chlorella and Spirogyra.

20) **2**

Red algae The photosynthetic pigments are located in the chromatophores are chlorophyll-a, d, and α β -carotenes, xanthophylls and biliproteins.

Green algae Chromoplasts contain chlorophyll-a, b, carotene and xanthophyll.

Brown algae The chromatophores contain chlorophyll-a c and β , α - carotnes and xanthophyll.

Section-C

21) **Zoospores** Flagellate spores, under favourable conditions. **5**

Aplanospores Non-flagellate, thin-walled spores under approaching unfavourable condition.

Hypnospores Thin-walled, resting spores in unfavourable condition.

Akinetes Thin-walled and thick-walled spores formed from whole cells in unfavourable conditions.

Autospores Spores which look exactly parent cell formed under favourable conditions.

22) Protonemal cell of moss-haploid **5**

Primary endosperm nucleus in dicots-triploid

Leaf cell of moss -haploid

Prothallus cell of ferns-haploid

Gemma cell in Marchantia-haploid

Meristem Cell of monocots-diploid

Ovum of liverworts-haploid

Zygote of ferns-diploid

23) **5**

The vascular plants dominate earth and made the planet green everywhere.The features which enable this quality to happen are

(i) Strong roots capable of penetrating deep into the soil.

(ii) Development of waterproof layer on aerial surfaces especially the leaves to reduce transpiration.

(iii) Presence of strong, woody mechanical tissue to provide mechanical support to aerial parts and allow them to rise to great height.

(iv) Vascular tissues are present for long distance transport of substances.

24) **5**

Differences between natural and artificial system are

Natural Sytem	**Artificial System**
It is based on large number of characters.	It is based on one or a few characters.
The characters are stable.	The characters are liable to change with change in environment.
It avoids analogy.	It accepts analogy for grouping.
It is based on morphology, anatomy, cytology,embryology, molecular biology and genetics.	It is based on morphologicalor reproductive traits.Others are not used.
Natural system brings out homology.	Artificial system does not study homology.
It explains natural and some phylogenetic relationships.	It does not give any idea about natural and phylogenetic relationships.