

UNIT-17 PLANT KINGDOM

Class: VIII

Subject: Science

I. Choose the best answer

- Solanum trilobatum is the binomial name of Thoothuvalai. The word 'Solanum' refers to
 - Species
 - Genus**
 - Class
 - Orders
- Floridian starch is a reserve food material of
 - Chlorophyceae
 - Phaeophyceae
 - Rhodophyceae**
 - Cyanophyceae
- An example for colonial form of algae is
 - Oscillatoria
 - Nostac
 - Volvox**
 - Chlorella
- One of the following is an edible mushroom
 - Polyporus
 - Agaricus**
 - Pennicillium
 - Aspergillus
- Plants that prevent soil erosion are
 - algae
 - fungi
 - bryophytes**
 - pteridophytes
- The first land plants are
 - bryophytes
 - pteridophytes**
 - gymnosperm
 - angiosperm
- The well-developed sporophytic plant body is seen in
 - bryophytes
 - pteridophytes
 - gymnosperms**
 - angiosperms
- Binominal Nomenclature was first introduced in the year
 - 1970
 - 1975
 - 1978
 - 1623**

9. Penicillin is an antibiotic which is extracted from
- a) algae b) fungi c) bryophytes d) pteridophytes

II. Fill in the blanks.

1. The word 'Taxonomy' is derived from Greek.
2. Binomial nomenclature was first introduced by Gaspard Bauhin.
3. The book 'Genera Plantarum' was published by Bentham and Hooker.
4. Monocotyledon seed bears only one cotyledon.
5. Brown algae belongs to Phaeophyceae class.
6. Agar Agar is obtained from Red algae.
7. The reserve food material of fungi are Glycogen and oil.
8. The first true land plant is Pteridophyte.
9. Xylem and phloem are absent in Bryophyte Plants.
10. Reticulate venation is present in Dicot plants.

III. State true or false. If false, correct the statement.

1. In polypetalae, the petals are free. True
2. Binomial name should contain more than two words. False
3. Artificial system of classification is based on **the morphological** characters of the plant. False
4. Cell wall of fungi is made up of chitin. True

5. Pinus is a **Naked** seeded plant. **False**
6. All bryophytes are **amphibians**. **False**
7. **Monocotyledons** have well developed characters than the **Dicotyledons**.
False
8. Mosses are the well developed plant in bryophytes. **True**
9. The dominant phase of the bryophytes is **gametophyte** . **False**
10. The dominant phase of the pteridophyte is **sporophytic** phase. **False**

IV. Match the following.

- | | | | |
|------------------|---|------------------|---|
| 1. Cyanophyceae | - | Green algae | 2 |
| 2. Chlorophyceae | - | Blue green algae | 1 |
| 3. Phaeophyceae | - | Red algae | 4 |
| 4. Rhodophyceae | - | Brown algae | 3 |

V. Answer very briefly.

1. Define - Thallus.

Algae belongs to thallophyta and the plant body of algae is called thallus.
i.e. the plant body is not differentiated into root, stem and leaf.

2. What is meant by binomial nomenclature? Give example.

- The naming of an organisms with two words is known as Binomial Nomenclature.
- For example, the binomial name of mango is *Mangifera indica*.

- Here the first word *Mangifera* refers to the genus name and the second word *indica* refers to the species name.

3. Write any two characters of dicotyledons. (any two point)

- Seed has two cotyledons.
- Plants have tap root system and leaves are with reticulate venation.
- Flowers are tetramerous or pentamerous. Calyx and corolla are well differentiated.
- Pollination occurs mostly by insects.
- Examples are: Bean, Mango, Neem

4. Seeds of gymnosperm plants are naked. Why?

Gymnosperm are naked seed plant, i.e. the ovule is not enclosed by ovary

5. Write any two economic importance of fungi.

Antibiotic: (*Penicillium notatum*) and Cephalosporin which cure different diseases are obtained from fungi.

Food: Mushroom contains rich protein and minerals. The most common edible mushroom is *Agaricus* (Button mushroom).

VI. Answer briefly.

1. Write a short note on natural system of classification.

- In this system, plants are classified on the basis of several characters. Bentham and Hooker's classification is an example of natural system of classification.
- This system of classification is based on morphological and reproductive characters of the seeded plants.

- **Bentham** and **Hooker** published their natural system of classification in their book named **General Plantarum** in three volumes. This classification is widely used in many herbaria and botanical gardens all over the world.

2. Write any three economic importance of algae.

Agriculture:

Some of the blue green algae are essential for the fixing of atmospheric nitrogen into the soil, which increases the fertility of the soil.

E.g. Nostoc, Anabaena.

Agar Agar:

Agar agar is extracted from some red algae, namely Gelidium and Gracillaria. It is used to prepare growth medium in laboratories.

Iodine: Iodine is obtained from brown algae like Laminaria.

3. Write the differences between algae and fungi.

Algae	Fungi
Algae are autotrophs	Fungi are heterotrophs.
They have pigments.	They have no pigments
Reserve food material is starch.	Reserve food materials are glycogen and oil.
Some algae are prokaryotic in nature E.g: Cyanobacteria (Nostac, Anabenae)	All are eukaryotic nature. E.g: Agaricus

4. How many classes are there in bryophytes? What are they?

Bryophytes are classified into three classes. They are:

1. Hepaticae (Liverworts)
2. Anthoceratae (Hornworts)
3. Musci (Mosses)

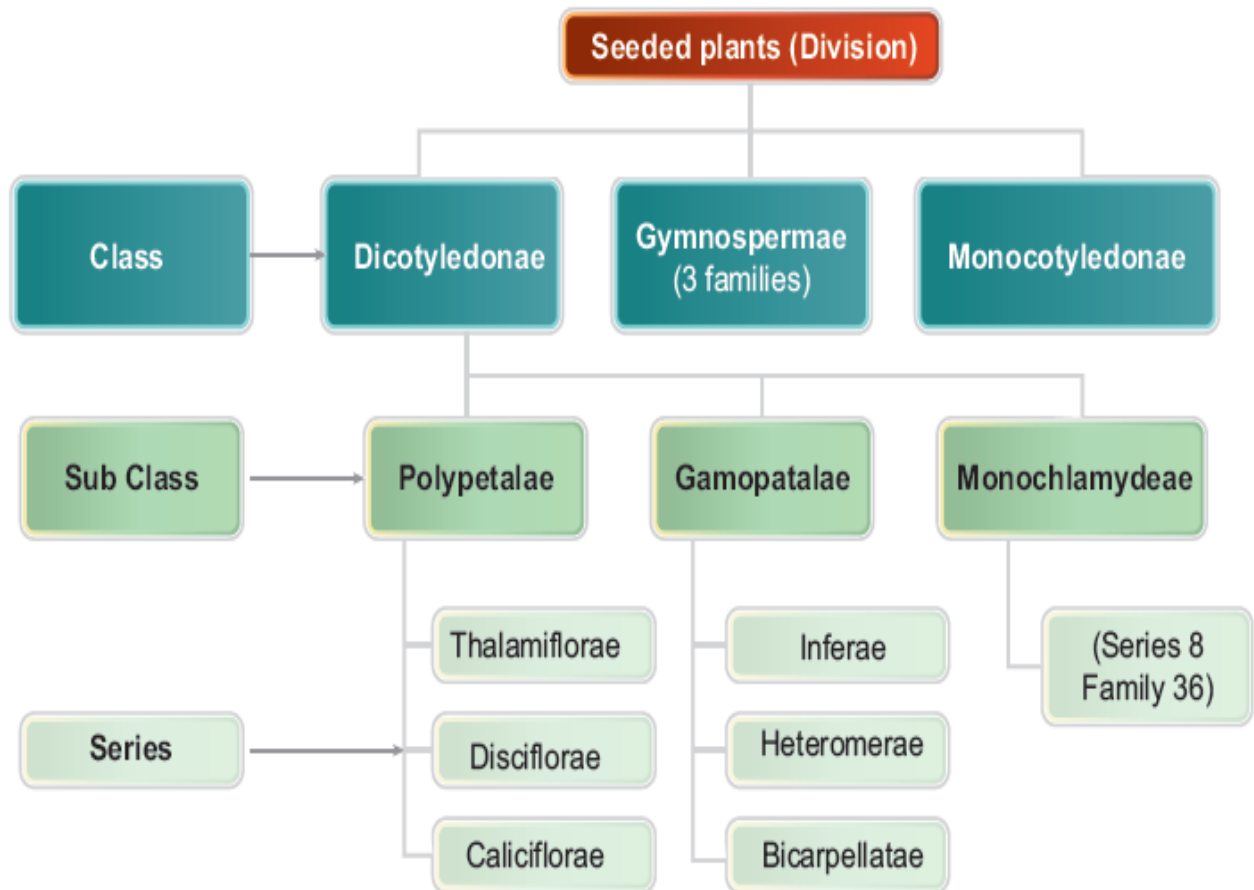
5. Write any four characters of pteridophytes.

- The main plant body is differentiated into true root, stem and leaves.
- Sporophytes reproduce by means of spores.
- Spores are produced in sporangium.
- The sporangia bearing leaves are called sporophyll.
- Most of the plants produce only one type of spore either microspore or megaspore (homosporous).
- In some plants both microspore and megaspore are produced (heterosporous).

VII. Answer in detail.

1. Draw the outline of Bentham and Hooker's system of classification.

Outline of Bentham and Hooker's System of Classification



2. Write any five differences between monocot and dicot plants.

Characteristic features of Dicotyledons:

- Seed has two cotyledons.
- Plants have tap root system and leaves are with reticulate venation.
- Flowers are tetramerous or pentamerous.
- Calyx and corolla are well differentiated.

- Pollination occurs mostly by insects.
- Examples are: Bean, Mango, Neem

Characteristic features of Monocotyledons:

- Seed has only one cotyledon.
- Plants have fibrous root system, and leaves are with parallel venation.
- Flowers are trimerous and not differentiated into calyx and corolla.
- Pollination occurs mostly by wind.
- Examples are: Grass, Paddy, Banana.

3. Write the differences between gymnosperm and angiosperm.

Gymnosperm:

- Gymnosperm are naked seed plant, i.e. the ovule is not enclosed by ovary. Gymnosperms have two phases in its life cycle (Gametophytic and Sporophytic).
- Sporophytic plant body is dominant and it is differentiated into root, stem and leaf. They have well developed vascular tissues (xylem and phloem). The water conducting tissue is tracheid and the food conducting tissue is sieve cell. They have cone in which sporangia and spores are produced

Angiosperm:

- The term 'Angiosperm' is derived from two Greek words, i.e. 'angio' which means box or closed and 'sperma' which means seed.
- Habit of the plants may be herb (*Solanum melongena*), shrub (*Hibiscus rosasinensis*) and tree (*Mangifera indica* - Mango). They have well developed vascular tissues called xylem and phloem.
- Xylem contains vessel, tracheid, xylem parenchyma and xylem fibre. Phloem contains sieve tubes, phloem parenchyma, companion cells and phloem fibres.

4. Write the economic importance of gymnosperms.

- Woods of many conifers are used in the paper industries. E.g. *Pinus*, *Agathis*
- Conifers are the sources of soft wood for construction, packing and plywood industry. E.g. *Cedrus*, *Agathis*
- Turpentine, an essential oil, extracted from the resin of *Pinus* is used for paint preparation. It is also used medicinally to get relief from pain, bronchitis etc.,
- Seeds of *Pinus gerardiana* are edible.

- Ephedrine is an alkaloid extracted from Ephedra. It cures asthma and respiratory problems.
- Araucaria bidwillii is an ornamental plant.

5. Write the names of medicinal plants and explain their uses.

Acalypha indica (Kuppaimeni):

- It belongs to the family Euphorbiaceae.
- The paste obtained from the leaves of this plant is used to cure the burns on the skin.
- The juice of this plant leaves is mixed with lemon juice to cure ringworm.

Aegle marmelos (Vilvam):

- It belongs to the family Rutaceae.
- The unripe fruit of this tree is used to treat indigestion.
- It is used to cure chronic diarrhoea and Dysentery

Solanum trilobatum (Thoodhualai):

- It belongs to the family Solanaceae.
- The leaves and fruits of this plant cure cough and cold.
- It is widely used in the treatment of tuberculosis and bronchial asthma.

Phyllanthus amarus (Keezhanelli):

- It belongs to the family Euphorbiaceae.
- The entire plant is used for the treatment of jaundice.
- It gives additional strength to human liver and it is used to treat other liver disorders.

Aloe vera (Sothu Katrazhai):

- It belongs to the family Liliaceae.
- Leaves of this plant is used to cure piles and inflammations on the skin.
- It cures peptic ulcer.

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