Revision Notes

CHAPTER – 7

Getting to know Plants

Plants are usually grouped into herbs, shrubs, trees, creepers and climbers.
From where does a plant come?

- A plant comes from a seed.
- A seed is covered with seed coats.,
- The seed coats protect the seed.
- The seed has a baby plant inside.
- The baby plant has a tiny root towards the outer side. The tiny root is termed as radicle.
- The baby plant has a tiny shoot towards the inner side. The tiny shoot is termed as plumule.

Classification of Plants on the of Growth Habit:

(a) Herbs: Have soft, green and weak stems. Example: rice, wheat, maize, sunflower, mint, etc.
(b) Shrubs: They are bushy and have hard stems that do not bend easily. These are plants with the stem branching out near the base. Example: lemon, China rose, jasmine, Nerium, etc.
(c) Trees: These are big plants which have a tall and strong stem (trunk). Stems have branches in the upper part, much above the ground. Live for many years. Example: mango, neem, banyan, coconut, etc.
(d) Climbers: Have weak stems and cannot stand erect. They take the support of other trees and climb on them. Example: pea, grape, vine, etc.
(e) Creepers: Plants which creep on the ground and spread out. Example: pumpkin and watermelon.

Classification of plants on the basis of their Life Cycle:

(a) Annuals: Plants whose life cycle is completed in the one season. These are generally herbs. Example: wheat and mustard.
(b) Biennials: Plants whose life cycle requires two seasons for completion. They are generally herbs and rarely shrubs. Example: carrot, radish, and potato.
(c) Perennials: Plants whose life cycle runs for more than two seasons example: guava, Babul, and palm trees.

Parts of a Plants:

(a) Root system: The root and its branches make up the root system of a plant.

- Root is the underground art of a plant body.It is non-green.
- The root grows into the soil and away from the light.

(i) Tap Root: It is formed by the baby root (radicle) which comes out from a germinating seed.

- It is the main primary root arises from the lower end of the stem.
- A number of tiny branches called secondary roots. Example: mustard, neem, rose, etc.

(ii) Fibrous Root: A bunch of roots arises from the base of the stem. Example: wheat, maize, etc.

Functions of root system:

(i) Roots absorb water and nutrients from the soil.
(ii) Roots help the plant to stand erect.
(iii) Roots check soil erosion.
(iv) Roots store food.
(v) Prop roots offer extra support.

MODIFIED ROOTS:
Roots may show certain changes in their shape, size or structure for performing special functions. These roots are called the modified root.

1. **Roots modified for the storage of food: -** We find such roots in carrots, radish, turnip,

beetroot, sweet potato and some other plants.

2. **Roots modified to provide support to the plant: - In a** banyan tree, you might have noted root like roots coming out from the branches and hanging downwards. These roots give support to the branches. They are called the supporting roots or the **prop roots**.
3. **Root modified to bear nodules; -** On the roots of the gram and other pulses **Rhizobium**, a nitrogen-fixing bacteria makes its home in the form of small swellings. These swellings are termed as nodules.

(b) Shoot system: The part of the plant which grows above the soil.

It includes

1. The stem,
2. The leaves,
3. The buds,
4. The branches,
5. The flower,
6. The fruits,
7. The seeds.

(ii) Leaf: A leaf is a flat and green structure on a plant, coming out from a node on the stem and always bearing a bud in its axil.

Parts of leaf:

(a) Petiole: Stalk of the leaf with which it joined to the stem.

(b) Leaf lamina: The flat green portion of the leaf.

(c) Veins: These are the network of small, narrow, tube-like structures on both sides of the midrib present in the middle of the leaf.

The function of Leaf:

(i) Transpiration: Process of losing water by the leaves of a plant.

(ii) Preparation of food by the process of photosynthesis.

(iii) Flower: It is the reproductive organ of the plant.

The function of Flowers:

(i) Help in reproduction.

(ii) These become fruits that store food and seeds.

(iii) Modified flowers like cauliflower, broccoli are rich sources of vitamins.

· Parts of Flower:

(i) Pedicel: Stalk of the flower through which the flower is joined to the branch. It has joined to the branch.
(ii) Sepal: Small green leaf-like structures on the thalamus. They protect the flower.
(iii) Petals: Brightly colored leaf-like structures present inside the sepals. Petals attract the insects and help in the process of reproduction.
(iv) Stamens: These are long, thin and needle-like structures. These are male organs of the flower. It consists of two parts: Anther, Filament.
(a) Anther: The swollen tip of each stamen that encloses in it a small powdery substance called pollen grains.
(b) Filament: Long stalk-like structure that joins the anther with thalamus.

(v) Carpel: It is a flask-shaped organ in the center of the flower. It is the female organ of the flower. It consists three parts: Style, Stigma, and Ovary.
(a) Style: a Long thin tube-like structure which is swollen at the base.
(b) Stigma: Small, round and sticky part of the carpel at the top of the style the traps the pollen grains.
(c) Ovary: Swollen part of carpel that contains ovules.

The Bud : A bud is a compact or a condensed shoot. It encloses future stem, nodes and leaves.

- Axillary bud
- Terminal bud
- floral bud

(i) Stem: Stem forms the central axis of the plant body.Gives rise to a number of branches that bear leaves. The stem bears leaves, flowers, and fruits.

The function of Stem:

(i) It provides support to plant.
(ii) It bears important plant parts.
(iii) It helps in transportation of water and food.
(iv) Underground stems store food.
(v) Thick and fleshy stems make food.
(vi) Stem modified into tendrils give extra support for plants.

Some Extra Points:

- The pattern of veins on the leaf is called venation. It can be reticulate or parallel.
- Leaves give out water vapor through the process of transpiration.
- Green leaves make their food by the process of photosynthesis using carbon dioxide and water in the presence of sunlight.
- Roots absorb water and minerals from the soil and anchor the plant firmly in the soil.
- Roots are mainly of two types: taproot and fibrous roots.
- Plants having leaves with reticulate venation have tap roots while plants having leaves with parallel venation have fibrous roots.
- The stem conducts water from roots to the leaves (and other parts) and food from leaves to other parts of the plant.