DON BOSCO SCHOOL – RANCHI.
SUBJECT: BIOLOGY.
CLASS VI A/B/C/D

Lesson – 1. The Leaf.

➢ Multiple Choice Questions.

1. Tick the appropriate answer.

i. Identify the plant which has compound leaves – Rose.

ii. Which one of the following is not an insectivorous plant – Cactus.

iii. This leaf shows parallel venation – Banana.

iv. The point on the stem from where the leaf arises – Node.

v. Which one of the following is essential for photosynthesis – Carbon dioxide.

➢ Short Answer Questions.

1. Name the following:

i. The part of the plant which grows under the ground – Root.

ii. The part of the plant which grows above the soil – Shoot.

iii. The wide flat portion of the leaf – Leaf blade or lamina.

2. What are the four functions of the roots?

Answer: The four functions of the roots are:

a) Fixes the plant in the soil.

b) Absorbs water and minerals from the soil for growth of the entire plant.

c) Binds the soil together so that it does not get washed away during rain or blown away by the wind.

d) It stores food. Example – turnip, radish, carrot, etc.

3. Mention the functions of the following:

i. Spines ii. Tendrils iii. Scale Leaves

Answer: Functions are as follows:

i. Spines – Leaves are modified into spines to reduce water loss, like cactus.

ii. Tendrils – Tendrils touch any object, coil around it and provide support to the plant to climb up. Example – sweet pea.

iii. Scale Leaves – Their main function is to protect the buds in plants like ginger and onion.

4. Define venation. What are the different types of venation found in plants?

Answer: Arrangement of veins in a lamina is called venation. It is mainly of two types:

a) Reticulate venation: In this type of venation, veins and veinlets are irregularly distributed in the lamina, forming a network. Example – peepal, mango and guava leaves (dicot plants).
b) Parallel venation: In this type of venation, veins run parallel to each other. Example – banana, grass, maize and wheat leaves (monocot plants).

5. Describe the modification of leaf in any one insectivorous plant.
Answer: The leaves of Venus flytrap have long pointed hair. It is divided into two parts having midrib in between like a hinge. When an insect visits the leaf, it closes its two parts and traps the insect. The insect is then digested by digestive juices secreted by the plant.

6. Write two main functions of leaves.
Answer: The two main functions of leaves are *photosynthesis* and *transpiration*. During *photosynthesis* leaves prepare food for the plants and rekeases oxygen into the atmosphere. During *transpiration* leaves loose water in the form of water vapour to maintain water balance in the plant.

7. Define: i) Photosynthesis ii) Transpiration
Answer: i) The process by which a plant prepares or synthesises food from water and carbon dioxide in the presence of chlorophyll and sunlight is called *Photosynthesis*.
ii) *Transpiration* is the loss of water vapour from the aerial parts of a plant.

➢ Long Answer Questions.

1. Differentiate between the following:
i. Tap Root and Fibrous Root ii. Simple Leaf and Compound Leaf
iii. Parallel Venation and Reticulate Venation
Answer: They are as follows:
i. Tap Root and Fibrous Root

Tap Root	Fibrous Root
The *tap root system* has a thick main root called main root or primary root. It bears many side branches called secondary branches. Example – gram, mango, guava, etc. Fig. 1.2 on page 2	The *fibrous root system* has a cluster of roots of the same thickness and size arising from the base of the stem. Example – maize, grass, etc. Fig. 1.3 on page 2

ii. Simple Leaf and Compound Leaf

Simple Leaf	Compound Leaf
In a *simple leaf*, the lamina is undivided and is a single piece. Example – mango, banana, banyan, etc. Fig. 1.6 (A) and 1.7 (b) on page 4.	In a *compound leaf*, the leaf blade or lamina is divided into smaller units called leaflets. Example – rose, silk, cotton, etc. Fig. 1.6 (B) and 1.6 (C) on page 4.

iii. Parallel Venation and Reticulate Venation

Parallel Venation	Reticulate Venation
In this type of venation, veins and veinlets are irregularly distributed in the lamina forming a network. Example – peepal, mango, etc. Fig. 1.10 (a) on page 5.	In this type of venation, veins run parallel to each other in the lamina. Example – banana, grass, maize, etc. Fig. 1.10 (b) on page 5.

2. What is the modification seen in Bryophyllum? Explain

Answer: The leaves of *Bryophyllum* are modified to help in vegetative propagation. The leaves of *Bryophyllum* produce buds along their margin. When these buds fall in moist soil, they begin to grow as young tiny plants. Fig. 1.13 on page 9.

3. What purpose is served by the spines borne on the leaves of cactus?

Answer: The leaves of cactus are modified into spines to reduce water loss from the plants of cactus.

4. Explain why leaf survival is so important to the plant?

Answer: The leaf survival is very important to the plant because it prepares food for the plant by the process of photosynthesis in which leaves use water from the soil, carbon dioxide from the atmosphere in the presence of chlorophyll and sunlight. The leaf also helps in transpiration through which the leaf maintains the water balance in the plant body.

5. Give an example of the following and draw generalized diagrams for the same.
i. Simple leaf and compound leaf
ii. Parallel venation and Reticulate venation

Answer: They are as follows:

i. Simple leaf – mango, banyan, banana, etc. Fig. 1.7 (b) and (c) on page 4.
Compound leaf – rose, silk-cotton. Fig. 1.6 (B) and (C) on page 4.

ii. Parallel venation – peepal. Fig. 1.10 (a) on page 5.
Reticulate venation – banana. Fig. 1.10 (b) on page 5.

6. Enlist some of the advantages of transpiration to green plants.

Answer: The advantages are:

i. Cooling effect – The water keeps on evaporating from the leaf surface during transpiration thus the plant cools itself when it is hot outside.

ii. Transpirational pull – As water continually evaporates from the leaf surface, the roots pull up more water from the soil, as a result important minerals salts are also brought along with water from the soil which are essential for the growth of plant.

7. Why do some plants have to trap insects?

Answer: Some plants grow on infertile soil. To meet their nitrogen demand, they have to trap insects.

8. Explain some of the modifications of leaves found in plants.

Answer: They are as follows:

i. Leaf tendril – In case of certain weak-stemmed plants, leaves or leaflets are modified into wiry, coiled structures called tendrils. Tendrils touch any object, coil around it and provide support to the plant to climb up. Example – sweet pea. Fig. 1.12 (a) on page 7.

ii. Spines – Leaves are modified into spines to reduce water loss, like cactus. Fig. 1.12 (b) on page 7.

iii. Scale leaves – In some plants, like onion and ginger, thin and dry or thick and fleshy scale leaves are present. Their function is to protect the buds. Fig. 1.12 (c) on page 7.

9. What is a tendril? Explain its uses to the plants.

Answer: A tendril is a wiry coil structure of leaf or leaflet of weak-stemmed plants. They give support to the plant to climb up by touching any object. Example – sweet pea.