The Leaf

1 Tick (✓) the appropriate answer:-

i) Identify the plant which has compound leaves.

a) Banana ☐ b) Banyan ☐

c) Mango ☐ d) Rose ☑

ii) Which one of the following is not an insectivorous plant:

a) Pitcher plant ☐ b) Venus fly trap ☐

c) Bladderwort ☐ d) Cactus ☑

iii) This leaf shows parallel venation:

a) Banana ☑ b) Mango ☐

c) Banyan ☐ d) Guava ☐

iv) The point on the stem from where the leaf arises is

a) Petiole ☐ b) Lamina ☐

c) Node ☑ d) Trunk ☐

v) Which of the following is essential for photosynthesis

a) Carbondioxide ☑ b) Nitrogen ☐

c) Oxygen ☐ d) Soil ☐

2 Name the following:-

i) The part of the plant which grows under the ground - Root system

ii) The part of the plant which grows above the soil - Shoot system.

Q-3 Differentiate between the following :-

i)

Tap root	Fibrous root
a) The tap root system has a thick main root called primary root and bears many side branches called secondary roots	a) The fibrous root system has a cluster of roots of the same thickness and size arising from the base of the stem. ~~It is found in plants such as~~
b) It is found in dicot plants such as gram and pea.	b) It is found in monocot plants such as maize and grass.

ii)

Simple leaf	Compound leaf
a) The lamina is undivided and is a single piece e.g- mango, banana	a) The leaf blade or lamina is divided into smaller units called leaflets. e.g- rose

iii)

Parallel venation	Reticulate venation
a) In this type of venation, veins run parallel to each other	a) In this type of venation veins and veinlets are irregularly distributed in the lamina, forming a network.
b) This type of venation is found in monocot plants. e.g- banana, grass	b) This type of venation is found in dicot plants. e.g- peepal, mang

Q-4. What are the four functions of roots ?

Ans- The functions of the root system are :-

1) It fixes the plant in the soil.
2) Absorbs water and minerals from the soil for the growth of entire plant.
3) Binds the soil together so that it does not get washed away during rain or blown away by the wind.

Q-5. Mention the functions of the following :-

Ans- i) Spines - Leaves are modified into spines to reduce the water loss.

ii) Tendril - Tendrils are found in weak stemmed plants as they touch any object, they coil around it and support the plant to climb up.

iii) Scale leaves - Scale leaves protect the buds.

Q-6. Define venation. What are the different types of venation found in the leaves.

Ans - Arrangement of veins in a lamina is called venation. The different types of venation found in the leaves are :-

1) Reticulate venation
2) Parallel venation

Q-7 Describe the modifications of leaf in any one insectivorous plant.

Ans- Venus flytrap is an insectivorous plant. 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 insects. The insect is then digested by digestive juices secreted by the plant.

Q-8 Write the two main functions of leaves.

Ans- The two main functions of leaf are - Photosynthesis and transpiration.

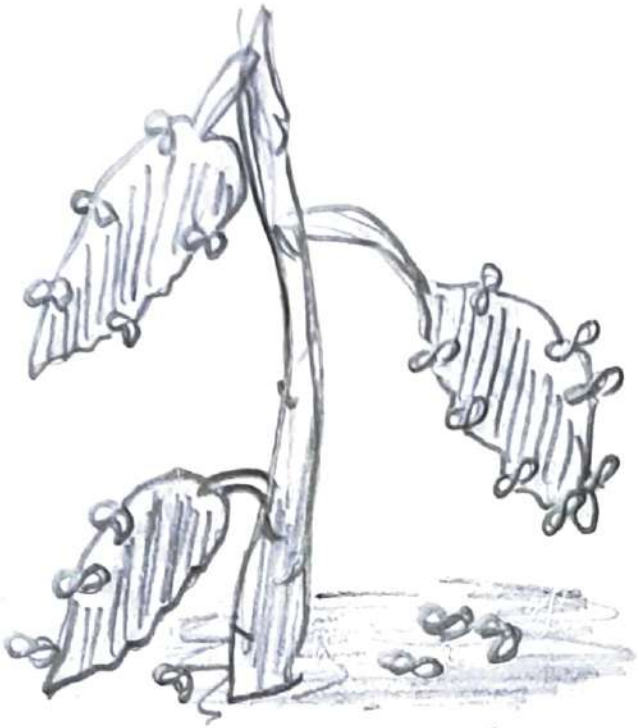
1) Photosynthesis - The leaf prepares or synthesises food from water and carbon-dioxide in the presence of chlorophyll and sunlight.

2) Transpiration - Leaves help in the evaporation of water as water vapour into the atmosphere from its surface.

-9 What is the modification seen in Bryophyllum? Explain.

ns - 1) Bryophyllum is a plant whose leaves produce adventitous buds in margin.

2) The adventitous buds grow into new plants when they fall off from the parent plant.



A BRYOPHYLLUM LEAF WITH GROWING ADVENTITIOUS BUDS

10. Define :-

i) Photosynthesis ii) Transpiration

i) Photosynthesis – The process by which plant leaf prepares or synthesises food from water and carbondioxide in the presence of chlorophyll and sunlight is called photosynthesis.

ii) Transpiration - The loss of water in the form of water vapour from the aerial parts of a plant is called transpiration.

11 Name the wide flat portion of the leaf.

ns- The wide flat portion of the leaf is called lamina or leaf blade.

Q-12 What purpose is served by the spines borne on the leaves of cactus ?

Ans- Leaves lose water by the process of transpiration but cactus grows in deserts. So the leaves of cactus are reduced to spines to prevent the loss of water by transpiration.

Q-13. Explain why leaf survival is so important to plant?

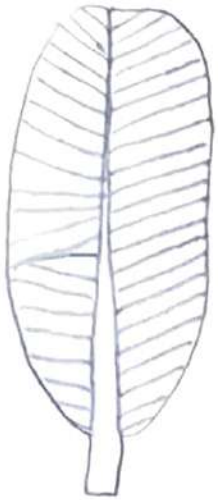
Ans- Leaf survival is so important to plants because it performs two main functions of Photosynthesis and transpiration. Leaves prepare food for themselves with the help of water and carbon-dioxide in the presence of chlorophyll and sunlight. Leaves transpire water in the form of watervapour which has a cooling effect and develops a suction force to make roots absorb more water with mineral ions.

Q-14. Give an example of the following and draw generalized diagrams for the same.

Example of

i) Simple leaf - mango, banana

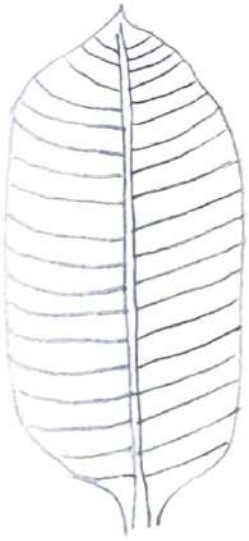
Compound leaf - Rose



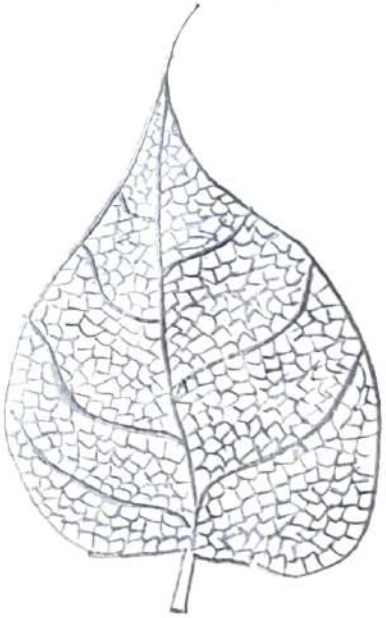
BANANA
(SIMPLE LEAF)

ROSE (COMPOUND LEAF)

ii) Parallel venation - banana
Reticulati venation - Peepal.



BANANA
PARALLEL VENATION



PEEPAL
RETICULATE VENATION

-15 Enlist some of the advantages of transpiration to green plants.

ns- Advantages of transpiration -

1) Cooling effect - The water keeps on evaporating from the leaf surface during transpiration.

The heat required for evaporation of water is obtained from the plant itself and thus, the Plant cools itself when it is hot outside.

2) Transpirational Pull - As water continually evaporates from the leaf surface, the roots pull up more water from the soil to make up for the water loss during transpiration. As a result, important mineral salts are also brought along with the water from the soil by the roots.

Q-16 Why do some plants have to trap insects?

Ans - In hills or mountains the soil is usually poor in nutrients. So in order to get nutrition and to meet their nitrogen demand, they trap insects.

Q-17 Explain some of the modifications of leaves found in plants.

Ans - Some modifications of leaves found in plants are

1) Leaf Tendril - In weak stemmed plants the leaves are modified into tendrils. The tendrils on touching an object, coil around it and support the plant to climb up. e.g. Sweet pea.

2) Spines - Leaves are modified into spines to reduce water loss, like cactus. e.g - Prickly poppy.

3) Scale leaves - In some plants leaves are modified into thin and dry or thick and fleshy scale leaves. e.g - onion.

Q-18 What is a tendril? Explain its use to the plant.

Ans- A tendril is a modified leaf having a wiry coiled structure in certain weak stemmed plants.

Use of tendril - When they touch any object, they coil around it and support the plant to climb up. e.g. Sweet Pea.

Q-19. Complete the crossword

1. Plant that bears buds in leaves for propagation
   ⇒ Bryophyllum.
2. The flattened green part of the leaf.
   ⇒ Lamina
3. Underground plant part
   ⇒ Root
4. Structure that develops into flower
   ⇒ Bud.
5. The central big vein of a leaf.
   ⇒ Midrib
6. A modification seen in cactus
   ⇒ Spine.