Nutrition in Plants

1. Why do organisms need to take food?

Answer: All living organisms require food for the proper growth and maintenance of the body. The food contains essential nutrients like carbohydrates, fats, proteins, vitamins and minerals. These produce energy which is useful for carrying out vital functions of the body.

2. Distinguish between a parasite and a saprotroph.

Answer:

Parasite	Saprotroph
A parasite lives on the host organism and derives all nutrition from it. The parasites do not kill the host instead makes it deprived of nutrients.	A saprotroph feeds on dead and decaying matter and convert it to solution by the digestive juices secreted by them.
Example: *Cuscuta*	Example: Fungi

3. How would you test the presence of starch in leaves?

Answer:
To test the presence of starch in leaves we need to perform an activity. Things required: Two potted plants, iodine and dropper.

Procedure: Take two healthy green potted plants of the same type. Keep one potted plant in a dark room for one or two days in order to remove all the starch from the leaves. Keep the other plant in sunlight. Now, take one leaf from each potted plant and put a few drops of iodine solution on them. Then note down the observation.

Observation: The leaf of the potted plant kept in sunlight will turn blue black on adding iodine but the leaf kept in dark will remain unchanged.

Conclusion: The plant kept in dark will not photosynthesize and therefore no starch would be produced while the plant kept in sunlight will photosynthesize producing starch in leaves.

Photosynthesis is defined as the process in which the chlorophyll-containing plant cells synthesise food in the form of carbohydrates, using carbon dioxide and water in the presence of solar energy.

4. Give a brief description of the process of synthesis of food in green plants.

Answer:

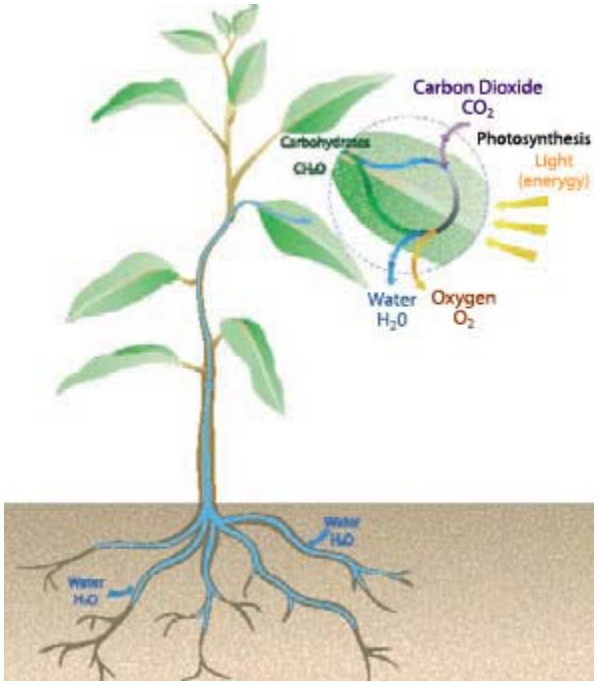
The process of synthesis of food in green plants occurs in the leaves. Photosynthesis is defined as the process in which the chlorophyll-containing plant cells synthesise food in the form of carbohydrates and give out oxygen using carbon dioxide and water in the presence of solar energy.

- Water is absorbed by the roots and carbon dioxide from the atmosphere.
- The solar energy from the sun is converted to chemical energy which is then utilized by the plants.
- The oxygen given as a byproduct is then consumed by other living organisms for respiration.
- The photosynthesis equation can be stated as:

$$\text{Carbon dioxide + Water} \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} \text{Carbohydrates + Oxygen}$$

5. Show with the help of a sketch that the plants are the ultimate source of food.

Answer:



6. Fill in the blanks:

(a) Green plants are called _____ since they synthesise their own food.
(b) The food synthesised by the plants is stored as _____.
(c) In photosynthesis solar energy is captured by the pigment called _____.
(d) During photosynthesis plants take in _____ and release _____.

Answer:

(a) Green plants are called **autotrophs** since they synthesise their own food.
(b) The food synthesised by the plants is stored as **starch**.
(c) In photosynthesis solar energy is captured by the pigment called **chlorophyll**.
(d) During photosynthesis plants take in **carbon dioxide** and release **oxygen**.

7. Name the following:

(i) A parasitic plant with yellow, slender and tubular stem.
(ii) A plant that has both autotrophic and heterotrophic mode of nutrition.
(iii) The pores through which leaves exchange gases.

Answer:
(i) *Cuscuta*
(ii) Pitcher plant
(iii) Stomata

8. Tick the correct answer:

(a) Amarbel is an example of:
(i) autotroph
(ii) parasite
(iii) saprotroph
(iv) host

Answer: Parsite

(b) The plant which traps and feeds on insects is:
(i) cuscuta
(ii) china rose

(iii) pitcher plant
(iv) rose

Answer: Pitcher plant

9. **Match the items given in Column I with those in Column II:**

Column I	Column II
Chlorophyll	Bacteria
Nitrogen	Heterotrophs
Amarbel	Pitcher plant
Animals	Leaf
Insects	Parasite

Answer:

Column I	Column II
Chlorophyll	Leaf
Nitrogen	Bacteria
Amarbel	Parasite
Animals	Heterotrophs
Insects	Pitcher plant

10. Mark 'T' if the statement is true and 'F' if it is false:

(i) Carbon dioxide is released during photosynthesis. (T/F)
(ii) Plants which synthesise their food themselves are called saprotrophs. (T/F)
(iii) The product of photosynthesis is not a protein. (T/F)
(iv) Solar energy is converted into chemical energy during photosynthesis. (T/F)

Answer:

(i) Carbon dioxide is released during photosynthesis. (F)
(ii) Plants which synthesise their food themselves are called saprotrophs. (F)
(iii) The product of photosynthesis is not a protein. (T)
(iv) Solar energy is converted into chemical energy during photosynthesis. (T)

11. Choose the correct option from the following:

Which part of the plant gets carbon dioxide from the air for photosynthesis?
(i) root hair
(ii) stomata

(iii) leaf veins
(iv) sepals

Answer: stomata

12. Choose the correct option from the following:

Plants take carbon dioxide from the atmosphere mainly through their:
(i) roots
(ii) stem
(iii) flowers
(iv) leaves

Answer: leaves