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1. Why do organisms take food?

Solution:

All organisms require energy for their life processes. Plants prepare their food and acquire nutrients from abiotic components like soil, air, water and sunlight. On the other hand, animals need to get food from either plants or other animals to obtain nutrients; hence, animals need to take food to acquire nutrients and energy.

2. Distinguish between a parasite and a saprophyte.

Solution:

Saprophytes	**Parasites**
Acquire nutrients from dead and decaying matter.	Parasites live on or in a host and get their food at the expense of their host.
Example: Fungi	Example: Roundworm

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

Solution:

Take two potted plants of the same kind. Keep one in the dark for 72 hours and the other in the sunlight. Perform the iodine test with the leaves of both plants as given below. Now, leave the pot, which was earlier kept in the dark, undisturbed for 3–4 days and perform the iodine test again on its leaves.

Iodine test:

Put iodine solution on the leaf.

Observation:

Blue-black colour will be observed on the leaves of the plant kept in sunlight, which indicates the presence of starch.

Blue-black colour will not be observed on the leaves of plants kept in the darkroom. This indicates the absence of starch.

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

Solution:

Green plants use a process called photosynthesis to prepare their food. The process is as follows

- Water is taken from the roots of the plant, and it is transported to the leaves of the plant.

- Carbon dioxide from the air enters the leaves through pores called stomata. This diffuses the cell containing chlorophyll.
- Water molecule is broken down into Hydrogen and Oxygen with the help of sunlight.
- Hydrogen combines with Oxygen and Hydrogen to form carbohydrates.
- Photosynthesis is represented by the following equation.

$$\text{Carbon dioxide} + \text{water} \xrightarrow[\text{chlorophyll}]{\text{sunlight}} \text{Carbohydrate} + \text{oxygen}$$

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

Solution:

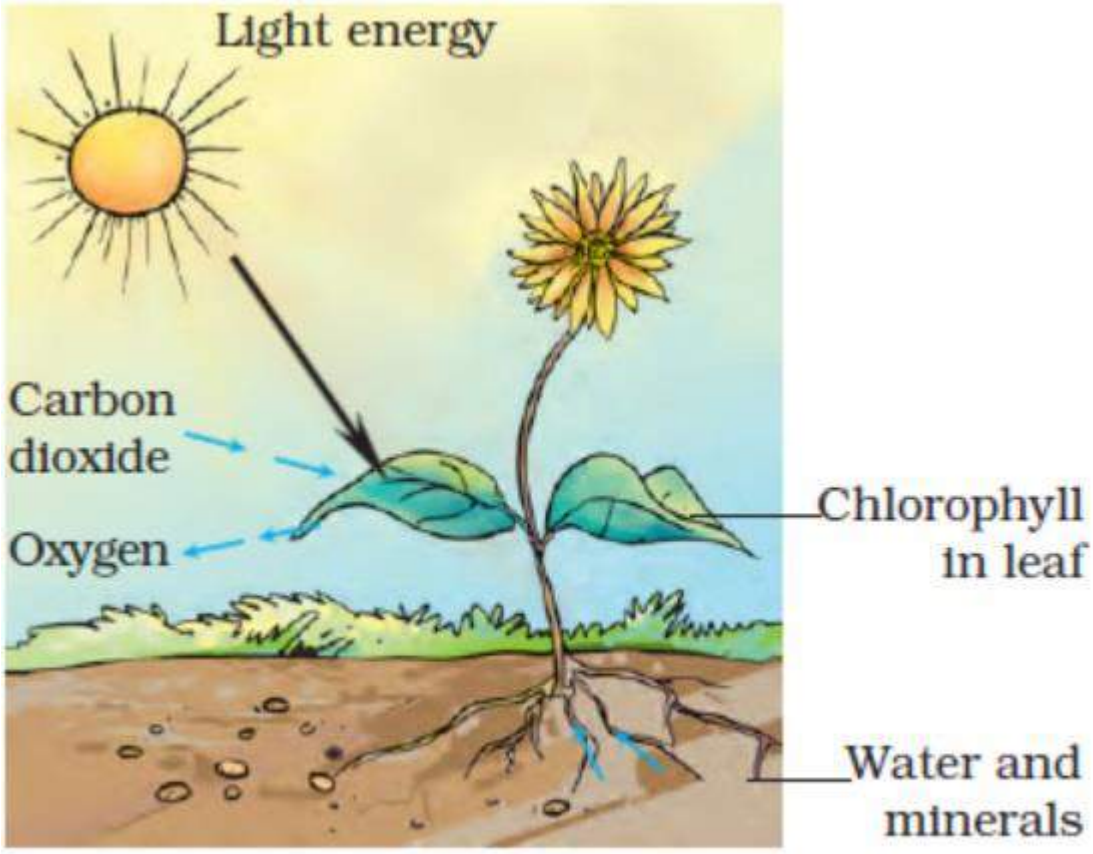

***Fig. 1.3** Diagram showing photosynthesis*

6. Fill in the blanks.

(a) Green plants are called _____ since they synthesise their own food.

(b) The food synthesised by plants is stored as _____.

(c) In photosynthesis, solar energy is absorbed by the pigment called _____.

(d) During photosynthesis, plants take in _____ and release _____ gas.

Solution:

(a) Green plants are called **autotrophs** since they synthesise their food.

(b) The food synthesised by plants is stored as **starch**.

(c) In photosynthesis, solar energy is absorbed by the pigment called **chlorophyll.**

(d) During photosynthesis, plants take in **carbon dioxide** and release **oxygen** gas.

7. Name the following.

i) A parasitic plant with a yellow, slender and branched stem.

ii) A plant that is partially autotrophic.

iii) The pores through which leaves exchange gases.

Solution:

i) Cuscuta

ii) Pitcher plant

iii) Stomata

8. Tick the correct answer.

(a) Cuscuta is an example of:

(i) autotroph

(ii) parasite

(iii) saprotroph
(iv) host

(b) The plant which traps and feeds on insects is:

(i) Cuscuta

(ii) China rose

(iii) pitcher plant

(iv) rose

Solution:

(a) (ii) Parasite

(b) (iii) pitcher plant

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

Column-I	Column-II
Chlorophyll	Rhizobium
Nitrogen	Heterotrophs
Cuscuta	Pitcher plant
Animals	Leaf
Insects	Parasite

Solution:

Column-I	Column-II
Chlorophyll	Leaf
Nitrogen	Rhizobium
Cuscuta	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 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)

Solution:

1. False
2. False
3. True
4. True

11. Choose the correct option from the following:

Which part of the plant takes in carbon dioxide from the air for photosynthesis?

(i) Root hair (ii) Stomata (iii) Leaf veins (iv) Petals

Solution:

The answer is (ii) 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

Solution:

The answer is (iv) leaves

13. Why do farmers grow many fruits and vegetable crops inside large greenhouses? What are the advantages to the farmers?

Solution:

Fruits and vegetable crops are grown in large greenhouses because it protects crops from external climatic conditions and provides suitable temperature for the growth of crops.

Advantages to farmers while growing fruits and vegetable crops inside greenhouses are

- It protects crops from diseases and adverse climatic conditions.
- It protects crops from wind and rodents