

Science

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(Chapter – 1) (Nutrition in Plants)

(Class – VII)

Exercises

Question 1:

Why do organisms need to take food?

Answer 1:

All organisms need to take food to get energy for the growth, development and maintenance of their bodies.

Question 2:

Distinguish between a parasite and a saprotroph.

Answer 2:

Difference between a parasite and a saprotroph:

S. No.	Parasite	Saprotroph
1.	Organisms derive nutrition from the body of other living organisms (host) are parasites.	Plants which derive nutrition from dead and decaying organisms are called saprotrophs.
2.	Example: Cuscuta (Amar bel)	Example: Mushrooms.
3.	 <i>Cuscuta (Amarbel) on host plant</i> <small>www.tiwariacademy.com</small>	 <i>Mushrooms</i> <small>www.tiwariacademy.com</small>

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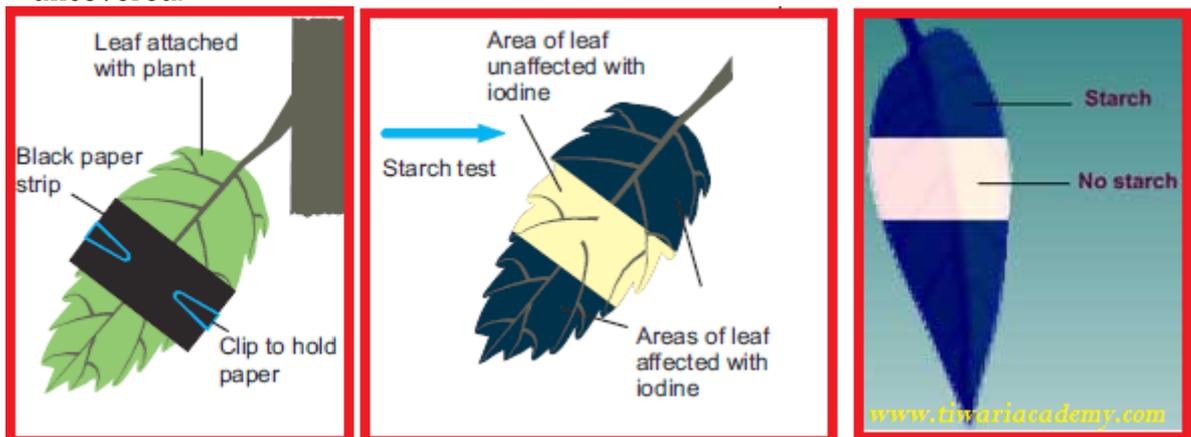
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Question 3:

How would you test the presence of starch in leaves?

Answer 3:

- Take a potted plant with variegated leaves – for example, money plant or crotons.
- Keep the plant in a dark room for three days so that all the starch gets used up.
- Now select a leaf cover its portion with a black strip paper and keep the plant in sunlight for about six hours.
- Pluck the leaf from the plant. Mark the uncovered area in it and trace them on a sheet of paper.
- Dip the leaf in boiling water for a few minutes.
- After this, immerse it in a beaker containing alcohol.
- Carefully place the above beaker in a water-bath and heat till the alcohol begins to boil.
- Now dip the leaf in a dilute solution of iodine for a few minutes.
- Take out the leaf and rinse off the iodine solution.
- You observe that the presence of starch in various areas of the leaf which was uncovered.



Question 4:

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

Answer 4:

Leaves are the food factories of plants. The synthesis of food in plants occurs in leaves. Therefore, all the raw materials (Water, Carbon dioxide and sunlight) must reach there. Water and minerals are transported to the leaves by the vessels which run like pipes throughout the root, the stem, the branches and the leaves. The leaves have a green pigment called chlorophyll which helps leaves to capture the energy of the sunlight. This energy is used to synthesise (prepare) food from carbon dioxide and water.

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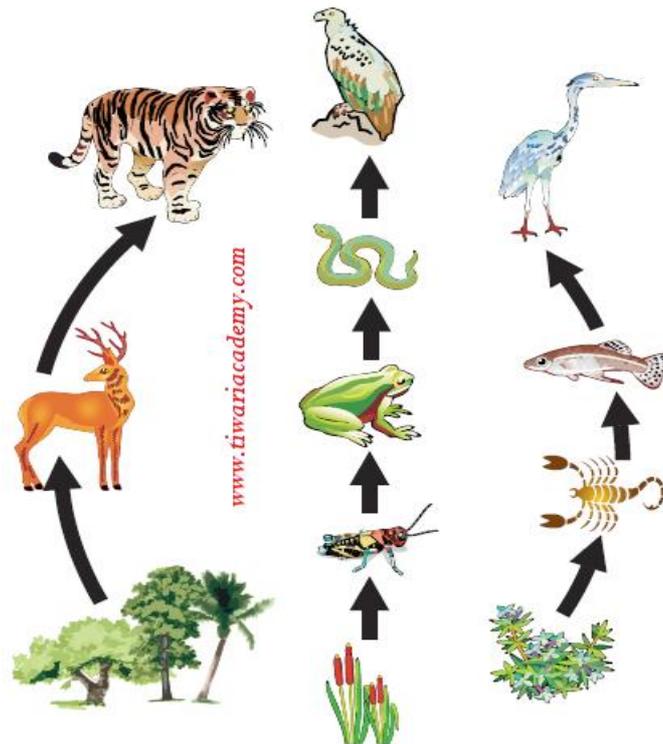
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Question 5:

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

Answer 5:

All the living being depends on plants whether directly or indirectly. For example, the plant eater animals depends directly on plants but carnivore depends indirectly on plants. The following sketch shows some examples of plant dependency.



Question 6:

Fill in the blanks:

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

Answer 6:

- Green plants are called **autotrophs** since they synthesise their own food.
- The food synthesised by the plants is stored as **starch**.
- In photosynthesis solar energy is captured by the pigment called **Chlorophyll**.
- During photosynthesis plants take in **carbon dioxide** and release **oxygen**.

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Question 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 7:

- (i) A parasitic plant with yellow, slender and tubular stem – *Cuscuta*
- (ii) A plant that has both autotrophic and heterotrophic mode of nutrition - *Pitcher plant, Venus flytrap.*
- (iii) The pores through which leaves exchange gases - *Stomata*

Question 8:

Tick the correct answer:

(a) Amarbel 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

Answer 8:

- (a) Amarbel is an example of (ii) parasite.
- (b) The plant which traps and feeds on insects is (iii) pitcher plant.

Question 9:

Match the items given in Column I with those in Column II:

Column I

Chlorophyll
Nitrogen
Amarbel
Animals
Insects

Column II

Bacteria
Heterotrophs
Pitcher plant
Leaf
Parasite

Answer 9:

Column I

Chlorophyll
Nitrogen
Amarbel
Animals
Insects

Column II

Leaf
Bacteria
Parasite
Heterotrophs
Pitcher plant

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Question 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 10:

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

Question 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) Sepals

Answer 11:

- (ii) Stomata

Question 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 12:

- (iv) leaves

