

Chapter 1- Nutrition in Plants

Answer the following questions-

Q1. Why do organisms take food?

Ans1. 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.

Q2. Distinguish between a parasite and a saprophyte.

Ans2.

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

Q3. How would you test the presence of starch in leaves?

Ans3. Take two potted plants of the same kind. Keep one in the dark for 72 hours and the other in sunlight. Perform the iodine test with the leaves of both the 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 plant 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.

Ans4. Green plants use a process called as photosynthesis to prepare their food. The process is as follows

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



Q5. Why do farmers grow many fruits and vegetable crops inside large greenhouses?

Ans5. Fruits and vegetable crops are grown in large greenhouses because it protects crops from external climatic condition and to provide suitable temperature for the growth of crops.

Q6. Potato and ginger both are underground parts that store food. Where is the food prepared in these plants?

Ans6. In both the plants shoot system and leaves are above the ground. They prepare food through photosynthesis and transport it to the underground parts for storage.

Q7. What is the function of guard cells of stomata?

Ans7. Guard cells help in controlling the opening and closing of stomata for gaseous exchange.

Q8. A carbohydrate is produced by plants as food source. It is constituted from which molecules?

Ans8. Carbohydrates are composed of hydrogen, oxygen and carbon.

Q9. Except plants, why cannot other organisms prepare their own food using carbon dioxide and water?

Ans9. Other organisms does not contain chlorophyll for absorbing solar energy which is necessary for preparing food using air, water etc.

Q10. Why do some plants feed on insects?

Ans10. Insectivorous plants grow in soil which lacks nitrogen, therefore they eat insects to fulfil their need of nitrogen.

Q11. Name the bacteria that can fix atmospheric nitrogen.

Ans11. Rhizobium is the bacteria that can fix atmospheric nitrogen.

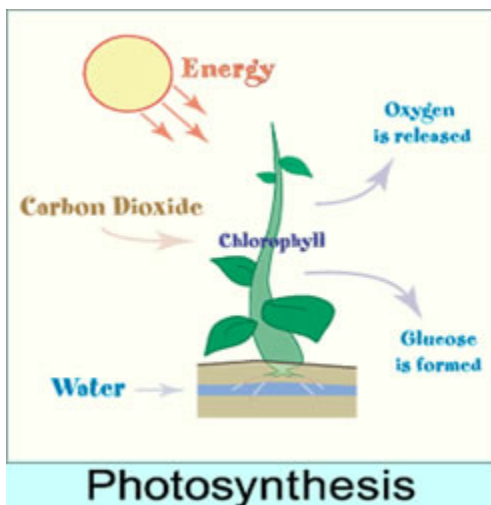
Q12. Differentiate between Autotroph and Heterotroph.

Ans12.

Autotrophs	Heterotrophs
They can prepare their own food	They cannot prepare their own food.
They take in simple inorganic substances and change it into complex organic food, e.g green plants	They take in complex food and breakdown it into simple compounds, e.g all animals, fungi

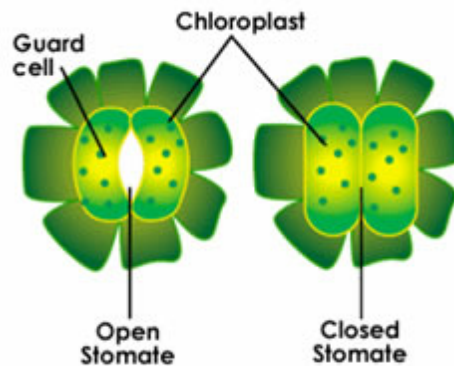
Q13. Draw a labelled diagram showing the process of photosynthesis.

Ans13.



Q14. Draw diagram of a leaf showing chlorophyll, and stomata in it.

Ans14.



Q15. Explain how Pitcher plants get their nutrition?

Ans15. When an insect lands in the pitcher, the lid closes and the trapped insect gets entangled into the hair. The insect is digested by the digestive juices secreted in the pitcher.

Q16. What do you understand by symbiotic relationship present in some organism?

Ans16. Some organisms live together and share shelter and nutrients. This is called symbiotic relationship. E.g. an alga, and a fungus live together fungus provides shelter, water and minerals to the alga and, in return, the alga provides food which it prepares by photosynthesis. In this kind of association both partners are benefited.

Q17. Explain the food factory of plants.

Ans17. Leaves are called food factory of plants, as the synthesis of food takes place in leaves of plants. Water and minerals present in soil are absorbed by roots and transported to leaves via stem. Carbon dioxide from air is taken in through tiny pores on surface of leaves called stomata.

Q18. How nutrients are replenished in soil?

Ans18. Nutrients are replenished in soil by following ways:

- By spreading manure or fertilizers that contain nutrients such as nitrogen in the fields
- By the bacterium Rhizobium that is commonly present in root nodules of leguminous plant that can take atmospheric nitrogen and convert it into a soluble form like nitrates.