

Class: 7

Subject: Biology

Topic: Nutrition in Plants

No. of Questions: 20

Q1. Fill in the blanks:

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

Sol

- (a) Autotrophs
- (b) Starch
- (c) Chlorophyll
- (d) Carbon dioxide; oxygen

Q2. Name the following:

- (a) A parasitic plant with yellow, slender, tubular stem
- (b) A plant that has both autotrophic and heterotrophic mode of nutrition
- (c) The pores through which leaves exchange gases
- (d) A plant that has both autotrophic as well as heterotrophic mode of nutrition
- (e) An organism that live is an association of an alga and a fungus
- (f) Amarbel is an example of _____
- (g) The plant which traps and feeds on insects is _____

Sol

- (a) Cascuta
- (b) Insectivorous plants
- (c) Stomata
- (d) Pitcher plant
- (e) Lichen
- (f) Parasites
- (g) Pitcher plant

Q3. What are Nutrients?

Sol. Food is essential for all living organisms. Carbohydrates, proteins, fats, vitamins and minerals are components of food. The chemical substance present in components of food is necessary for our body and is called nutrients.

Q4. How humans and animals are directly or indirectly dependent on plants?

Sol. All living organisms require food. Plants can make their food themselves but animals including humans cannot. They get it from plants or animals that eat plants. Thus, humans and animals are directly or indirectly dependent on plants.

Q5. Whether food is made in all parts of a plant or only in certain parts?

Sol. Only certain part plant like leaves having green pigment chlorophyll. So Leaves are called the food factories of plants.

Besides leaves, photosynthesis also takes place in other green parts of the plant — in green stems and green branches. The desert plants have scale- or spine-like leaves to reduce loss of water by transpiration. These plants have green stems which carry out photosynthesis.

Q6. How do plants obtain the raw materials from the surroundings?

Sol. Water and minerals present in the soil are absorbed by the roots and transported to the leaves. Carbon dioxide from air is taken in through the tiny pores present on the surface of the leaves. Such pores are called stomata. These pores are surrounded by 'guard cells'

Q7. How do the raw materials transport them to the food factories of the plants?

Sol. Plants have pipe-like vessels to transport water and nutrients from the soil. The vessels are made of special cells, forming the vascular tissue. The vascular tissue for the transport of water and nutrients in the plant is called the xylem.

Q8. What is cell?

Sol. Cell is called the building blocks of living organism. Cells can be seen only under the microscope. Some organisms are made of only one cell. They are called Unicellular Ex. Amoeba, Paramecium etc
Living organism made up of many cells are called Multi cellular like man, tree etc

Q9. What are the main requirements of photo synthesis?

Sol. Chlorophyll, sunlight, carbon dioxide and water are necessary to carry out the process of Photosynthesis.

Q10. Explain the process of Photosynthesis?

Sol. Carbon dioxide from air is taken in through stomata. Chlorophyll helps leaves to capture the energy of the sunlight. This energy is used to synthesize (prepare) food (in the form of carbohydrates) from carbon dioxide and water. Since the synthesis of food occurs in the presence of sunlight, it is called photosynthesis

Q11. How would you test the presence of starch on leaves?

Sol. Put 2-3 drops of dilute iodine solution on the leaves. Appearance of a blue-black colour indicates presence of starch in the leaves.

Q12. Why leaves are called the food factories of plants? Explain.

Sol. Leaves are called the food factories of plants due to following functions

- Green leaves have all the raw materials necessary to carry the process of photosynthesis.
- They have chlorophyll (green pigment) which captures the energy of sunlight.
- Leaves consist of tiny pores called stomata on their surface.
- Carbon dioxide from air is taken in through stomata.
- Water and minerals are absorbed by the roots from the soil and transported to the leaves by vessels.

Q13. Why sun is called the ultimate source of energy for all living organisms?

Sol. The solar energy is captured by the leaves and stored in the plant in the form of food and this in turn use by other organism to get food to obtain energy Thus; sun is the ultimate source of energy for all living organisms.

Q14. Why algae are green in colour?

Sol. Algae contain chlorophyll which gives them the green colour. It can also prepare their own food by photosynthesis.

Q15. What are the main components presents in carbohydrates?

Sol. The main components presents in carbohydrates are carbon, hydrogen and oxygen.

Q16. From where do the plants obtain nitrogen?

Sol. Soil has certain bacteria that convert gaseous nitrogen into a usable form and release it into the soil. These soluble forms are absorbed by the plants along with water. By adding fertilizers rich in nitrogen to the soil farmers also made nitrogen available for plants

Q17. What is parasitic nutrition?

Sol. The mode of nutrition by which parasitic organism get and synthesize their food is called parasitic nutrition. Example *Cuscuta* It does not have chlorophyll it takes readymade food from the plant on which it is climbing. The plant on which it climbs is called a host.

Q18. How Pitcher plants get their nutrition?

Sol. There are a few plants which can trap insects and digest them. Such plants may be green or of some other colour. Such insect-eating plants are called insectivorous plants. Example Pitcher plant-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.

Q19. Why does the pitcher plant feed on insects though it is green?

Sol. The pitcher plant does not get all the required nutrients especially those of nitrogen from the soil, hence it feeds on insects.

Q20. What is saprotrophic nutrition? What is the mode of nutrition in fungi?

Sol. This mode of nutrition in which organisms take in nutrients in solution form from dead and decaying matter is called saprotrophic nutrition. Plants which use saprotrophic mode of nutrition are called saprotrophs. Example Fungi that secrete digestive juices on the dead and decaying matter and convert it into a solution. Then they absorb the nutrients from it.