

Important Questions for Class 7

Science

Chapter 1- Nutrition in Plants

Very Short Answer Questions

1 Mark

1. Fill in the blanks:

i) The components essential for our body are called _____.

Ans: Nutrients

ii) We obtain nutrients through _____.

Ans: Food

iii) Carbohydrates, _____ and fats are important nutrients.

Ans: Proteins

iv) _____ can make their own food from simple nutrients.

Ans: Plants/Autotrophs

v) All animals are directly or indirectly _____ on plants for food.

Ans: Depend

2. State whether true or false. If false, correct the statement by changing the underlined word

a) Animals are the only organisms that can prepare their own food using simple substances from the surroundings.

Ans: The given statement is false. Plants are the only organisms that can prepare their own food using simple substances from the surroundings.

b) The intake of food by an organism is called nutrition.

Ans: The given statement is true.

c) Stomata absorb sunlight for photosynthesis.

Ans: The given statement is false. Chlorophyll absorbs sunlight for photosynthesis.

d) Insectivorous plants are autotrophic.

Ans: The given statement is false. Insectivorous plants are partially heterotrophic.

e) **Starch on reacting with iodine solution turns brown in colour.**

Ans: The given statement is false. Starch on reacting with iodine turns blue-black in colour.

3. Define the following terms:

a) Nutrition

Ans: The process by which an organism receives and digests food to get the nutrients in soluble and simple forms is called Nutrition.

b) Autotrophs

Ans: The organisms which can build their own food with the help of molecules like carbon dioxide gas and water from their surroundings with the assistance of sunlight and chlorophyll are called Autotrophs.

c) Photosynthesis

Ans: The process by which organisms use sunlight to synthesize nutrients from carbon dioxide and water to create their own food is called Photosynthesis. In plants photosynthesis generally involves the green pigment called chlorophyll and generates oxygen as a secondary product.

d) Host

Ans: An organism that provides nourishment and/or shelters to some other organism is called a Host. The host supports and provides nourishment for the parasite (guest) and hence the host is negatively affected by this relationship.

e) Parasite

Ans: An organism that lives inside or on an organism of another species (its host) and which relies on the host for all the nutrients is called Parasite. The parasite is not able to survive without the host body.

Short Answer Questions

3 marks

1. What are stomata? Explain their function.

Ans: The tiny pores present on the underside of the leaf surface and surrounded by guard cells are called stomata.

The functions of stomata include,

1. Exchanging gases by the process called diffusion for photosynthesis and respiration.
2. Transpiration of water i.e. the loss of excess water from the plant by evaporation of water from the upper surface of the leaf.

2. How is sunlight used by the plant for photosynthesis?

Ans:

1. The main energy source for photosynthesis is sunlight.
2. Sunlight is trapped by the green pigment chlorophyll which is present in all green parts of the plants including leaves.
3. The energy of the sunlight converts water and carbon dioxide into a sugar called glucose.
4. Glucose is used by plants for generating energy and to make other essential substances like cellulose and starch.

3. Why are some plants insectivorous? Give examples.

Ans:

1. Plants require nutrients like nitrogen in addition to carbohydrates for survival.
2. In the places where there is a lack of nutrients, especially nitrogen, some plants fulfil their nitrogen requirements by digesting insects in order to absorb the necessary nitrogen.
3. Examples of insectivorous plants include Venus flytrap, Utricularia, Drosera, Rafflesia, Pitcher plant, etc.

4. Explain the saprotrophic mode of nutrition with an example.

Ans:

1. Partial digestion of substrate outside the body and then absorbing the digested material into the body is called the saprotrophic mode of nutrition.
2. With the saprotrophic mode of nutrition, the body releases digestive enzymes to the substrate which causes the partial breakdown of the substrate which later on gets absorbed by the body.
3. Examples of organisms that follow a saprotrophic mode of nutrition include some detritivores such as fungi.

5. What is symbiosis? Explain with help of an example.

Ans:

1. Symbiosis is a relationship that exists between two organisms living in a close physical association which is mutually beneficial for both.
2. In this relationship both organisms are equally benefited and no organism is affected by this relationship. These interactions last for a long term with the survival of both species.
3. Examples of organisms that follow symbiosis include lichen, mycorrhiza, etc.

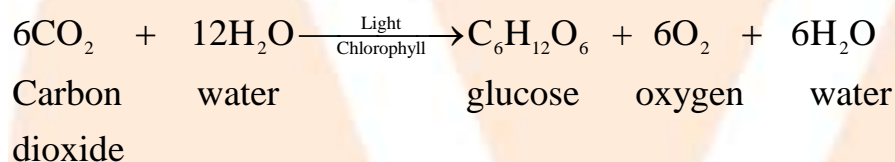
Long Answer Questions

5 marks

1. Explain how photosynthesis occurs in plants.

Ans:

1. The process by which organisms use sunlight to synthesize nutrients from carbon dioxide and water to create their own food is called Photosynthesis.
2. In this process, organic food like starch is synthesised by inorganic molecules like water and carbon dioxide.
3. The main energy source which is sunlight is trapped by the green pigment.
4. Chlorophyll is present in all green parts of the plants including leaves.
5. The raw materials required are carbon dioxide and water where carbon dioxide is absorbed from the atmosphere and water is absorbed from the soil.
6. The energy from sunlight enables a chemical reaction that converts carbon dioxide and water into glucose and oxygen.
7. Glucose is used by plants for generating energy and to make other essential substances like cellulose and starch.
8. The overall chemical reaction during the process of photosynthesis can be represented as follows:



2. How are nutrients replenished in soil naturally? How can the nutrients be replenished artificially?

Ans:

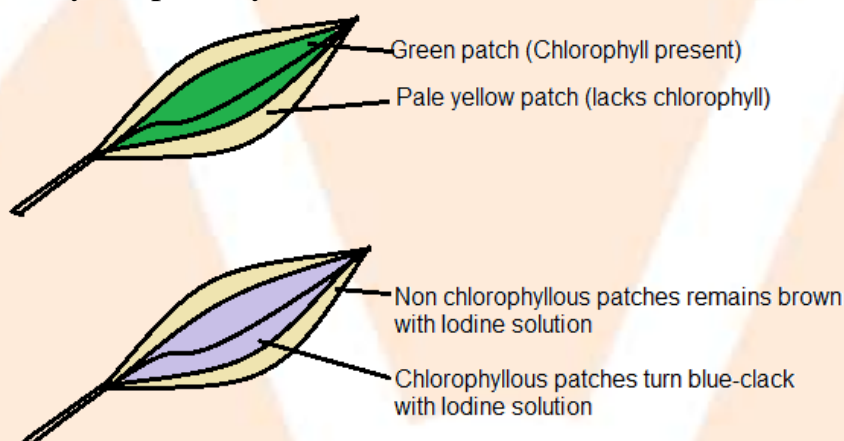
1. The source of nutrients for the plants is soil.
2. Plants receive nutrients from the soil which leads to depletion of nutrients in the soil.
3. Plants are unable to use nitrogen gas directly from the atmosphere. Some bacteria convert nitrogen from the atmosphere into soluble compounds that can be used by plants.
4. As they live in symbiotic association with the roots of leguminous plants, the nitrogen content is replenished in the soil by their actions. Nitrogen gets replenished in the soil naturally by using leguminous plants after cereal crops in the soil.
5. In an artificial way, the nutrients can be replenished by using fertilizers and manure.

3. How can we demonstrate that chlorophyll is necessary for photosynthesis?

Ans:

1. Necessity chlorophyll can be demonstrated by carrying out an experiment on a variegated leaf.

2. Before the start of the experiment, the outline of the leaf is traced on a piece of paper and the green areas are marked.
3. To allow the process of photosynthesis, the leaf is placed in sunlight for some hours.
4. The leaf is then boiled in alcohol so that it gets decolourized after which the iodine solution is added to the leaf.
5. It can be observed in response to iodine solution the green areas of the leaf turn blue-black which indicates that the starch is present.
6. Thus, through this experiment, it can be observed that photosynthesis occurs in the green areas of the variegated leaf which shows that chlorophyll is necessary for photosynthesis.



4. How do plants obtain nutrients other than carbohydrates?

Ans:

1. Plants synthesize carbohydrates using energy from sunlight to convert carbon dioxide and water to glucose and further on into starch.
2. The nutrients other than carbohydrates are obtained directly from the soil.
3. The nitrogen content is replenished in the soil by the action of nitrogen-fixing bacteria. Nitrogen gets replenished in the soil naturally by using leguminous plants after cereal crops in the soil. Nitrogen compounds can be replenished in artificial ways by adding fertilizers and manure to the soil.
4. Some insectivorous plants like the pitcher plant and Venus flytrap get their nitrogen requirements fulfilled by consuming insects. In this process the insects are trapped and digested by the plant and the nutrients are released into the body of the plant.