



Chapter 1- Nutrition in Plants

Question Bank

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

Complete the following: 1 mark

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

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

(c) In photosynthesis solar energy is captured by the pigment called _____

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

(e) A plant that has both autotrophic and heterotrophic mode of nutrition.

(f) The pores through which leaves exchange gases are called _____.

Ans. (a) autotrophs (b) starch (c) chlorophyll (d) carbon dioxide, oxygen

(e) insectivorous plants (f) stomata

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

<i>Column I</i>	<i>Column II</i>
<i>Chlorophyll</i>	<i>Bacteria</i>
<i>Nitrogen</i>	<i>Heterotrophs</i>
<i>Amarbel</i>	<i>Pitcher plant</i>
<i>Animals</i>	<i>Leaf</i>
<i>Insects</i>	<i>Parasite</i>

Ans.

<i>Column I</i>	<i>Column II</i>
Chlorophyll	Leaf
Nitrogen	Bacteria
Amarbel	Parasite
Animals	Heterotrophs
Insects	Pitcher plant

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.

Define the following terms:

a) Nutrition

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

b) Autotrophs

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

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

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

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. Why do organisms need to take food?

The main function of food is to help in growth.

- ✓ Food provides energy for movements such as running, walking or raising our arm, etc.
- ✓ Food is also needed for replacement and repairing damaged parts of body.
- ✓ Food gives us resistance to fight against diseases and protects us from infections.

2. What are stomata? Explain their function.

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

The functions of stomata include,

- ❖ Exchanging gases by the process called diffusion for photosynthesis and respiration.
- ❖ 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?

- ❖ The main energy source for photosynthesis is sunlight.
- ❖ Sunlight is trapped by the green pigment chlorophyll which is present in all green parts of the plants including leaves.
- ❖ The energy of the sunlight converts water and carbon dioxide into a sugar called glucose.
- ❖ 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.

- ❖ Plants require nutrients like nitrogen in addition to carbohydrates for survival.
- ❖ 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.
- ❖ Examples of insectivorous plants include Venus flytrap, Utricularia, Drosera, Rafflesia, Pitcher plant, etc.

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

- ❖ Partial digestion of substrate outside the body and then absorbing the digested material into the body is called the saprotrophic mode of nutrition.
- ❖ 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.
- ❖ Examples of organisms that follow a saprotrophic mode of nutrition include some detritivores such as fungi.

Long Answer Questions 5 marks

1. Explain how photosynthesis occurs in plants.

- ✓ The process by which organisms use sunlight to synthesize nutrients from carbon dioxide and water to create their own food is called Photosynthesis.
- ✓ In this process, organic food like starch is synthesised by inorganic molecules like water and carbon dioxide.
- ✓ The main energy source which is sunlight is trapped by the green pigment.
- ✓ 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.
- ✓ The energy from sunlight enables a chemical reaction that converts carbon dioxide and water into glucose and oxygen.
- ✓ Glucose is used by plants for generating energy and to make other essential substances like cellulose and starch.

- ✓ 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?

The source of nutrients for the plants is soil.

- ✓ Plants receive nutrients from the soil which leads to depletion of nutrients in the soil.
- ✓ 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.
- ✓ 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.
- ✓ In an artificial way, the nutrients can be replenished by using fertilizers and manure.

3. How do plants obtain nutrients other than carbohydrates?

- ✓ Plants synthesize carbohydrates using energy from sunlight to convert carbon dioxide and water to glucose and further on into starch.
- ✓ The nutrients other than carbohydrates are obtained directly from the soil.
- ✓ 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.
- ✓ 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.