4. Nutrition in Living Organisms

Q. 1) Fill in the Blank.

1. The transport system of plants consists of the ..... and the ..... .

Ans. xylem, phloem.

2. Some organisms can produce their own food and thus nourish themselves this is called..... .

Ans. autotrophic nutrition.

3. The..... is found in Central and South America.

Ans. anteater

4. ..... is function of important component of proteins, chlorophyll and cytoplasm.

Ans. Nitrogen

5. Conversion of food into simple soluble forms is called..... .

Ans. digestion

6. The nitrogen dioxide dissolves in rainwater and is converted into..... .

Ans. nitric acid

7. The ..... is completely dependent on the host plant.

Ans. Cuscuta

Q. 2) Classify according to food-type.

Tiger, cow, vulture, bacteria, deer, goat, human, fungus, lion, sparrow, buffalo, frog, cockroach, tick.

Ans.

Herbivores	Carnivores	Omnivores	Scavengers	Decomposers Saprotrophic	Parasitic
Cow, Deer, Goat, Buffalo	Tiger, Lion, Frog	Sparrow, human, Cockroach	Vulture	Bacteria, Fungus	Tick

Q. 3) Match the pairs.

1

Group 'A'	Group 'B'
1. Parasitic plant	a. Mushroom
2. Insectivorous plant	b. Lichen
3. Saprophytic plant	c. Drosera
4. Symbiotic plant	d. Cuscuta

Ans.

Group 'A'	Group 'B'
1. Parasitic plant	Cuscuta
2. Insectivorous plant	Drosera
3. Saprophytic plant	Mushroom
4. Symbiotic plant	Lichen

2.

Group 'A'	Group 'B'
1.Herbivores	a. Decomposing the dead bodies of organisms
2. Carnivores	b. Both plants & animal Eaters
3. Omnivores	c. Dead bodies of animals
4. Scavengers	d. Animal Eaters
5. Decomposers	e. Plant Eaters

Ans.

Group 'A'	Group 'B'
1. Herbivores	Plant Eaters
2. Carnivores	Animal Eaters
3. Omnivores	Both plants & animal Eaters
4. Scavengers	Dead bodies of animals
5. Decomposers	Decomposing the dead bodies of organisms

Q. 4) Answer the following questions in your own words.

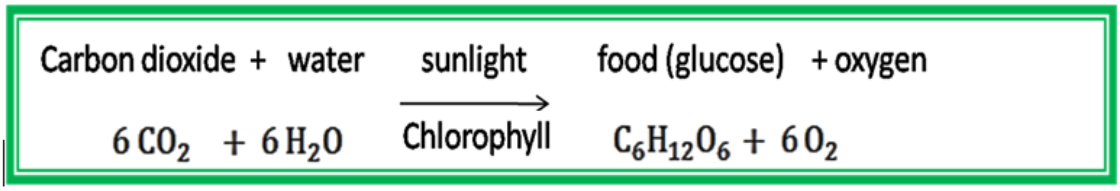
1. Why do living organisms need nutrition?

Ans. Living organisms need nutrition for the following reason. 1) In living organisms some life process continuously start. 2) To help in the growth and development of the body. 3) To have resistance to infections and diseases. 4) For the continuous supply of

energy to perform work. 5) To replace the worn out tissue and to repair the damaged tissues.

2. Explain the process of production of food in plants?

Ans. 1) By the process of photosynthesis the plants prepare their food. 2) Plants absorb minerals and water present in the soil with the help of roots. 3) The carbon dioxide is taken from the air and with the help of chlorophyll in the presence of sunlight; plant prepares glucose in the process of photosynthesis. 4) In this process oxygen is liberated by the plant. Chemical reaction of the photosynthesis is given below:



3. What is meant by parasitic plants? Name their different type with examples of each?

Ans. The plants that grow on the body of other plants to obtain food are called as parasitic plants. 1) The parasitic plants are heterotrophic in their mode of nutrition. Some of them lack chlorophyll and thus cannot perform photosynthesis on their own 2) Cuscuta or Dodder does not

have chlorophyll. It looks yellow, wire like climber. Hence it is complete parasite on the host tree. 3) Loranthus is partial parasite. It sucks the nutrition from its host but prepares its own food.

4. Explain the various steps of nutrition in animals.

Ans. There are main five steps of nutrition in animals, e.g., ingestion, digestion, absorption, assimilation and Egestion.

1) Ingestion: The process of food is taken into the body is called ingestion.

2) Digestion: It deals with Conversion of food simple soluble form. Different enzymes act on the complex food constituents and convert these into soluble nutrients. This process takes place at the different places in the alimentary canal.

3) Absorption: In this process soluble nutrients are converted into the blood. In small intestine is absorbs soluble nutrients.

4) Assimilation: Absorb soluble food used by cell and tissue for energy production growth and repair. The nutrients are taken to each cell and tissues through the blood circulation. In the cells, energy is produced using this nutrient. Once the energy is released, and then the food said to be assimilated.

5) Egestion: In this process removal of waste products and undigested food from the body.

5. Name some unicellular organisms in which all life-processes take place within their unicellular body?

Ans. In unicellular organisms all the life process takes place within single cell. e.g. Amoeba, Euglena and Paramoecium.

6. How does ingestion occur in unicellular animals like Amoeba?

Ans. 1) Amoeba is unicellular animal. It has no special organs for feeding and it takes the food through any part of its cell surface. 2) At the ingestion time a food particle is located it encircles and it include in to cell with the help of pseudopodia. 3) The food particle is taken inside the body. 4) Different enzymes are secreted over it by which it digests the food. 5) Then removal of waste products and

undigested food is to be thrown out, amoeba leaves it behind and moves further.

7. Which are the different substances excreted by the plants? Why?

Ans. Plants do not have excretory system so such substances are given out by the process of diffusion. Some substances are stored in the bark of the stem, while some are deposited in the old xylem vessel. Since these products

are useless for plants they are excreted by the plants. Plants Excrete substances like resins, gums, rubber, oil etc. which are not of any use to the plants. However, for human beings these are important commercial products.

Q. 5) Give reasons.

1. Insectivorous plants are attractively coloured.

Ans. Insectivorous plants feed upon insects to obtain nutrients. They need to capture the insects. In order to attract these insects towards the plant, they are attractively coloured.

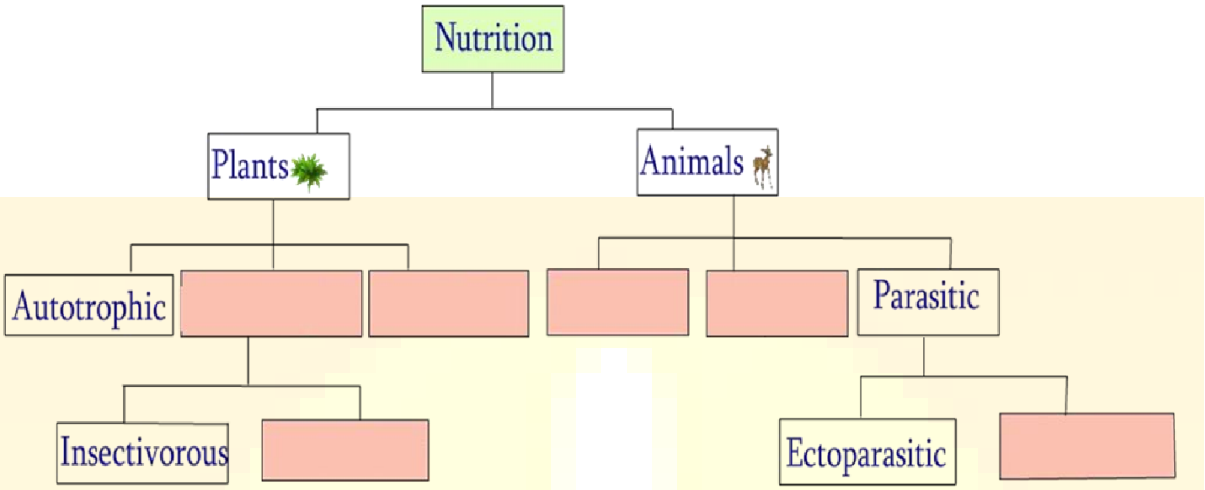
2. Butterflies have a long tube-like proboscis.

Ans. Insect is provided with mouth parts for ingestion. It feed on pollen and nectar from the flowers. Thus it has a tube like proboscis to suck this food from flower.

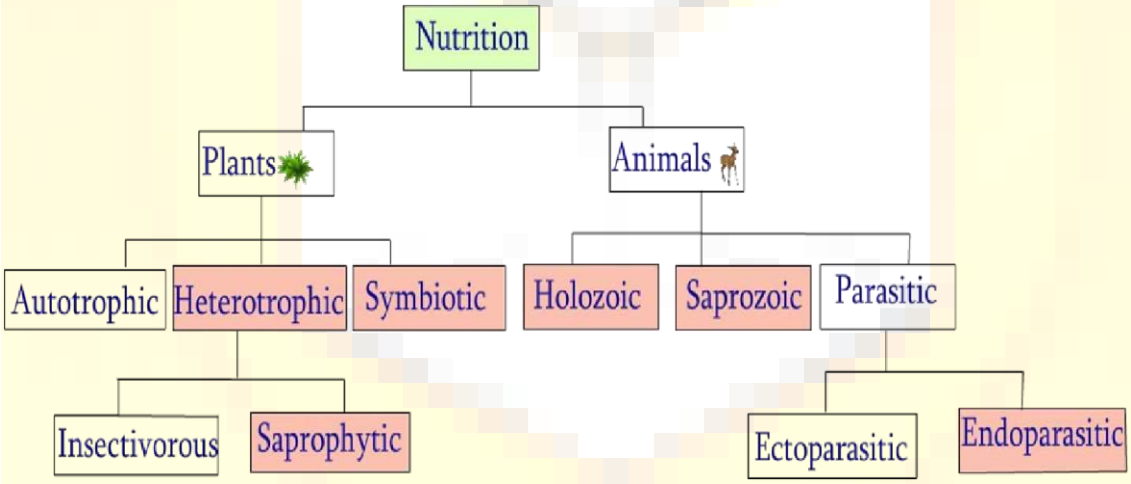
3. Omnivores animals are called decomposers.

Ans. Some of the omnivore's animals around us perform the function of cleaning and conserving the environment by the very act of feeding themselves. So they are called decomposers.

Q. 6) Prepare and complete the flowchart according to type of nutrition.



Ans.



Q. 7) Think and answer.

1. We prepare a variety of foodstuffs and dishes at home. Are we then autotrophic organisms?

Ans. 1) we prepare a variety of foodstuffs and dishes at home but this foodstuff we get from plant and animals. Like that grains, pulses, vegetables are used for preparation of variety foodstuffs. 2) We can

also prepare food from flesh and eggs of other animals. 3) We cannot perform the process of photosynthesis so we are not autotrophs, we are heterotrophs.

2. Which organisms are greater in number-autotrophs or heterotrophs? Why?

Ans. 1) The autotrophs organisms number is more. Because the number of plants should be more so that they can be enough for the herbivores. 2) If autotrophs decrease in numbers, the heterotrophs too will starve and die. 3) Due to in nature, the autotrophs are always more than the heterotrophs- to balance the food chain.

3. The number of heterotrophs found in desert regions is smaller. However, they are found in greater numbers in the sea. Why is this so?

Ans. 1) In oceans and seas there are multitude of zooplankton and phytoplankton. Phytoplanktons are very small, microscopic floating plants which we may not see. 2) In desert region, the autotrophs are lesser in number as well as heterotrophs dependent on them are also less. 3) The food is scarce; therefore, the number of heterotrophs

Also reduces. 4) The food chain in the seas is dependent on these planktonic species. Therefore, the number of heterotrophs found in desert regions is smaller but they are found in greater numbers in the sea.

4. What damage or harm do ectoparasitic and endoparasitic animals cause?

Ans. 1) Ectoparasites have specialized mouth parts. With the help of these, they suck the blood. E.g. mosquito and bed bug. The biting insects cause a lot of discomfort. 2) Parasitic organisms depend on the host for its nutrition. 3) Malaria, dengue and elephantiasis is spread by mosquitoes 4) Endoparasites live inside the body of host.

E.g. Round worm, hook worm, pin worm etc. 5) They absorb host's nutrients and cause malnourishment to the host. Both ectoparasites and endoparasites cause damage to our health.

5. Why is plant food not produced in any other parts of the plant except the green ones?

Ans. The process of photosynthesis takes place in green parts of plant and the process contains preparation of food. The non-green parts can't produce food due to lack of chlorophyll.

Q. 8) Use your brain power!

1. Which part of the Loranthus plant carries out photosynthesis?

Ans: Photosynthesis is carried by ' Leaves' of Loranthus.

2. From where do they obtain minerals and water?

Ans. Host plant provides necessary minerals and water to the Loranthus. For absorption of these nutrients there are specialized roots which are inserted into xylem of the host plants.

3. Why is Loranthus known as a partially parasitic plant?

Ans: Loranthus is parasite as live on the host tree for that water and minerals. But it can photosynthesize and prepare its own food. Therefore, it is called a partial parasite.

4. Why does the pitcher plant feed on insects even though it produces food by photosynthesis?

Ans. Pitcher plant grows in the soil due to deficient on nitrogen. Plant requires nitrogen for building up proteins. To overcome this problem, pitcher plant feed on insects.

5. How does photosynthesis occur in dark red or purple coloured leaves?

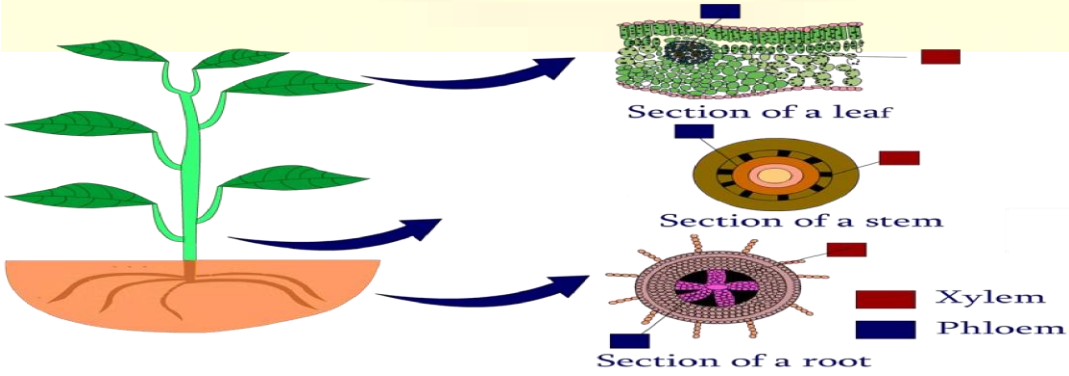
Ans. In coloured plants there are xanthophyll, anthocyanins and Carotenoids. carotenoids absorb greenish-blue colour from the sunlight. From the light reflected by this pigment appears orange-yellow to us xanthophyll imparts yellow colouration and Anthocyanins make the plant part reddish and violet. These plants also have chlorophyll besides these coloured pigments. Therefore, due to extra coloured pigments these plants appear to be of that colour and not green. Photosynthesis in such plants also occurs due to chlorophyll. The other pigments absorb some radiation; pass it on to the chlorophyll molecule.

6. What is chemosynthesis? Which plants produce their food by chemosynthesis?

Ans. Chemosynthesis is the process in which carbon dioxide, methane, hydrogen, and sulfide is used as the sources of energy and producing food. 1) Only bacteria residing in the areas where sunlight does not reach perform chemosynthesis but no autotrophic green plant performs chemosynthesis. But chemosynthetic microbes are not plants. So they are placed in another kingdom.

Q. 9) Draw neat and well-labelled diagrams of the following.

1. Transport system in plants



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