NEW ERA PUBLIC SCHOOL

Subject :- Science
Topic :- Nutrition in Plants
Class :- 7th
Lesson no :- 1

Solved Assignment of Unit-I :

→ Answer in brief.

Q1 :- Why do living organisms need food?

Ans :- Living organisms need food inorder to get energy for their growth and development.

Q2 :- Define photosynthesis.

Ans :- The process by which green plants prepare their own food using carbondioxide and water in the presence of sunlight and chlorophyll is called photosynthesis.

Q3 :- Life on earth is impossible without plant. Justify your answer.

Ans :- In the absence of green plants, there would not be the process of photosynthesis. Besides oxygen which is essential for the survival of all living organisms is produced during photosynthesis. Thus we can say that life would be impossible on the earth in the absence of photosynthesis.

Q4 :- Differentiate between autotrophs and heterotrophs.

Ans :-

Autotrophs	Heterotrophs
1. Organisms which can make their own food from simple substances are called autotrophs	1. Organisms which cannot make their own food and obtain it directly or indirectly from

2. They are producers e.g. all green plants.	green plants are called heterotrophs. 2. They are consumers. e.g. all animals like cow, lion and humans.

Q5:- Which plants are insectivorous?

Ans:- The plants which eat animals particularly insects are called insectivorous plants or carnivorous plants.

Q6:- Write the equation of photosynthesis.

Ans:- $6\,CO_2 + 12\,H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} C_6H_{12}O_6 + 6\,O_2 + 6\,H_2O$

carbondioxide — water — glucose — oxygen — water

→ Answer in detail.

Q1:- Explain the process of photosynthesis and conditions required for it.

Ans:- The process by which green plants prepare their own food using carbondioxide and water in the presence of sunlight and chlorophyll is called photosynthesis.

$$6\,CO_2 + 12\,H_2O \xrightarrow[\text{chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + 6\,O_2 + 6\,H_2O$$

Conditions Required for Photosynthesis:-

The plants need following conditions for Photosynthesis.

1. Chlorophyll 2. Sunlight 3. Carbondioxide 4. Water

1. Chlorophyll :- It is a green-coloured pigment and is present in leaves in the structures called chloroplasts.

2. Sunlight :- Chlorophyll traps sunlight to use it as energy source for photosynthesis.

3. Carbondioxide :- Leaves obtain carbondioxide from air through the small openings called stomata present mostly on the underside of leaves.

4. Water :- The roots absorb water from soil and make it available for the plant body to carry out photosynthesis.

→ Draw Diagram (Fig 1.4 : Process of photosynthesis in plants) Pg. no 09

Q2 :- Describe the different types of heterotrophic plants?

Ans :- Heterotrophic plants are of four types :-

1. Parasitic Plants :- The non-green plants which obtain their food from other living organisms are called parasitic plants. The living organisms from which the parasitic plant derives food is called host. e.g. Cuscuta, mistletoe.

2. Saprophytic plants :- The plants which grow and live on dead and decaying organic matter are called saprophytes. e.g. mushrooms, moulds.

3. Insectivorous plants :- The plants which eat animals particularly insects are called insectivorous plants or carnivorous plants. e.g. pitcher plant.

4. Symbiotic plants :- The plants which live in association with other plants and share shelter nutrients are called symbiotic plants. e.g. Lichen.

Q3 :- How the pitcher plant catches insects?

Ans :- In pitcher plant, the pitcher like structure is to catch insects. It is actually a modified leaf. The leaf tip is modified to form a lid which can open or close the mouth of the pitcher. Inside the pitcher, downwards pointing hair are present. Once an insect enters the pitcher, the lid closes and the insect gets trapped in the hair. The insect is digested by digestive juices secreted in the pitcher.

Q4 :- What are Lichens? Why they are called natural indicators of air pollution?

Ans :- The association between a green alga and a non-green fungus is called Lichen. The fungus provides shelter to alga and in return alga provides food to the fungus.

Lichens are called natural indicators of air pollution because they are highly sensitive to polluting gases. They only grow in non-polluted areas.

Q5 :- How the parasitic plants are different from saprophytes?

Ans :- Parasitic plants are non-green plants which obtain their food from other living organisms and the living organisms from which the parasitic plant derives food is called host whereas saprophytes are plants which

grow and live on dead and decaying organic matter.

Q6:- Write the importance of photosynthesis.

Ans:- Life on earth is impossible without the process of photosynthesis. It is important for the living organisms due to the following reasons:

1. The food prepared by the process of photosynthesis is used by all the living organisms directly or indirectly.
2. Oxygen, a by-product of photosynthesis is used in respiration.
3. Photosynthesis maintains a balance between oxygen and carbondioxide in the atmosphere.

→ Objective Type Questions:-

A. Tick (✓) the correct option.

1. b
2. b
3. a
4. c
5. c
6. a
7. d
8. d

B. Fill in the blanks.

1. Carbondioxide is taken in from atmosphere by autotrophs
2. Starch
3. Cuscuta
4. Fungi are spore producing organisms. Those spores are taken as seeds.
5. air pollution
6. Insects
7. carbohydrate
8. proteins.

C. Coin one word for these statements.

1. Rhizobium
2. Host
3. Photosynthesis
4. Chloroplasts
5. Saprophytes
6. Lichen

D. Match the following columns.

1. Chlorophyll
2. Haustoria
3. Cowdung
4. Symbiotic
5. Lower surface of leaves.

E. Write 'T' for the true and 'F' for the false statements.

1. F
2. F
3. F
4. T
5. T

Topic :- Nutrition in Animals

Lesson no :- 2

→ Answer in brief :-

Q1:- Which organs secrete bile juice and pancreatic juice?

Ans:- Bile juice is secreted by liver and pancreatic juice by pancreas.

Q2:- In which organ maximum digestion takes place?

Ans:- Maximum digestion takes place in small intestine.

Q3:- What is the reason of tooth decay?

Ans:- Tooth decay is caused by bacteria present in the mouth. The bacteria act on small bits of food

left in the mouth after a meal to form a soft sticky material called plaque, which sticks to the teeth and gums.

Q4:- Name the number of teeth in temporary set and permanent set?

Ans:- Number of teeth in temporary set — 20
Number of teeth in permanent set — 32

Q5:- How does ingestion of food occur in amoeba?

Ans:- Amoeba is a unicellular animal, so it does not have a mouth for ingestion of food. Amoeba ingests the food by encircling it by forming pseudopodia. When the food is completely encircled, the food is engulfed in the form of a bag like structure called food vacuole.

→ Answer in detail.

Q1:- Explain the different steps in the process of nutrition.

Ans:- The ingestion in animals is carried out in following steps. These are ingestion, digestion, absorption, assimilation and egestion.

1. Ingestion :- The process of taking food into the body is called ingestion.

2. Digestion :- The process of breaking down complex food into simpler substances is called digestion.

3. Absorption :- The digested food needs to be absorbed by the body to provide energy. This process by which

the digested food moves into the blood and cells of the body is called absorption.

4. Assimilation :- The process by which the absorbed food is used by the body cells to release energy and repair the worn out parts of the body is called assimilation.

5. Egestion :- The process by which the undigested food and waste is sent out of the body is called egestion.

Q2:- Draw and explain the human digestive system.

Ans:- The system of organs responsible for getting food into and out of the body and for making use of food to keep the body healthy. The human digestive system consists of several organs i.e, the mouth, oesophagus, stomach, small intestine, large intestine, rectum and anus. These organs form the long tube-like structure called alimentary canal. The food we eat passes through these organs. The salivary glands, pancreas and liver are accessory organs that secrete digestive juices into the alimentary canal.

→[Draw Diagram Fig 2.6 (Human digestive system) on Pg. no. 21]

Q3:- How does digestion takes place in ruminants? Explain with the help of diagram.

Ans:- The cellulose is a major component of the food eaten by herbivores or grass-eating animals. Their stomach is divided into four chamber i.e, rumen, reticulum, omasum and abomasum.

When cattle eat, the food is chewed and swallowed and it then goes from mouth to the rumen, the first chamber of the stomach. Here, it is acted upon by bacteria. The bacteria digest the cellulose. This semi-digested food goes to the second muscular chamber, the reticulum. From the reticulum, the food is sent back to the mouth as cud; to be chewed again. Chewing of the cud is called rumination and such animals are called ruminants or cud-chewing animals. The re-chewed food is swallowed for the second time.

After passing the first two chambers it enters the third chamber, the omasum. Here, the food is further broken down into smaller pieces and finally enters the fourth chamber, the abomasum. In abomasum, all the digestive juices act upon the food and the digestion is completed.

→ [Draw Diagram Fig 2.15 : Digestive system of grass-eating animals] Pg. no. 26.

Q4:- Name the four different types of teeth found in human and write their function

Ans:- The humans have four types of teeth in their mouth. These are incisors, canines, premolars and molars.

1. Incisors :- Incisors are the teeth found in the front of the mouth. These are chisel-shaped and mainly used for biting and cutting food.

2. Canines :- Canines are pointed and used for piercing and tearing food into smaller pieces.

3. Premolars :- Premolars have a flattened surface and are used for grinding food into very tiny pieces.

4. Molars :- Molars are similar to premolars, but are larger. They are also used to grind food.

→ [Draw Diagram Fig 2.7: Type of teeth Pg. no 22]

Q5:- What are villi? What is their location and function?

Ans:- Villi are the tiny projections on the inner walls of small intestine which help in absorbing the digested food. These help to increase the surface area of intestinal walls.

Q6:- Where and how does digestion start in digestive system of humans? Elaborate.

Ans:- The ingestion and digestion of food starts in mouth. The main function of the mouth is to chew the food before it is sent to the oesophagus. The process of chewing the food is called mastication. The salivary glands secrete saliva into the mouth. The saliva contains digestive juice that digests carbohydrates. It also moistens the food, making it easier to swallow. Thus, the process of digestion begins in the mouth.

Q7:- Write the function of small intestine, liver, pancreas, saliva and tongue?

Ans:- Small intestine :- A major proportion of digestion takes place in the small intestines. All types of nutrients are digested here with the help of secretions which

it receives from the liver and the pancreas. The walls of the small intestine also secrete juices for digesting food.

- Liver :- The liver releases bile juice which emulsifies the fat content.
- Pancreas :- The pancreas secretes pancreatic juice that digests the proteins and lipids.
- Saliva :- The saliva contains digestive juice that digests carbohydrates. It also moistens the food, making it easier to swallow.
- Tongue :- It is a muscular organ that helps us mix food with saliva. It also helps us roll the chewed food into a ball or bolus which is pushed towards the back of the mouth where it is swallowed.

→ Objective Type Questions:

A. Tick (✓) the correct option.

1. a
2. a
3. c
4. c
5. a
6. d
7. d
8. b

B. Fill in the blanks.

1. Egestion
2. mouth, small
3. Oesophagus
4. Pseudopodia, ingestion
5. Incisors, Canines, Premolars and molars.
6. Ruminants
7. Villi

C. Coin one word for these statements.

1. Mouth
2. Plaque
3. Bile
4. Rumen
5. Assimilation
6. Mastication.

D. Match the following Columns.

1. Chewing and grinding teeth
2. Cutting and biting teeth
3. 7.5 m long
4. Piercing and tearing teeth
5. Pseudopodia
6. U- shaped Organ
7. Reabsorbs water from undigested food.

E. Write 'T' for the true and 'F' for the false statements.

1. F
2. T
3. F
4. T
5. T

Topic :- Fibre to Fabric

Lesson no :- 3

→ Answer in brief.

Q1:- Name the first three steps after shearing involved in obtaining wool?

Ans:- The first three steps after shearing involved in obtaining wool are Scouring, Sorting and Grading.

Q2:- Which are the major wool producing states of our country?

Ans:- The major wool producing states of our country are Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Haryana, Punjab, Rajasthan and Gujarat.

Q3:- How is shearing done to remove hair from sheep?

Ans:- Shearing is done by hands using clippers or a pair of scissors. Machines are also used to shear the sheep as it is easy and fast.

Q4:- What are the various stages of silk production after obtaining silk fibres from cocoon?

Ans:- The various stages of silk production after obtaining silk fibres from cocoon are :-

1. Sorting cocoons :- The cocoons are sorted according to the colour, size, shape and texture as these affect the final Quality of the silk.

2. Reeling the filament :- Reeling is the process of unwinding the silk filaments from the cocoon. The silk filaments

are very fine so they are combined together to make a thread of raw silk.

3. Bailing :- The reeled silk is packed in small bundles called books, weighing 2 to 4.5 kg. These books are put into bales weighing about 60 kg. In this form, raw silk is transported to the silk mills for making silk fabrics.

Q5:- List out some health hazards of sericulture?

Ans:- Some health hazards of sericulture are :-

1. Boiling of cocoons in big water tanks release lot of fumes and vapours. This causes respiratory problems like asthma and bronchitis.

2. Machines used for spinning and winding produce lot of noise. The continuous working in such a noisy conditions leads to hearing problems.

Q6:- Where are Alpaca and Llama found?

Ans:- Alpaca and Llama are found in South America.

Q7:- What is Mohair?

Ans:- Mohair is the fleece of the Angora goat found in hill areas such as Jammu and Kashmir.

→ Answer in detail.

Q1:- Why lots of mulberry leaves required during larvae stage of silkworm?

Ans:- In the larval stage, the silkworm feed on huge amount of mulberry leaves. The mulberry leaves help

them to grow better and to undergo the process and also enhance the process.

Q2:- Explain how the wool is produced from the fleece of sheep?

Ans:- The wool is produced from the fleece of sheep by the following processes:-

1. Scouring :- After shearing, the fleece is washed thoroughly in tanks to remove dust, dirt and grease from the hair. This process is called scouring.

2. Sorting :- Scouring is followed by sorting. It is done in factories where hair of different textures are separated or sorted.

3. Grading :- In grading, wool is grouped according to its length, colour, texture and ease of drying.

4. Dyeing :- The colour of natural fleece of sheep hair is black, brown and white. So the processed fibres are dyed in various colours depending on our choice.

5. Drying :- Wool is dried by putting rollers on it to squeeze out as much as water. Wool is now ready for further processing in mills.

6. Spinning, Weaving and Knitting :- The dried fibres are straightened, combed and rolled into yarn. The shorter fibres are spun and woven into woollen clothes. The larger fibres are spun and knitted to make sweaters.

Q3:- How is sericulture done?

Ans:- The rearing of silkworms for the production of

silk is known as sericulture.

The stages of production of silk are as follows:

- The eggs of the silk moth are incubated until they hatch into larvae.
- The larvae are fed on mulberry leaves for about 8 weeks. During this period each silkworm eats continuously and grows. By the end of this period, silkworms become ready to spin their cocoons.
- Small branches are placed in the rearing houses. The silkworms climb these branches and start spinning their cocoons. They take about three days to complete the process.
- The cocoons are then gathered, and boiled or heated in ovens to kill the insects inside them. The filaments are obtained from the cocoons by a process known as reeling or filature.
- The silk fibres are then spun into silk thread. The thread is called raw silk. It is used for weaving cloth, and can be dyed into various colours.

Q4:- Draw the diagram of life cycle of silkworm.

Ans:- → Draw Diagram Fig 3.7 : Life cycle of silkworm

Pg. no 36.

Q5:- List out three features each of wool and silk?

Ans:- The three features of wool are :-

1. Wool fibres readily absorb water and also release it.
2. Due to having crimp, wool has the ability to stretch and then return to its natural length.
3. It is very strong and durable.

The three features of silk are :-

1. Silk is a beautiful, smooth fibre.
2. It is durable and high in strength.
3. Silk fibres have good absorbency.

Q6 :- Write a note on different wool producing animals.

Ans :- In our country, some common wool-producing animals are following :-

- Sheep :- The sheep has thick coat of fleece on its body. Its body has also two types of fibres that form its fleece. One is the outer coarse beard hair and another is fine soft under-hair close to the skin. The fine inner hair are used to produce wool.
- Goat :- Wool is also obtained from goat hair. Mohair is the fleece of the Angora goat found in hill areas such as Jammu and Kashmir.
- Camel :- Camel hair are also used to produce wool. Alpaca and Llama camel found in South America yield wool which is very fine, soft and lustrous.
- Rabbit :- Wool obtained from rabbit hair is very soft. Angora rabbit yields a very fine and soft wool.

→ Objective Type Questions :-

A. Tick (✓) the correct option.

1. d
2. a
3. a
4. b
5. b

B. Fill in the blanks.

1. fleece
2. fibre
3. cashmere wool
4. caterpillar
5. Reeling

C. Coin the word for these statements.

1. Silk
2. Reeling
3. Scouring
4. Shearing

D. Match the following columns.

1. Goat
2. Camel
3. Washing fleece
4. Unwinding of silk.
5. Karnataka

E. Write 'T' for the true and 'F' for the false statements.

1. F
2. T
3. F
4. T
5. F
6. T