SUBJECT – SCIENCE

CLASS – VII

CHAPTER – 1, NUTRITION IN PLANTS

1. What are the different components of food?

   Different components of food are –

   - Carbohydrates
   - Proteins
   - Fats
   - Vitamins
   - Minerals

2. What is meant by nutrition?

   Nutrition is the process of taking in food by an organism and its utilization by the body.

3. What are the two main types of nutrition prevalent in living organisms?

   Two main types of nutrition prevalent in living organisms are:

   - Autotrophic nutrition – The mode of nutrition in which organisms prepare their own food from simple substances like carbon dioxide and water by the process of photosynthesis is called autotrophic nutrition.
   - Heterotrophic nutrition – The mode of nutrition in which organisms depend directly or indirectly on plants for food is called heterotrophic nutrition. Heterotrophs cannot manufacture their own food.

4. Define photosynthesis.

   Photosynthesis is the process by which green plants prepare their own food.

5. What is the ultimate source of energy for all living organisms?

   Sun is the ultimate source of energy for all living organisms.

6. What indicates the occurrence of photosynthesis?

   The presence of starch in leaves indicates the occurrence of photosynthesis.

7. Write the raw materials required for photosynthesis.

   Raw materials required for photosynthesis are

   - Water from soil
   - CO_2 from atmosphere
   - Chlorophyll
   - Sunlight

8. How do water and minerals present in the soil get absorbed?

   Water and minerals present in the soil are absorbed by the roots.

9. How do autotrophs differ from heterotrophs?

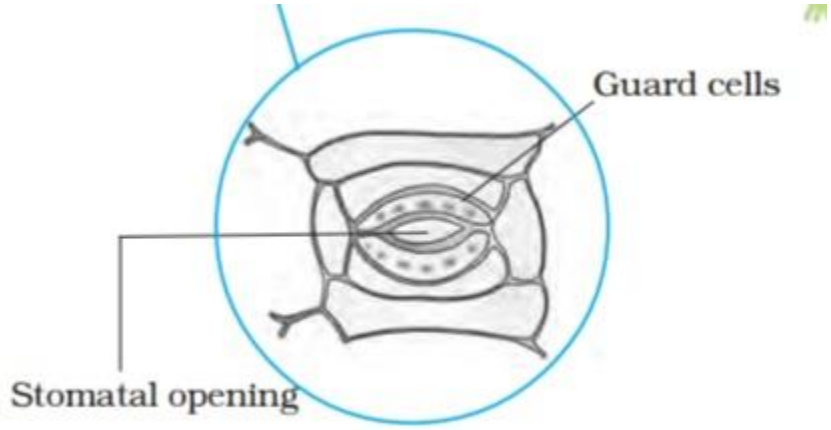
   Autotrophs – Organisms which can prepare their own food from simple substances like carbon dioxide and water by the process of photosynthesis are called autotrophs. For example: green plants

   Heterotrophs – Organisms which depend directly or indirectly on plants for food are called heterotrophs. They cannot manufacture their own food. For example: Cuscuta

10. What are stomata? What is their role in plants? Draw its diagram.

    Stomata are tiny pores present on the surface of the leaves. They help in

    - Exchange of gases
    - Transpiration



11. How are green patches in ponds formed?

    Green patches in ponds are generally formed by the growth of organisms called algae.

12. Why all the materials of photosynthesis must reach to the leaves?

    The synthesis of food in plants occur in leaves, therefore, all the raw materials must reach to leaves.

13. What happens when pickles, leather and clothes are left in hot and humid weather for long time?

    When pickles, leather and clothes are left in hot and humid weather for long time then fungi starts growing on them and they gets spoil.

14. Pitcher plant is green and carries out photosynthesis, then why does it feed on insects?

    Pitcher plant feeds on insects to fulfill its nitrogen requirements.

15. Do coloured leaves make their own food?

    Yes, coloured leaves make their own food because they contain chlorophyll.

16. Why are manures and fertilizers added to the soil by farmers?

    Manures and fertilisers are added by farmers to enrich the soil as they contain plant nutrients such as nitrogen, potassium, phosphorous.

17. What is so special about the leaves that they can synthesize food?

    The leaves have a green pigment called chlorophyll. It helps the leaves to capture the energy of the sun and synthesize food.

18. Cuscuta is without chlorophyll. How does it obtain food?

    Cuscuta takes readymade food from the plant on which it climbs.

19. How are water and minerals transported to the leaves?

    Water and minerals are transported to the leaves by the vessels which run like pipes throughout the roots, the stem, the branches and the leaves.

20. How the process of photosynthesis is carried out in desert plants?

    The desert plants have spine like leaves to reduce loss of water by transpiration. These plants have green stem which carry out photosynthesis.

21. How fungi appear suddenly during the rainy season?

    The spores of fungi are generally present in air. When they land on wet things, they germinate and grow. So fungi appear suddenly during the rainy season.

22. What are lichens?

    When an alga and a fungus live together in symbiotic relationship they are collectively called lichen.

23. What type of relationship is shown by lichen? Explain.

    Lichen shows symbiotic relationship. In lichen, an alga and a fungus live together. The fungus provides shelter, water and nutrients to the alga and the alga provides food to the fungus.

24. How nutrients are replenished in the soil?

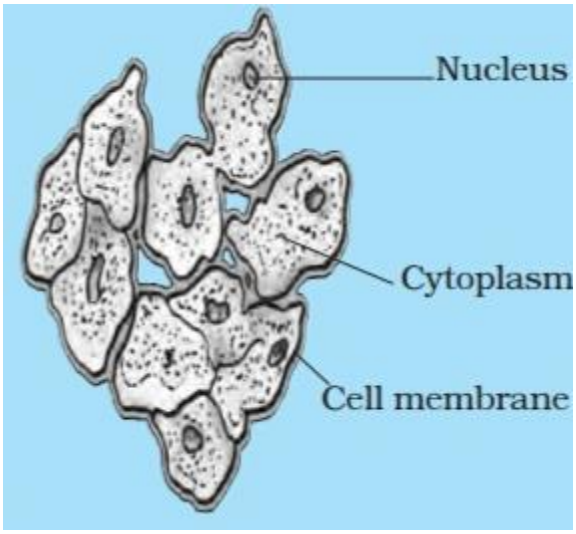
    - By adding fertilizers
    - By adding manure
    - By crop rotation
    - By growing leguminous plants

25. How do plants get nitrogen to make proteins?

    - The soil has certain bacteria which convert nitrogen gas of air into soluble form (nitrates and nitrites) which can be absorbed by the plants.
    - Some plants also obtain nitrogen from insects.
    - Plants also take nitrogen from nitrogenous fertilizers.

26. What is a cell? Explain its structure with a diagram.

    The fundamental unit of all living being is known as cell. It can be seen under microscope. The cell is enclosed by a thin outer boundary, called the cell membrane. Most cells have a distinct, centrally located spherical structure called the nucleus. The nucleus is surrounded by a jelly like structure called cytoplasm.



27. How does a pitcher plant trap insects?

    The leaf of pitcher plant is modified into pitcher like structure. The apex of the leaf forms a lid. Inside the pitcher, there is hair. When an insect lands on the pitcher, the lid closes and the trapped insect gets entangled into the hair. The insect is then digested by the digestive juices secreted in the pitcher.

28. Explain how rhizobium bacterium and roots of leguminous plants share a symbiotic relationship?

    Rhizobium bacterium can take atmospheric nitrogen and convert it into soluble form that the plant can take. In return, the plant provides food and shelter to the bacterium.

    - This is how rhizobium bacterium and roots of leguminous plants share a symbiotic relationship.

SUBJECT – SCIENCE

CLASS – VII

CHAPTER – 2, NUTRITION IN ANIMALS

1. Which part of stomach in ruminants temporarily stores partially chewed food?

   Rumen temporarily stores partially chewed food in ruminants.
2. What is cud?

   Partially digested food in ruminants is known as cud.
3. What is the other name of digestive canal?

   Alimentary canal is the other name of digestive canal.
4. Name the widest part of the alimentary canal.

   The widest part of alimentary canal is stomach.
5. What is tooth decay?

   Damage in teeth caused by acids secreted by bacteria present in buccal cavity is called tooth decay.
6. What is diarrhoea?

   Diarrhoea is a condition in which a person passes watery stool frequently.
7. How many sets of teeth do humans have in their lifetime?

   The two sets of teeth humans have in their lifetime are:
   - ✓ Milk teeth
   - ✓ Permanent teeth
8. What is oesophagus?

   The oesophagus is a long tube that connects buccal cavity to stomach. It is also known as food pipe.
9. Why do we vomit?

   When the food is not accepted by our stomach due to indigestion or poisoning, the food is vomited out.
10. What is ORS? When it is given?
    - ORS stands for Oral Rehydration Solution. It is boiled and cooled water with a pinch of salt and sugar dissolved in it.
    - ORS is given to treat dehydration caused due to diarrhoea.
11. What is the main function of the large intestine?

    The function of large intestine is to absorb water and some salts from the undigested food material.

12. What is rumination?

    The process in which semi digested food (cud) returns to the mouth in small lumps and the animal chews it is known as rumination. Such animals are called ruminants.

13. What are pseudopodia?

    Finger like projections of amoeba that are used for movement and for capturing food are called pseudopodia.

14. Describe the role of saliva, bile juice and pancreatic juice in digestion.

    - Saliva breaks down the starch into sugar.
    - Bile juice plays an important role in digestion of fats.
    - Pancreatic juice act on carbohydrates, fats and proteins and changes them into simpler forms.

15. What are the different ways by which different animals obtain their food?

    - Bees and humming birds suck the nectar of plants.
    - Infants of human and many other animals feed on mother's milk.
    - Snakes like the python swallow the animals they prey upon.
    - Some aquatic animals filter tiny food particles floating nearby and feed upon them.

16. How starfish obtain its food?

    Starfish feed on animals covered by hard shells of calcium carbonate. After opening the shell, the starfish pops out its stomach through its mouth to eat the soft animal inside the shell. The stomach then goes back into the body and the food is slowly digested.

17. How many types of teeth are present in the buccal cavity of human being?

    Four types of teeth are present in buccal cavity of human being. They are –

    - Incisors - 8 in total, used for cutting and biting
    - Canines - 4 in total, used for tearing
    - Premolars - 8 in total, used for chewing and grinding
    - Molars- 12 in total, used for chewing and grinding

18. What are the functions of tongue?

    - Tongue helps in talking.
    - Tongue helps in mixing saliva with the food.
    - Tongue helps in swallowing food.
    - Tongue has taste buds that detect different tastes of food.

19. Why should we rinse the mouth after every meal?

    We should rinse the mouth after every meal because many harmful bacteria begin to grow on the leftover food. These bacteria break down the sugars present in the leftover food and release acids which gradually damage the teeth.

20. Write the secretions of the stomach along with their functions.

    The inner lining of the stomach secretes mucous, hydrochloric acid and digestive juices.

    - Mucous protects the lining of the stomach from the acid.
    - Hydrochloric acid kills bacteria and makes the medium in the stomach acidic so that digestive juices can act.
    - Digestive juice breaks down the proteins into simpler substances.

21. What is the function of small intestine?

    - Small intestine receives secretions from the liver and the pancreas.
    - The wall of small intestine secretes intestinal juices which completes the digestion of all the components of the food.
    - Inner walls of the small intestine have villi which increases the surface area for absorption of digested food.

22. How does amoeba capture food?

    Amoeba captures its food with the help of pseudopodia (false feet).

    - When amoeba senses food, it pushes out pseudopodia around the food particle and engulfs it.
    - The food becomes trapped in a food vacuole.
    - Digestive juices are secreted into the food vacuole which act on the food and break it down into simpler substances.

23. What are the simpler form of carbohydrates, fats and proteins?

S. No.	Component of food	Simpler form
1.	Carbohydrates	Sugars (glucose)
2.	Fats	Fatty acids and glycerol
3.	Proteins	Amino acids

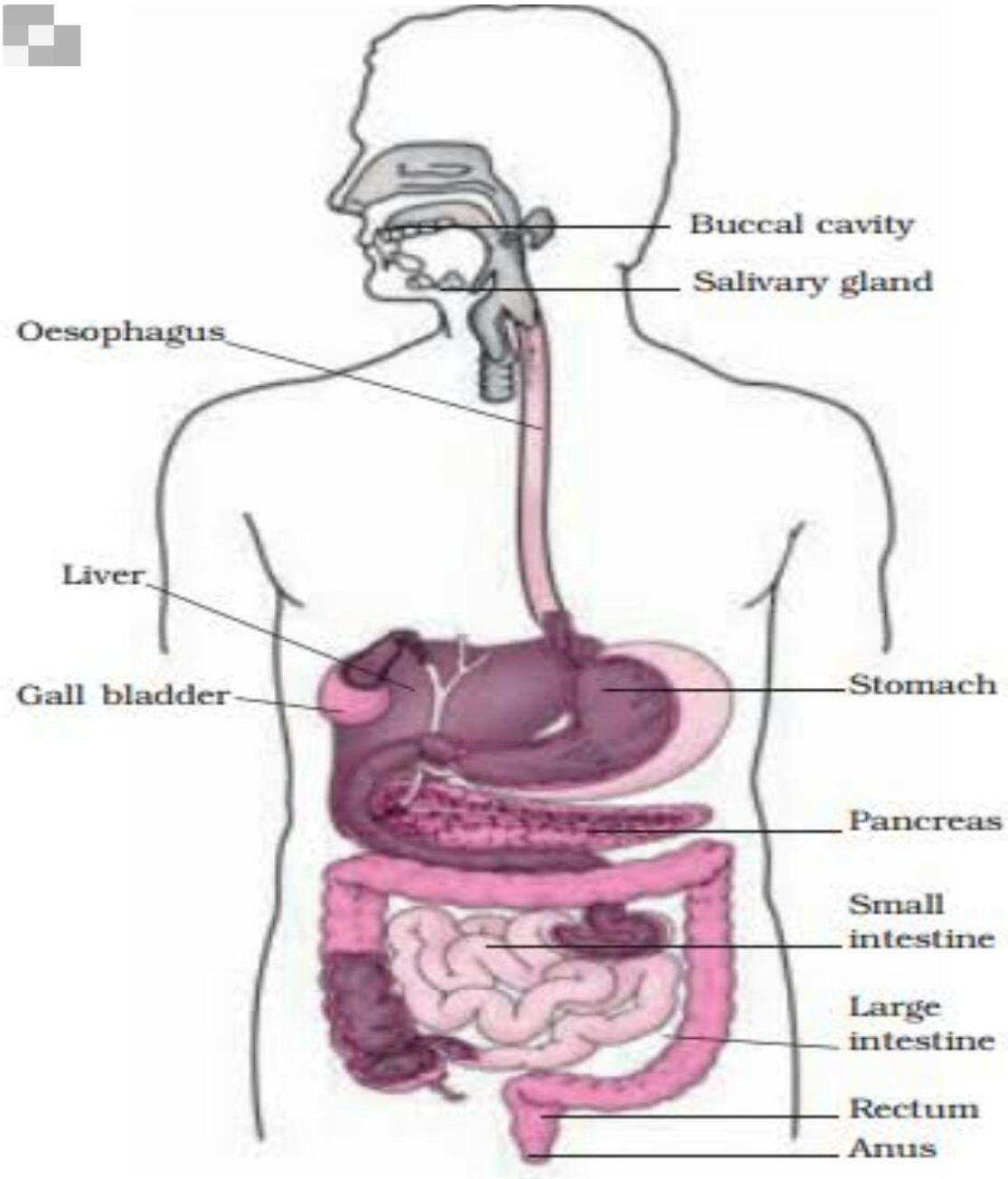
24. List and explain the steps involved in the process of nutrition in animals.

    Steps involved in the process of nutrition in animals are –

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

- Digestion – The process of breakdown of complex components of food into simpler substances is called digestion.
- Absorption – The process by which digested nutrients are taken in (absorbed) from the intestine by the blood vessels is called absorption.
- Assimilation – The process of utilizing absorbed food materials for energy, growth and development is called assimilation.
- Egestion – The process of removing undigested food materials (waste materials) from the body through the anus is called egestion.

25. Draw diagram of human digestive system.



SUBJECT – SCIENCE

CLASS – VII

CHAPTER – 3, FIBRE TO FABRIC

1. From which animal, angora wool is obtained?
   Angora wool is obtained from angora goats.
2. Which type of wool is common in Tibet and Ladakh?
   Yak wool is common in Tibet and Ladakh.
3. Shearing does not hurt sheep. Give reason for it.
   Shearing does not hurt sheep because the uppermost layer of the skin is dead.
4. Why is scouring essential?
   Scouring is essential to remove grease, dust and dirt from the sheared skin.
5. What is meant by reeling the silk?
   The process of taking out the threads from the cocoon for use as silk is called reeling the silk.
6. To which class of organic substance does silk fibre belong to?
   Silk fibre is a natural protein.
7. Name two animal fibres and their sources.

S.No.	Animal Fibre	Source
1.	Silk	Cocoons of silk moth
2.	Wool	Fleece of sheep, yak, goat or camel

8. Why wool on burning gives smell similar to smell produced on burning natural silk?
   Wool on burning gives smell similar to smell produced on burning natural silk because they both are animal products and contain protein.
9. Why do animals like sheep, goat and yak have a thick coat of hair on their body?
   Animals like sheep, goat and yak have a thick coat of hair to keep them warm as hair trap a lot of air and air is a bad conductor of heat. So it does not allow their body heat to escape.
10. What is meant by selective breeding?
    The process of selecting parents for obtaining desirable characters in their offspring is called selective breeding.

11. What is sorter's disease?

    Sorter's disease is a fatal blood disease caused by bacterium anthrax. People working in sorting department of wool industry generally develop this disease.

12. Name four breeds of sheep in India and the quality of wool they yield.

S.No.	Name of breed	Quality of wool
1.	Lohi	Good quality wool
2.	Rampur bushair	Brown fleece
3.	Nali	Carpet wool
4.	Marwari	Coarse wool

13. Why is shearing done in hot weather?

    Shearing is done in hot weather because sheep can survive without their protective coat of hair in summer season. If shearing is done in winter season then the sheep would die due to severe cold.

14. What does caterpillar secrete?

    Caterpillar secretes fibre made up of a protein which hardens on exposure to air and becomes silk fibre.

15. Name four varieties of silk.

    Four varieties of silk are:

    - Tassar silk
    - Moonga silk
    - Kosa silk
    - Mulberry silk

16. List any three characteristic properties of silk fibre.

    Silk fibres are:

    - Soft
    - Lustrous
    - Elastic

17. Why a cotton garment cannot keep us as warm in winter as a woollen sweater does?

Woollen fibres trap air and air is a bad conductor of heat, so it does not allow our body heat to escape and keep us warm during winter while cotton fibres do not trap air, so they cannot keep us warm during winter.

18. What is the scientific name of mulberry leaves?

The scientific name of mulberry leaves is *Morus alba.*

19. What are occupational hazards?

The problems or diseases faced by workers working in any industry are called occupational hazards. Example – sorter's disease

20. List and explain the steps involved in processing fibres into wool.

Steps involved in processing fibres into wool are:

a) Shearing – The fleece of the sheep along with a thin layer of skin is removed from its body. This process is called shearing.
b) Scouring – The sheared skin with hair is thoroughly washed in tanks to remove grease, dust and dirt. This is called scouring.
c) Sorting – After scouring, sorting is done. The hairy skin is sent to a factory where hair of different textures are separated or sorted.
d) Picking of burrs – The small fluffy fibres called burrs are picked out from the hair. The fibres are scoured again and dried.
e) The fibres are dyed in various colours.
f) The fibres are straightened, combed and rolled into yarn.

21. Explain the life history of silk moth.

a) The female silk moth lays eggs.
b) From the eggs, larvae hatch out. The larvae of silk moth are called silkworm or caterpillar.
c) Caterpillar first weaves a net to hold itself then it swings its head from side to side in the form of figure eight.
d) During these movements of the head, the caterpillar secretes silk fibre.
e) As the caterpillar completely covers itself by silk fibres, it turns into pupa. This covering is called cocoon.
f) The further development of pupa into moth continues inside the cocoon.

22. Explain the process of obtaining silk from silk moth.

a) For obtaining silk, moths are reared and their cocoons are collected to get silk threads.
b) A female silk moth lays hundreds of eggs at a time. The eggs are warmed to a suitable temperature for the larvae to hatch from eggs.

c) The larvae (silkworm) are kept in clean bamboo trays along with freshly chopped mulberry leaves.
d) The caterpillar or silkworm spins the cocoon inside which develops the silk moth.
e) The cocoons are kept under the sun or boiled or exposed to steam. The silk fibres separate out.
f) Silk fibres are then spun into silk threads which are woven into silk cloth by weavers.