Solution

Class 07 - Science

SCIENCE

1. **(a)** Solar energy
   Explanation: The solar energy is very important to carry out the process of photosynthesis, it is captured by the leaves and stored in the plant in the form of food. And this in turn use by other organism to get food to obtain energy Thus, we say that sun is the ultimate source of energy for all living organisms.
2. **(b)** Autotrophs
   Explanation: Auto means self and trophos means nourishment. Plants are called autotrophs because they make their food themselves. The making of food for themselves is called the Autotrophic nutrition. Autotrophic nutrition is found in green plants, and in some bacteria.
3. **(a)** Oxygen
   Explanation: Photosynthesis is the food manufacturing process of green plants containing chlorophyll, in presence of sunlight, with the help of carbon dioxide and water to synthesise carbohydrates and oxygen. So, Rate of photosynthesis is not dependent upon oxygen.
4. **(b)** Oxygen
   Explanation: Photosynthesis is the food manufacturing process of green plants containing chlorophyll, in presence of sunlight, with the help of carbon dioxide and water to synthesise carbohydrates and oxygen. The equation for the process is as follow:
   Carbon dioxide + water → carbohydrate + Oxygen
5. **(a)** Fats
   Explanation: Liver is the largest gland in our body. The liver secretes a yellowish green watery fluid called bile. It is temporarily stored in a sac called the gall bladder. Bile provides an alkaline environment for many enzymes to get active. It also reduces the acidity of chyme. Bile plays an important role in the digestion of fats.
6. **(c)** Protein
   Explanation: Gastric juice released from gastric gland of stomach contains enzyme pepsin that helps in digestion of protein.
7. **(d)** Tongue
   Explanation: Tongue present in buccal cavity contains taste buds to identify different kinds of tastes. Different taste like sweet, sour, salt are detected by different parts of tongue.
8. **(b)** Exocrine glands
   Explanation: Enzymes are bio-catalyst released from exocrine glands to digest the complex food into simple form.
9. **(b)** Keep body warm by woollen clothes
   Explanation: Woollen clothes keep our body warm because air trapped in woollen fabric is poor conductor of heat. **Sheep** grow **wool** as protection for themselves. As a result, they **have** evolved to grow just enough **wool** for protection from the cold and to keep cool in the summer.
10. **(a)** Sheep wool
    Explanation: Wool can be obtained from sheep, goat, yak and camel but most commonly available wool in the market is sheep wool. Though we get wool from many other animals sheep wool is more common because it is widely available and approximately 90 percent of the world's sheep produce wool. One sheep produces anywhere from 2 to 30 pounds of wool annually.
11. **(a)** Moths are reared and cocoons are collected
    Explanation: For obtaining silk, silk moths are reared and cocoons are collected. Collected cocoon are boiled in water to loosen the silk to obtain silk thread. or The *silk* thread or yarn is obtained from the *silk* moth's cocoon. Sericulture, or *silk* farming, is the rearing of silkworms for the production of raw *silk*. Silkworms are reared under suitable conditions of temperature and humidity to *obtain silk* threads from their cocoons.

12. **(d)** Proteins
    Explanation: Wool is the textile **fiber** obtained from sheep and other animals, including cashmere and mohair from goats, qiviut from muskoxen, angora from rabbits, and other types of **wool** from camelids. **Wool** mainly consists of protein together with a few percent lipids
13. State True or False:
    a) **(a)** True
    Explanation: True
    b) **(a)** True
    Explanation: True
    c) **(b)** False
    Explanation: False
    d) **(a)** True
    Explanation: True
    e) **(a)** True
    Explanation: True
    f) **(b)** False
    Explanation: The large intestine is wider and shorter than the small intestine of the human alimentary canal.
    g) **(a)** True
    Explanation: True
    h) **(b)** False
    Explanation: False
    i) **(b)** False
    Explanation: False
    j) **(b)** False
    Explanation: False
14. Fill in the blanks:
    a) 1. Stomata
    b) 1. Buccal cavity
    c) 1. Back, Front
    d) 1. Egestion
    e) 1. Gastric gland
    f) 1. Anthrax
    g) 1. Natural
    h) 1. Eggs
15. The process by which green plants synthesis their food using sunlight, carbohydrates, water and chlorophyll is called photosynthesis.
16. Photosynthesis occurs in leaves.
17. Rhizobium bacteria.
18. 1. Cuscuta
    2. Iodine solution
    3. Pitcher plant
    4. Respiration.
19. When green plants make food, they give off oxygen. This is a gas that all animals must breathe in order to stay alive. Without plants, animals would have no oxygen to breathe and would die. People also depend on plants for food. All animals eat either plants or plant-eating animals. Without plants there would be no food to eat. So in the absence of green plants there will not be any living organisms.
20.

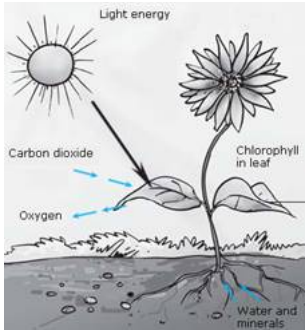
Herbivores	Carnivores	Omnivores
Elephant	Tiger	Dog

Horse	Lion	Cat
Cow		Human beings
		Crow

21.

Parasite	Saprotroph
A parasite takes readymade food from the organism on which it feeds.	They secrete digestive juices on the matter they live and convert it into a solution and then absorb it.
They feed on a living organism.	They feed on dead and decaying organism.
The organism on which it feeds is called host.	They do not feed on a living organism.
It deprives the host of valuable nutrients.	There is no host at all.

22. Cuscuta is a plant which looks like yellow tubular structures twining around the stem and branches of some trees.
It does not have chlorophyll. It takes readymade food from the plant on which it is climbing. The plant on which it climbs is called a host. Since it deprives the host of valuable nutrients, it is called a parasite.

23. 

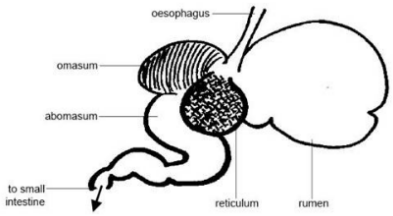
Autotrophic Mode of Nutrition: The mode of nutrition in which organisms make food themselves from simple substances is called autotrophic (auto = self, trophos = nourishment) nutrition. Therefore, plants are called autotrophs.
Photosynthesis - Food Making Process in Plants: The synthesis of food in plants occurs in leaves. Therefore, all the raw materials must reach there. Water and minerals present in the soil are absorbed by roots and transported to leaves. Carbon dioxide from air is taken in through the tiny pores present on the surface of leaves called stomata.
The leaves have a green pigment called chlorophyll. It helps leaves to capture the energy of the sunlight. This energy is used to synthesis food by the process called photosynthesis.
During photosynthesis, chlorophyll containing cells of leaves in the presence of sunlight use carbon dioxide and water to synthesize carbohydrates (glucose). The process can be represented as an equation :

$$\text{Carbon dioxide + Water} \xrightarrow[Chlorophyll]{Sunlight} \text{Carbohydrate + Water + Oxygen.}$$

24. The green plants can prepare their own food. The excess amount of food is stored in the seed to nourish the little young plant. The unique way by which green plants make their own food is called photosynthesis (Photo = light, synthesis = to make). Every green part of the plant can prepare food but the leaves are the most prominent. The green leaves are called food factories' of the plant. If stem is green, it can also carry out photosynthesis. Green parts of a plant have green coloured bodies called chloroplasts. These chloroplasts have green pigment in them known as chlorophyll. Chlorophyll pigment traps light energy and uses it in making food. Plants receive light energy from the sun, carbon dioxide from the atmosphere and water from the soil. As a result of photosynthesis, plants synthesise carbohydrate and give out oxygen. Thus, the green plants convert these raw materials into food with the help of light energy. Carbon dioxide + Water Oxygen + Carbohydrate All green plants can make their own food from the inorganic substances. So, they are called autotrophs.

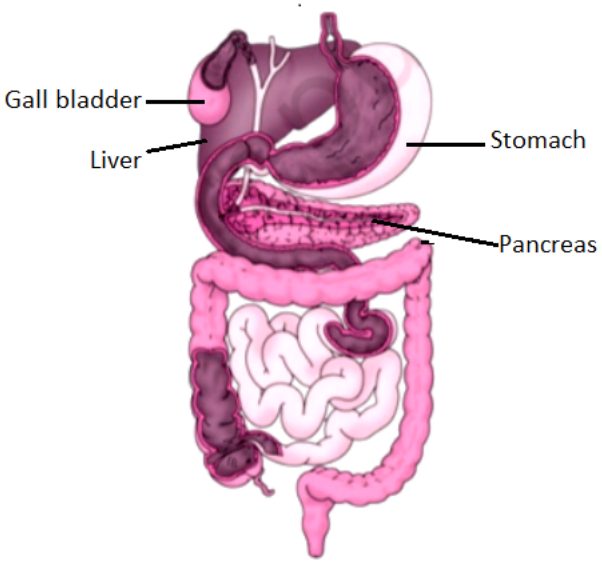
25. Carbohydrates are complex substances. These complex substances can not be utilised as such as we eat. They are broken down into simpler substances like glucose. This process is called digestion of carbohydrates.
26. We get instant energy from glucose as glucose need not to be digested. It is absorbed by small intestine and send to blood. Through blood it riches to each cells and provide energy instantly.
27. There are different types of enzymes which are used for the digestion of different food materials like carbohydrates, fats, proteins, etc. The process of digestion involves the association of several catalystic organic compounds (enzymes). These are amylase, pepsin, tripsin, lipase and sucrase. They are known as digestive enzymes.
28. The animals having four chambered stomach are called chewing animals or ruminants animals. For example cow, which always seems to chew something throughout the day.
    To digest the cellulose in the food they eat, an enzyme called cellulase is required which isn't produced by the animals themselves. Hence they require help. The stomach of these herbivores is divided into 4 chambers of which the most important one is the rumen.
29. **Similarity:** The digestive juices in amoeba are secreted into food vacuole and in human beings the digestive juices are secreted in stomach and small intestine.
    Then the juices convert complex food into simpler soluble and absorbable substances.

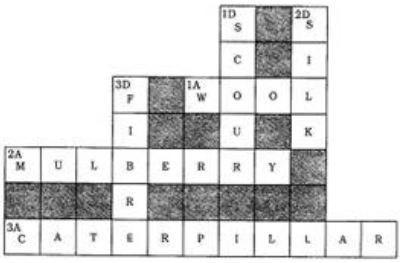
    Difference: Amoeba captures the food with help of pseudopodia and engulf it. In human beings food is taken by the mouth.
30. i. The part of the alimentary canal where water gets absorbed from the undigested food is the large intestine.
    ii. The digested food in the human body gets absorbed in the small intestine. Maximum absorption takes place here.
    iii. Taste buds present on our tongue are responsible for the taste of different kinds of food.
    iv. Liver, the largest gland of the human body the produces bile juice which is then further stored in the gall bladder.
31. **Diarrhoea:** Sometimes you may have experienced the need to pass watery stool frequently. This condition is called diarrhoea.
    Causes: Diarrhoea may be caused by an infection, food poisoning or indigestion. It is most common in India. It can be fatal. This is because of the excessive loss of water and salts from the body. It should not be neglected.
    Prevention: It can be prevented or cured by taking plenty of boiled and cooled water with a pinch of salt and sugar dissolved in it. This mixture is called ORS (Oral Rehydration Solution).
32. **The gallbladder** is a small **sac-like structure** that stores and concentrates the bile juice produced by the liver. This bile produced helps in the **emulsification of fats i.**e. breakdown of complex fat molecules into smaller particles. The gall bladder stores the bile and uses it when needed but now as it is surgically removed there is no place for bile storage and hence when this person eats **food containing a large amount of fat he/she** faces **problems with digestion.**
33. The animals cannot get food whenever they are hungry instead they need to store the food whenever it is available to them. So, some animals like cows and buffaloes swallow a large amount of food at once and it gets stored in a different part of the stomach known as the rumen. Here the food is stored as well as partially digested. Now, this swallowed, stored, and partially digested food is known as cud which returns to the mouth for chewing. The animals then sit restfully and then chew their food properly which is then digested fully. The animals having this practice are known as ruminants and the process is known as rumination.



34. a. Liver is the largest gland of the human body.
    b. Digestion of protein starts in the stomach of the human body.
    c. The pancreas is the organ that releases digestive juices into the small intestine.

d. The liver produces bile juice which gets stored in the gallbladder which is then released in the small intestine for the emulsification of fat molecules.



35. The fleece of the sheep along with a thin layer of skin is removed from its body. This process of removing fleece from the body of the sheep is known as shearing. Machines similar to those used by barbers are used to shear off fleece from the body of the sheep.
36. Scouring, picking out of burrs, colouring, rolling.
37. The thread which bums with the smell of burning hair is from pure silk saree and the thread which burns with the smell of burning paper is from pure cotton saree. It is because both silk and hair are protein fibres whereas both cotton and paper are carbohydrates.
38. Steps of wool processing:
    a. Shearing
    b. Cleaning
    c. Sorting
    d. carding
    e. Silver
    f. Woollen clothes
39. Chinese legend has it that empress Si-lung-Chi was worried about the damaged mulberry leaves in her garden. Emperor Huang-ti found out that the white worms were eating up the mulberry leaves and spinning shiny cocoons. A cocoon accidentally dropped into the empress's cup of hot tea, and the delicate tangle of threads separated from the cocoon, thus leading to the discovery of silk.
    Thus, the silk industry was born in China. This was kept secret for hundreds of years. later this was introduced in other countries by traders and travelers much later. The route they travelled was called the silk route.
40. a. Eggs of silk moth on mulberry leaves
    b. Silkworm
    c. Cocoon
    d. Cocoon with developing moth
41. 

42. The various steps to obtain wool are:
    i. Shearing: First of all the fleece of the sheep along with thin layer of ski: removed from its body. This process is called shearing.
    ii. Scouring: The sheared skin with hair is washed in tanks to remove grease, and dirt. This process is called scouring.

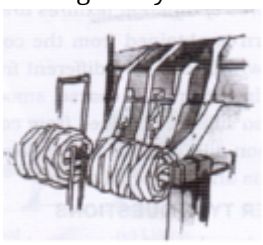
iii. Sorting: After scouring, sorting is done. The hairy skin is sent to a factory hair of different textures are separated or sorted.
iv. The small fluffy fibres called burrs, are picked out from the hair. The fibres scoured again and again and dried.
v. Fibres can be dyed in various colours, as the natural fleece of sheep and goats is black, brown or white.
vi. The fibres are straightened, combed and rolled into yarn. The longer fibres made into wool for sweaters and the shorter fibres are spun and woven woolen cloth.

a. Shearing a sheep

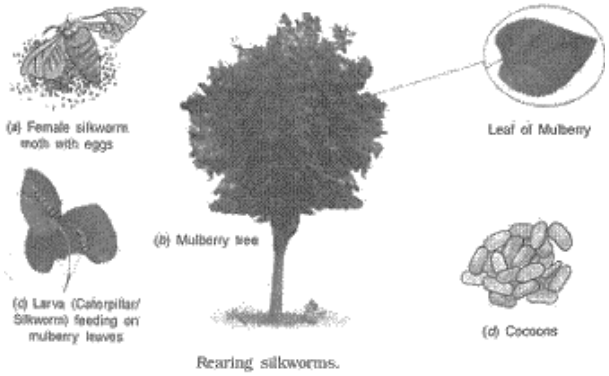
b. Scouring in tanks

c. Scouring by machines

d. Rolling into yarn



43.



Rearing silkworms.

A female silk moth lays hundreds of eggs at a time. The eggs are stored carefully on strips of clothes or paper and sold to silkworm farmers. The eggs are kept under hygienic conditions and suitable conditions of temperature and humidity. Then the larvae hatch out from the eggs. Then they eat mulberry leaves and forms into a pupa. The outer covering of the pupa is known as cocoon. Then when it is fully developed into a silk moth, it comes out and leaves the cocoon.