

CHAPTER - 2

NUTRITION IN ANIMALS

NUTRITION

The process by which an organism takes food and utilizes it is called nutrition.

NEED OF NUTRITION

Organisms need energy to perform various activities. The energy is supplied by the nutrients. Organisms need various raw materials for growth and repair. These raw materials are provided by nutrients.

ANIMAL NUTRITION

Plants make their food by the process of photosynthesis, but animals cannot make their food themselves. Animals get their food from plants. Some animals eat plants directly while some animals eat plant eating animals. Thus, animals get their food from plants either directly or indirectly.

All organisms require food for survival and growth. Requirement of nutrients, mode of intake of food and its utilization in body are collectively known as nutrition.

Nutrition in complex animals involves following steps:

- **Ingestion:** The process of taking food into the body is called ingestion. Method of ingestion, i.e. taking of food, varies from one animal to another.
- **Digestion:** The process of breaking down of complex component of food into simpler substances is called digestion. The process of digestion is different in human, grass eating animals, amoeba, etc.
- **Absorption:** The process of passing of digested food into blood vessels in the intestine is called the absorption.
- **Assimilation:** The conversion of absorbed food in complex substances such as proteins and vitamins required by body is called assimilation. In other words, assimilation is the conversion of absorbed food (nutrients) into living tissues. Through the process of assimilation our cells are supplied with oxygen and nutrients.
- **Egestion:** Removal of waste materials from the body is called egestion. The faecal matter is removed through the anus from time-to-time. Since the waste of food left after digestion is also called faeces, hence the process of egestion is also known as defecation.

DIFFERENT WAYS OF TAKING FOOD

The mode of taking food into the body varies in different organisms. Different organism takes food in different ways.

- Bees and humming-birds suck the nectar of plants
- Infants of human and many other animals feed upon their mother's milk by sucking them.
- Snakes like the python swallow the animals they prey upon.
- Human beings use their hands to put food into their mouth and swallow the food after chewing.
- A snake swallows the animals they prey upon without chewing them.

- A frog captures prey with its sticky tongue.
- An earthworm uses its muscular pharynx to swallow its food.
- Spiders weave sticky web in which small insects get stuck.
- Some aquatic animals filter tiny particles floating nearby and feed upon them.
- Amoeba, a unicellular animal, engulfs tiny particles of food by using pseudopodia. Amoeba surrounds the food by pseudopodia and then makes a food vacuole to engulf the food.
- In multicellular organisms; like hydra there are numerous tentacles around their mouth. Hydra uses tentacles to surround its prey and kill them with its stinging cells. Then the food is pushed inside the body cavity.

DIGESTION

The process of breaking down of complex component of food into simpler substances is called **digestion**. The process of digestion is different in human, grass eating animals, amoeba, hydra, etc.

Enzymes help in the breakdown of complex molecules like carbohydrates, protein, fats, etc. into simple molecules.

Digestion in unicellular animals; like Amoeba; is intracellular. The digestive enzymes are secreted in the food vacuoles.

DIGESTION IN HUMAN

We take in food through the mouth, digest and utilise it. The digestive system of humans is well developed. Human digestive system consists of alimentary canal and its associated human digestive system glands.

Various organs of human digestive system in sequence are

- Mouth (Buccal Cavity)
- Oesophagus (food Pipe)
- Stomach
- Small intestine
- Large intestine
- Rectum
- Anus.

The glands which are associated with human digestive system are

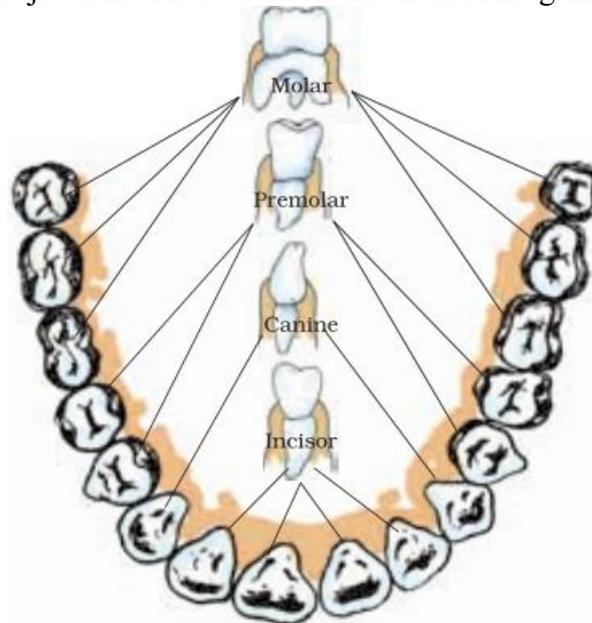
- **Salivary glands**- Located in mouth or Buccal Cavity
- **Liver**- It is the largest gland situated in the upper part of abdomen on the right side.
- **Pancreas**- located just below the stomach

The ducts of various glands open into the alimentary canal and pour secretion of their juices into the alimentary canal.

Mouth: The food is ingested through the mouth. The mouth contains tongue, teeth and salivary glands. Teeth break the food into smaller particles. This process is called mastication. The chewed food is mixed with saliva. Saliva is a watery fluid secreted by the salivary glands. Saliva contains a type of enzyme called the salivary amylase, which converts starch into sugar.

Teeth: Our teeth cut, tear and grind the food before we swallow it. There are four types of teeth in our mouth.

- **Incisors:** These are flat and chisel-shaped teeth. They lie in the front of the mouth. There are eight incisor teeth; four in the upper jaw and four in the lower jaw. The incisor teeth are well adapted for cutting and biting of food items.
- **Canines:** These are round shaped, sharp and pointed teeth. Canines are well adapted to hold and tear the food. There are four canine teeth found in human.
- **Premolars:** There are two premolars on each side of each jaw. Premolars help in crushing and grinding the food. There are 8 premolar teeth in an adult human.
- **Molars:** There are two molars on both sides in both the jaws. They have almost a flat surface with small projections. These teeth are meant for fine grinding of food.



Arrangement of teeth and different type of teeth

There are 12 molar teeth including the wisdom teeth in an adult human. The 4 molar teeth are also called **wisdom teeth**. Wisdom teeth usually grow between the ages of 18 to 21.

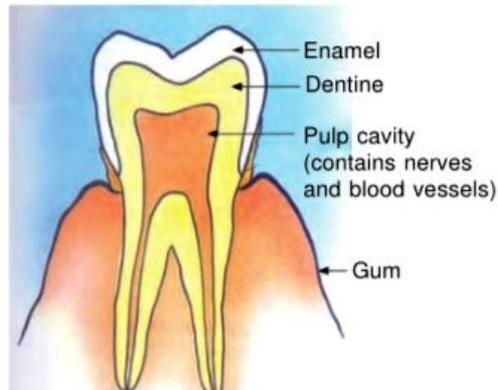
The tooth is covered with a white substance called **enamel**. It is the hardest substance in the human body.

Milk teeth and Permanent teeth

In human beings, the teeth grow twice. First time the teeth grow when one is a small baby (or infant). This set of teeth is called milk teeth. Thus, the first set of teeth which grow during infancy (babyhood) are called milk teeth. Milk teeth are a temporary set of teeth. The milk teeth loosen and begin to fall off at the age between 6 and 8 years. When milk teeth fall off in a child, then another set of teeth grow in their place. So, second time the teeth grow when one is a child. The second set of teeth is called permanent teeth. The permanent teeth grow in place of milk teeth. The permanent set of teeth remains till the old age. But when old people lose their permanent teeth, then new teeth do not grow in their place.

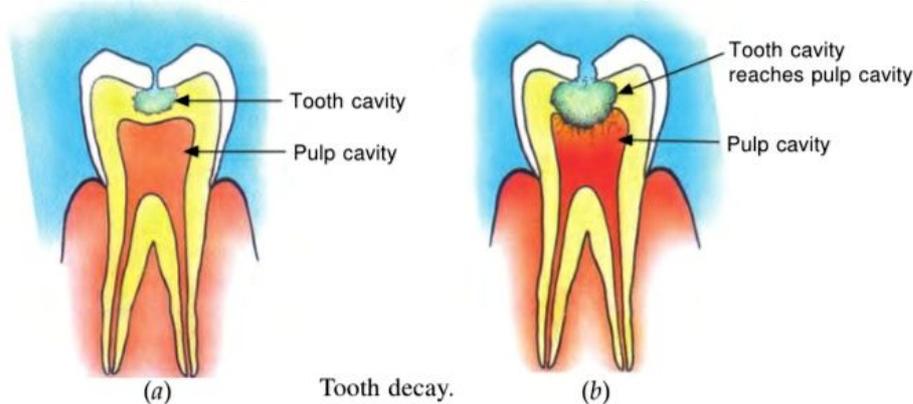
Tooth Decay

The white, hard outer covering of tooth is called enamel (see the below Figure). The part of tooth below the enamel is called dentine. Dentine is similar to bone. Inside the dentine is pulp cavity which contains nerves and blood vessels. If the teeth are not cleaned regularly, then tooth decay can take place. Tooth decay is a process in which the tooth becomes rotten due to the formation of cavities (holes) inside it leading to toothache.



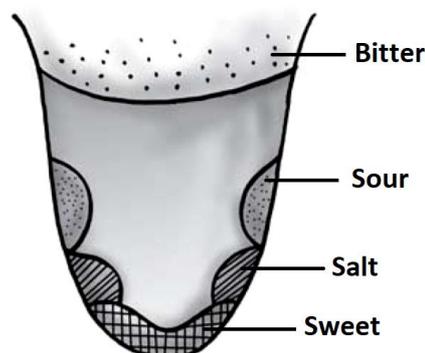
Parts of a tooth.

If we do not clean our teeth and mouth after eating food, then many harmful bacteria begin to grow and live on the teeth. These bacteria act on the sugar present in the left-over food particles sticking to the teeth to form acid. The acid thus formed eats up the enamel and dentine of the tooth gradually and ultimately makes a cavity (or hole) in the tooth [see the below Figure(a)]. When this cavity (or hole) reaches the pulp cavity of the tooth (which contains nerves), our tooth becomes painful and we get toothache [see the below Figure(b)].



DIGESTIVE SYSTEM

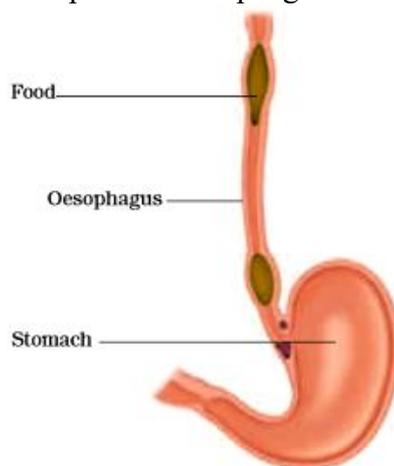
Tongue: The tongue is a muscular organ. Tongue helps to mix saliva in the food. It also helps to push the food down the food-pipe or oesophagus. Taste receptors are present on tongue and give us the sense of taste.



A tongue showing different regions for taste buds

Foodpipe/Oesophagus: It is a tube-like structure connecting the mouth and the stomach. It is about 30 cm. long. Oesophagus has powerful muscles which gently push the food down to the stomach. The oesophagus contracts and relaxes in a rhythmic fashion to facilitate the forward

movement of food. This movement happens in other parts of the alimentary canal as well and is called peristalsis. No digestion takes place in oesophagus.



Stomach:

Stomach is the thick walled bag present on the left side of the abdomen. (see human digestive system figure) It is the widest part of the alimentary canal. Oesophagus brings slightly digested food from mouth into the stomach.

The stomach walls contain three tubular glands in its walls which secrete gastric juice. The gastric juice contains three substances: Hydrochloric acid, the enzyme pepsin and mucus. The hydrochloric acid creates an acidic medium which facilitates the action of the enzyme pepsin that is the digestion of protein into simple substances. The acid kills many bacteria that enter along with the food. The mucus helps to protect the stomach wall from its own secretions of hydrochloric acid. The partially digested food then goes from the stomach into the small intestine.

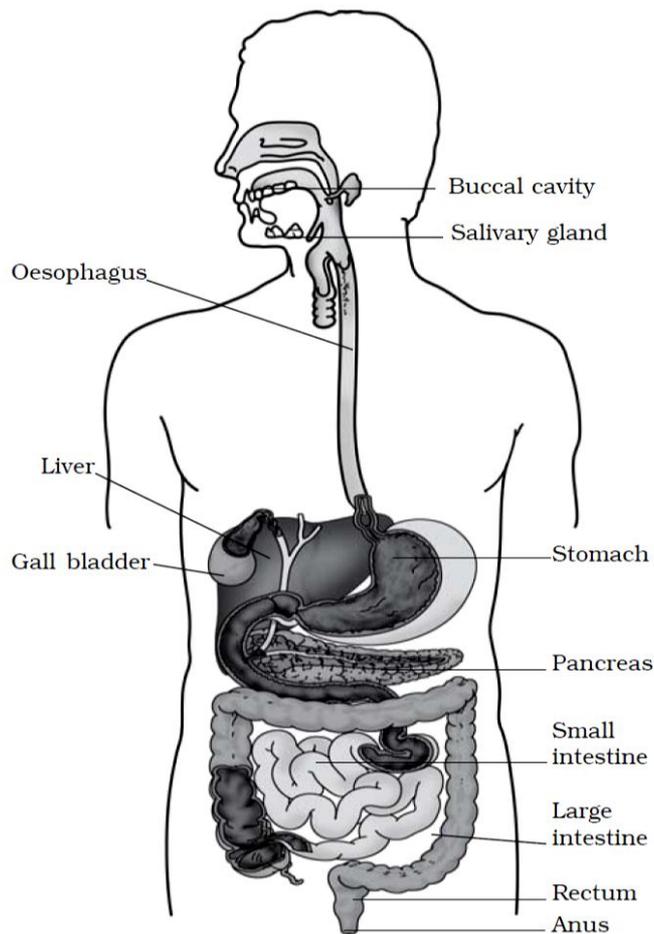
Small intestine: The food leaves the stomach at certain intervals of time and enters into the small intestine.

The small intestine is the longest part of the digestive system. It is about 20 feet or seven meters long in an adult human. Small intestine is a highly coiled tube. It consists of three parts: duodenum, jejunum and ileum.

In the duodenum, the liver and pancreas pour their secretions. Liver secretes bile juice and pancreas secretes the pancreatic juice. The bile juice contains the bile which carries out emulsification of fat. In this process, the fat is broken into tiny droplets. The pancreatic juice contains several enzymes. The enzymes of the pancreatic juice break down starch into simple sugars and proteins into amino acids.

Minerals and vitamins do not need to be changed because cells are able to absorb them easily.

From duodenum the food goes to the lower part of the intestine. There are numerous finger-like projections on the wall of the small intestine. These projections are called villi. They have fine blood capillaries to absorb the food. After absorption; food mixes in the blood stream and is carried to all the cells of the body. The cells utilize this food to release energy.



Large intestine: The digested food enters into large intestine after small intestine. The large intestine is wider and shorter than small intestine. It is about 1.5 metre in length.

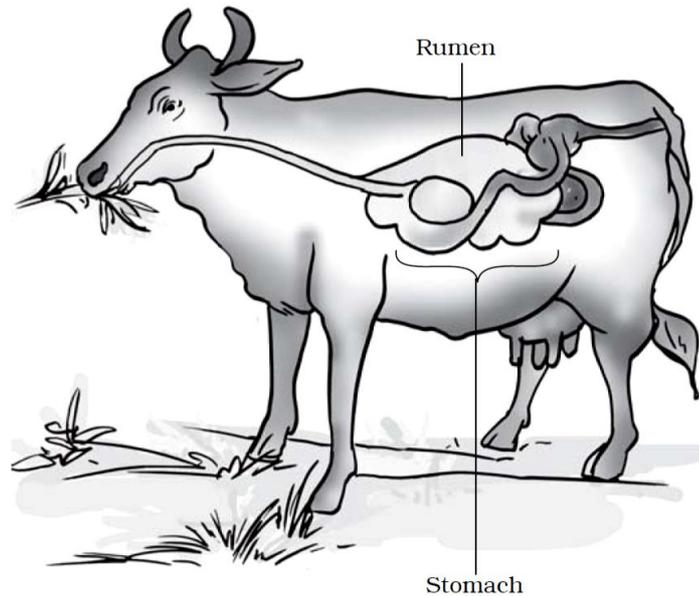
In large intestine; excess of water from the materials is absorbed. The semi solid residue is stored in the last part of the large intestine called rectum and finally throw out of the body through the anus from time to time. The throwing out of waste of digested food from rectum is called egestion. Egestion is also known as defecation.

DIGESTION IN GRASS EATING ANIMALS

Ruminants: None of the animal can digest cellulose which is a major component of the food eaten by herbivores. The plant eating animals digest their food in two steps. Their stomach is divided into four chamber, viz. rumen, reticulum, omasum and abomasum.

First of all, half chewed food is swallowed and it then goes from mouth to the rumen, the first chamber of the stomach. Here, it is acted upon by bacteria. These microorganisms digest the cellulose. This half 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 ruminating animals or ruminants. Cow, goat, buffaloes, sheep, bison, etc. are good example of ruminating 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. Here, all enzymes act upon the food and the digestion is completed.

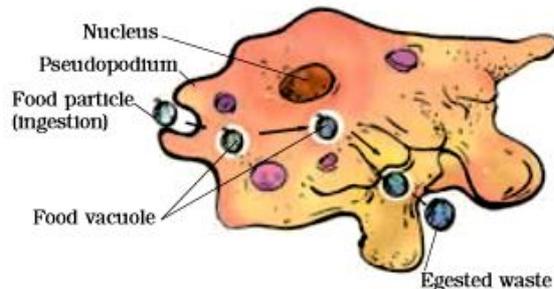
After digestion and absorption, nutrients from food are taken to the cells in all parts of the body. The cells oxidize the food to release energy.



Digestive system of ruminant

FEEDING AND DIGESTION IN AMOEBIA

Amoeba is a microscopic organism which consists of only a single cell. Amoeba is mostly found in pond water. The figure given below shows the structure of amoeba.



Amoeba eats tiny plants and animals as food which floats in water in which it lives. The mode of nutrition in Amoeba is holozoic. The process of obtaining food by Amoeba is called phagocytosis.

Steps involved in the nutrition of Amoeba:

Ingestion: Amoeba ingests food by forming temporary finger-like projections called pseudopodia around it. The food is engulfed with a little surrounding water to form a food vacuole ('temporary stomach') inside the Amoeba.

Digestion: In Amoeba, food is digested in the food vacuole by digestive enzymes which break down the food into small and soluble molecules by chemical reactions.

Absorption: The digested simple and soluble substances pass out of food vacuole into the surrounding environment.

Assimilation: The absorbed food materials are used to obtain energy through respiration and make the parts of Amoeba cell which leads to the growth of Amoeba.

Egestion: The remaining undigested material is moved to the surface of the cell and thrown out of the body of Amoeba.

NCERT EXERCISE QUESTIONS AND ANSWERS

1. Fill in the blanks:

- (a) The main steps of nutrition in humans are _____, _____, _____, _____ and _____.
- (b) The largest gland in the human body is _____.
- (c) The stomach releases hydrochloric acid and _____ juices which act on food.
- (d) The inner wall of the small intestine has many finger-like outgrowths called _____.
- (e) Amoeba digests its food in the _____.

Answer:

- (a) ingestion, digestion, absorption, assimilation, egestion
 (b) liver
 (c) digestive
 (d) villi
 (e) food vacuole.

2. Mark 'T' if the statement is true and 'F' if it is false:

- (a) Digestion of starch starts in the stomach.
 (b) The tongue helps in mixing food with saliva.
 (c) The gall bladder temporarily stores bile.
 (d) The ruminants bring back swallowed grass into their mouth and chew it for some time.

Answer: a) F (b) T (c) T (d) T

3. Tick (✓) mark the correct answer in each of the following:

- (a) Fat is completely digested in the
 (i) stomach
 (ii) mouth
 (iii) small intestine
 (iv) large intestine
- (b) Water from the undigested food is absorbed mainly in the:
 (i) Stomach
 (ii) Food pipe
 (iii) Small intestine
 (iv) Large intestine

Answer. (a) (iii) Small intestine (b) (iv) Large intestine

4. Match the items of column I with those given in column II:

Column 1	Column 2
<u>Food Components</u>	<u>Product(s) of digestion</u>
Carbohydrates	Fatty acids and glycerol
Proteins	sugar
Fats	Amino acids

Answer:

Column 1	Column 2
<u>Food Components</u>	<u>Product(s) of digestion</u>
Carbohydrates	sugar
Proteins	Amino acids
Fats	Fatty acids and glycerol

5. What are villi? What is their location and function?

Answer: The finger like projections in the inner walls of the small intestine is called villi. These are found in small intestine.

Function: The villi increase the surface area for absorption of the digested food

6. Where is the bile produced? Which component of the food does it help to digest?

Answer: Bile is produced in liver. The bile juice stored in sac called the gall bladder. It helps in the digestion of fats.

7. Name the type of carbohydrate that can be digested by ruminants but not by humans. Give the reason also.

Answer: Cellulose is the carbohydrate that can be digested by ruminants. Ruminants have large sac like structure between the small intestine and large intestine. The cellulose of the food is digested by the action of certain bacteria which are not present in humans.

8. Why do we get instant energy from glucose?

Answer: We get instant energy from glucose because it easily breaks down in the cell with the help of oxygen which provides instant energy to the organism. Glucose does not need to go through the process of digestion; it is directly absorbed into the blood.

9. Which part of the digestive canal is involved in:

- (i) Absorption of food _____ .
- (ii) Chewing of food _____ .
- (iii) Killing of bacteria _____ .
- (iv) Complete digestion of food _____ .
- (v) Formation of faeces _____ .

Answer: (i) Small intestine (ii) Mouth (iii) Stomach (iv) Small intestine (v) Large intestine

10. Write one similarity and one difference between the nutrition in amoeba and human beings.

Answer: Similarity: In both amoeba and human beings digestive juices break down the complex food particles into simpler substances that can be absorbed.

Difference: Amoeba has no mouth and no digestive system whereas human beings has a mouth and a complex digestive system made up of many organs.

11. Match the items of Column I with suitable items in Column II.

Column 1	Column 2
(a) Salivary glands	(i) Bile juice secretion
(b) Stomach	(ii) Storage of undigested food
(b) Liver	(iii) Saliva secretion
(c) Rectum	(iv) Acid release
(b) Small intestine	(v) Digestion is completed
(c) Large intestine	(vi) Absorption of water
	(vii) Release of faeces

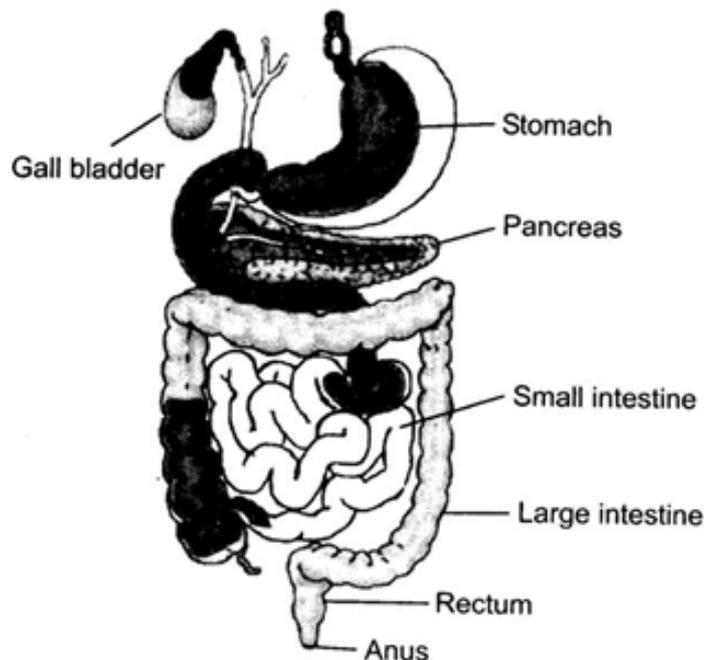
Answer: (a) - (iii), (b) - (iv), (c) - (i), (d) - (v), (e) - (ii), (f) - (vi)

12. Label the below given figure of the Human digestive system.



Human digestive system

Answer:



13. Can we survive only on raw, leafy vegetables/grass? Discuss.

Answer: We know that the animals, fungi, bacteria, non-green plants and human being do not have the ability to make their own food. They depend upon autotrophs or green plants for their food directly or indirectly. The green plant (leafy vegetables/grass) trap solar energy and make their own food in the form of glucose. So, we can say that leafy vegetables and grass can provide sufficient energy to help us survive.

QUESTION BANK (SET 01)

1. Fill in the Blanks:

- (a) During the process of digestion carbohydrates are broken down into _____
- (b) During digestion Complex substance are broken down into _____
- (c) The organ that stores bile is _____
- (d) In human beings most of the nutrients are absorbed by the _____
- (e) The inner walls of the stomach secrete _____
- (f) After chewing an apple, the crushed Apple is swallowed and passed from the _____
- (g) The bile helps in the breakdown of _____
- (h) Amoeba takes in food by the use of _____
- (i) The engulfed food in Amoeba is trapped in the _____
- (j) The digested food moves from the stomach to the _____
- (k) During digestion proteins are broken down into _____
- (l) Pancreas is located just below the _____
- (m) Excess water in the food is absorbed in the _____
- (n) Grass is rich in carbohydrates known as _____
- (o) The digestive juice that begins the digestion of carbohydrate is _____
- (p) The semi digested food in the stomach called _____
- (q) The digestion of food completed in _____
- (r) During digestion fat is broken down into _____
- (s) Glucose combines with oxygen and produces _____
- (t) The process by which a living cell releases energy from glucose is called _____

2. Match the columns

Column 1	Column 2
1. frog	a. engulfs food by false feet
2. hydra	b. catches insects with its tongue
3. Amoeba	c. uses tentacles for ingestion of food
4. spider	d. uses cilia for ingestion of food
5. paramecium	e. uses proboscis to get food
6. butterfly	f. lives on liquid food
7. tearing of meat	g. milk teeth
8. teeth that fall off in children	h. tongue
9. taste buds	i. mastication
10. chewing and mixing of food	j. canines

3. State whether the following statements are true or false

- (a) The tongue helps in mixing saliva with food.
- (b) Digestion of starch starts in stomach.
- (c) Amino acids provide energy to our body.
- (d) The blood takes digested food to all the cells of the body.

Very Short Answer Type Questions

- 4. What does gastric juice help to convert?
- 5. What is the main function of teeth?
- 6. What are the two components of digestive system?
- 7. What is oesophagus?
- 8. Why does bread taste sweet when chewed for some time?

9. Give one instant source of carbohydrate?
10. Where the digestion does starts?
11. What is not digested by human?
12. Name the glands present in the mouth.
13. Where is bile produced?
14. Name the process of taking in food?
15. What helps the food to taste it by our tongue?
16. Name the largest gland in human body.
17. Which part of Amoeba helps in capturing the food particles?
18. Name the organ that helps in nutrition in Hydra?
19. Which organ is known as the food pipe?
20. What is Digestion?
21. Where is the bile produced? Which component of the food does it digest?
22. Name the type of carbohydrate that can be digested by ruminants but not by humans. Give the reason also.
23. Write one similarity and one difference between the nutrition in amoeba and human beings.
24. What is Absorption?
25. Why do we get instant energy from glucose?
26. What is salivary digestion?
27. What are parasites?
28. Name the various digestive organs of man?
29. What is cellulose?
30. What is the function of premolars and molars? Write the number of both teeth in each jaw
31. Which teeth do you use for piercing and tearing? Write the number of these teeth.
32. How many types of teeth do you find in humans? Name them.
33. What are the main steps of digestion in humans?
34. Name the type of food and mode of feeding of the following animals- (a)Ant (b)Mosquito

Short Answer Type Questions

35. What is digestion?
36. Write the function of the tongue?
37. Where is saliva produced?
38. Name the organs of the human digestive system?
39. Name the different types of teeth found in human beings?
40. Give an example of ruminants?

41. What is peristalsis?
42. What are villi? What is their location and function?
43. Why do we get instant energy from glucose?
44. Can we survive only on raw, leafy vegetables/grass? Discuss.
45. Where are the salivary glands located and what is their functions?
46. Explain the term Assimilation, Pseudopodia?
47. What do you understand by rumen and rumination?
48. Write the functions of the tongue.
49. What is the difference between milk teeth and permanent teeth?
50. Differentiate between incisors and canines?
51. Name the acid produced in the stomach?
52. Name any one digestive juice and describe its role in digestion?
53. How does the liver help in the digestion of food?
54. What is rumination?

Long Answer Type Questions

55. Draw and label Digestive system, of ruminant?
56. Draw and label Human Digestive system?
57. Explains with diagram Feeding System in Amoeba?
58. Explains the Effect of Saliva on starch?
59. Write the process absorption food in the small intestine?
60. Draw labelled diagrams of (a) Regions of the tongue for different tastes (b) Amoeba
61. Write short notes on: (a) The stomach (b) The liver
62. Write a short note on structure and feeding in amoeba.
63. What do you understand by alimentary canal or digestive tract?
64. Explain the nutrition in Amoeba with the help of a diagram?
65. Explain about the different kinds of teeth and their function in human beings?
66. Write the functions of the following organs in the digestive system: mouth, stomach, liver, small intestine, pancreas
67. Explain the process of digestion in ruminants and the role of a four chambered stomach?
68. How does Amoeba take in (ingest) the food? From which part of the body undigested food is egested in Amoeba?
69. Name the various kind of teeth in our mouth. State their functions.
70. What is meant by tooth decay? Name some of the foods which are the major cause of tooth decay. What are the various ways of preventing tooth decay?

71. Describe with the help of labelled diagrams, how feeding and digestion in Amoeba takes place.
72. (a) What are ruminants? Which of the following are ruminants?
Fish, Amoeba, Cow, Humans, Dogs, Sheep, Buffalo, Deer, Goat, Giraffe
- (b) Name the type of carbohydrate that can be digested by ruminants but not by humans. Give the reason also.
73. Name the three things secreted by the inner lining of our stomach. Also state their functions. What is the function of large intestine?
74. What are incisors, canines, premolars and molars? State their functions.
75. (a) What is meant by the term “rumination”? Name any two ruminants.
- (b) Explain why, a cow can digest grass but we cannot.
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MULTIPLE CHOICE QUESTIONS

1. Given below from (i) to (iv) are some food items.
(i) Boiled and mashed potato
(ii) Glucose solution
(iii) A slice of bread
(iv) Mustard oil
Which of the above will give blue-black colour when tested with iodine?
(a) (i) and (ii) (b) (i) and (iii)
(c) (ii) and (iii) (d) (iii) and (iv)

2. Which of the following pair of teeth differ in structure but are similar in function?
(a) canines and incisors.
(b) molars and premolars.
(c) incisors and molars.
(d) premolars and canines.

3. Read carefully the terms given below. Which of the following set is the correct combination of organs that do not carry out any digestive functions?
(a) Oesophagus, Large Intestine, Rectum
(b) Buccal cavity, Oesophagus, Rectum
(c) Buccal cavity, Oesophagus, Large Intestine
(d) Small Intestine, Large Intestine, Rectum

4. The swallowed food moves downwards in the alimentary canal because of
(a) force provided by the muscular tongue.
(b) the flow of water taken with the food.
(c) gravitational pull.
(d) the contraction of muscles in the wall of food pipe.

5. The acid present in the stomach
(a) kills the harmful bacteria that may enter along with the food.
(b) protects the stomach lining from harmful substances.
(c) digests starch into simpler sugars.
(d) makes the medium alkaline.

6. The finger-like outgrowths of Amoeba helps to ingest food. However, the finger-like outgrowths of human intestine helps to
(a) digest the fatty food substances. (b) make the food soluble.
(c) absorb the digested food. (d) absorb the undigested food.

7. Read the following statements with reference to the villi of small intestine.
(i) They have very thin walls.
(ii) They have a network of thin and small blood vessels close to the surface.
(iii) They have small pores through which food can easily pass.
(iv) They are finger-like projections.
Identify those statements which enable the villi to absorb digested food.
(a) (i), (ii) and (iv) (b) (ii), (iii) and (iv)
(c) (iii) and (iv) (d) (i) and (iv)

8. The false feet of Amoeba are used for
(a) movement only.
(b) capture of food only.
(c) capture of food and movement.
(d) exchange of gases only.
9. The enzymes present in the saliva convert
(a) fats into fatty acids and glycerol.
(b) starch into simple sugars.
(c) proteins into amino acids.
(d) complex sugars into simple sugars.
10. Cud is the name given to the food of ruminants which is
(a) swallowed and undigested.
(b) swallowed and partially digested.
(c) properly chewed and partially digested.
(d) properly chewed and completely digested.
11. Choose the correct order of terms that describes the process of nutrition in ruminants.
(a) swallowing partial digestion chewing of cud complete digestion
(b) chewing of cud swallowing partial digestion complete digestion
(c) chewing of cud swallowing mixing with digestive juices digestion
(d) swallowing chewing and mixing partial digestion complete digestion
12. Cellulose-rich food substances are good source of roughage in human beings because
(a) human beings do not have cellulose-digesting enzymes.
(b) cellulose gets absorbed in the human blood and converts into fibres.
(c) the cellulose-digesting bacteria convert cellulose into fibres.
(d) cellulose breaks down into smaller components which are egested as roughage.
13. Which of the following foods is not obtained from plants ?
(a) maize (b) milk (c) mango (d) melon
14. The process of taking in food by an animal and its utilisation in the body is called :
(a) ingestion (b) digestion (c) nutrition (d) egestion
15. Which one of the following does not suck nectar from flowers ?
(a) butterfly (b) bee (c) lizard (d) hummingbird
16. The aquatic animal which ingests food with the help of pseudopodia is :
(a) Eagle (b) Fish (c) Aquatic snake (d) Amoeba
17. Which of the following is digested by saliva ?
(a) glucose (b) starch (c) cellulose (d) sucrose
18. Mucus, hydrochloric acid and digestive juices are secreted by the inner lining of :
(a) pancreas (b) stomach (c) small intestine (d) salivary glands
19. The site of complete digestion and absorption of food in the human digestive system is :
(a) stomach (b) small intestine (c) large intestine (d) rectum
20. The millions of tiny outgrowths on the inner surface of small intestine are called :
(a) capillaries (b) buds (c) villi (d) veins

21. The length of small intestine in adult human beings is about:
(a) 1.5 m (b) 2.5 m (c) 7.5 m (d) 4.5 m
22. The amino acids present in digested food in our body are used to make :
(a) fats (b) proteins (c) minerals (d) carbohydrates
23. The fat present in our food is completely digested in the :
(a) stomach (b) mouth (c) small intestine (d) large intestine
24. Water from the undigested food is absorbed mainly in the :
(a) stomach (b) food pipe (c) small intestine (d) large intestine
25. The digestion of a particular food in the small intestine produces amino acids. This food must contain mainly :
(a) carbohydrates (b) fats (c) vitamins (d) proteins
26. The digestion of groundnut oil present in food produces :
A. Amino acid B. Glycerol C. Alcohol D. Fatty acid
(a) A and B (b) B and C (c) C and D (d) B and D
27. The teeth in our mouth which are for piercing and tearing the food are called :
(a) incisors (b) canines (c) molars (d) premolars
28. Which of the following are for biting and cutting the food ?
(a) premolars (b) canines (c) molars (d) incisors
29. In human beings, the 16 teeth of each jaw consist of :
(a) 2 incisors, 4 canines, 4 premolars and 6 molars
(b) 4 incisors, 2 canines, 6 premolars and 4 molars
(c) 4 incisors, 2 canines, 4 premolars and 6 molars
(d) 2 incisors, 4 canines, 6 premolars and 4 molars
30. The part of our tooth which contains nerves and blood vessels is called :
(a) gum (b) pulp cavity (c) enamel (d) dentine
31. Excessive use of sugar containing foods is a major cause of :
(a) indigestion (b) stomach pain (c) headache (d) tooth decay
32. Which of the following carbohydrate can be digested by a cow but not by a man ?
(a) glucose (b) cellulose (c) starch (d) canesugar
33. Amoeba catches food particles from the surrounding water by using its:
(a) tentacles (b) food vacuole (c) pseudopodia (d) cilia
34. An animal which has no mouth and no digestive system is :
(a) Antelope (b) Amoeba (c) Alligator (d) Angora
35. Which of the following is an incorrect statement in respect of Amoeba :
(a) It has no fixed shape (b) It has no fixed mouth
(c) It has false feet (d) It has a digestive system
36. Which of the following can digest cellulose carbohydrate present in its food ?
(a) cow (b) lion (c) cat (d) man

37. Name the parts of the alimentary canal where
- (i) water gets absorbed from undigested food.
 - (ii) digested food gets absorbed.
 - (iii) taste of the food is perceived.
 - (iv) bile juice is produced.

38. Choose the odd one out from each group and give reasons.
- (i) liver, salivary gland, starch, gall bladder
 - (ii) stomach, liver, pancreas, salivary gland
 - (iii) tongue, absorption, taste, swallow
 - (iv) oesophagus, small intestine, large intestine, rectum

39. Fill in the blanks with suitable words:

- (a) The alimentary canal stretches from _____ to _____.
- (b) Teeth are rooted in separate _____ in between the _____.
- (c) Digestion of food starts in _____ and gets completed in _____.
- (d) _____ is the largest gland in the human body.

40. Fill in the blanks using the words listed below.

water, front, intestinal, salts, pseudopodia, back, vacuole

- (a) The digestion of all food components is completed by the _____ juice.
- (b) Large intestine absorbs _____ and some _____ from the undigested food.
- (c) Tongue is attached at the _____ to the floor of the mouth cavity and is free at the _____.
- (d) Amoeba pushes out _____ around the food and traps it in a food _____.

