Nutrition in Animals

1. Fill in the blanks:

(a) The main steps of digestion 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 _____ .

Answers:

(a) The main steps of digestion in humans are **ingestion**, **digestion**, **absorption**, **assimilation** and **egestion**.
(b) The largest gland in the human body is **liver**.
(c) The stomach releases hydrochloric acid and **digestive** juices which act on food.
(d) The inner wall of the small intestine has many finger-like outgrowths called **villi**.
(e) Amoeba digests its food in the **food vacuole**.

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

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

Answers:

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

Answer: small intestine

(b) Water from the undigested food is absorbed mainly in the

(i) stomach
(ii) foodpipe
(iii) small intestine
(iv) large intestine

Answers: large intestine

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

Column I	Column II
Food components	Product(s) of digestion
Carbohydrates	Fatty acids and glycerol
Proteins	Sugar
Fats	Amino acids

Answer:

Column I	Column II
Food components	Product(s) of digestion
Carbohydrates	Sugar
Proteins	Amino acids
Fats	Fatty acids and glycerol

5. What are villi? What is their location and function?
Answer:
Villi are finger-like outgrowths present on the inner walls of the small intestine. The main functions of villi are to increase the area of absorption of the digested food in small intestine. Each villus has a network of thin and small blood vessels close to its surface. The surface of the villi absorbs the digested food materials. The absorbed substances are then transported through the blood vessels to different organs of the body where they are used to build complex substances such as the proteins required by the body.

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

Answer:
The bile is produced by the liver and is stored in a sac called gall bladder. Bile plays an important role in fat digestion. It breaks the fats into fatty acids and glycerol.

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

Answer:
Celluose is a carbohydrate that cannot be digested by humans but by ruminants. These ruminants have a large sac-like structure between the small intestine and large intestine. The cellulose of the food is digested here by the action of certain bacteria. The enzymes which digest cellulose is absent in humans.

9. Why do we get instant energy from glucose?
Answer:
The carbohydrate like starch that we take in through food is a complex sugar. It needs to be broken down into simple sugar like glucose. This glucose is then utilized by the body to produce energy. If we intake glucose, it gets directly absorbed and doesn't require undergoing digestion process to get converted into usable form.

10. 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 _____.

Answers:

(i) absorption of food **small intestine**.
(ii) chewing of food **mouth** and **buccal cavity**.
(iii) killing of bacteria **stomach**.
(iv) complete digestion of food **small intestine**.
(v)formation of faeces **large intestine**.

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

Similarity

Both amoeba and human ingest the food and break it down into simpler components. These can then be utilized by the body to carry out body's vital functions. In amoeba

the food is ingested and then absorbed by the food vacuole likewise in humans the food is digested by digestive enzymes secreted by the stomach and small intestine.

Difference

Amoeba is a unicellular organism which engulfs the food by pseudopodia and therefore all of the digestion process is taken care by a single cell only whereas humans have a complex digestive system to process the food. There are various organs each playing a significant role in the digestion process.

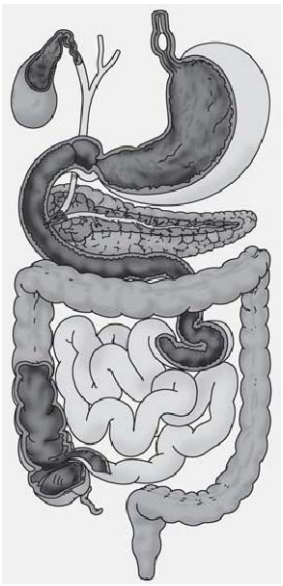
12. Match the items of Column I with suitable items in Column II

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

Answer:

Column I	Column II
(a) Salivary gland	(iii) Saliva secretion
(b) Stomach	(iv) Acid release
(c) Liver	(i) Bile juice secretion
(d) Rectum	(vii) Release of faeces
(e) Small intestine	(v) Digestion is completed
(f) Large intestine	(vi) Absorption of water

13. Label Fig. 2.11 of the digestive system.



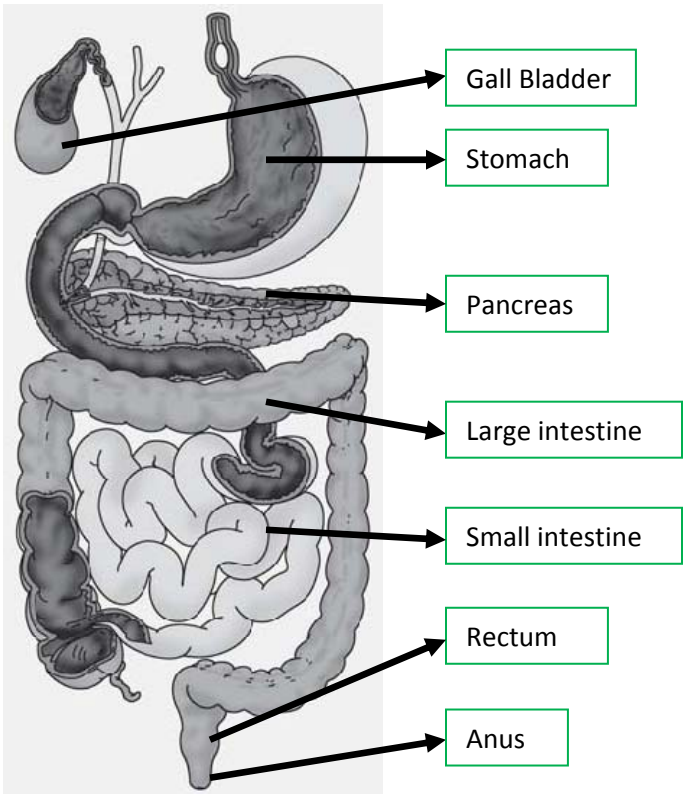


Fig. 2.11 Human digestive system

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

Answer:

No, we cannot survive only on raw, leafy vegetables or grass because for proper growth and development of the body we require a balanced diet which is rich in all

essential nutrients. Deficiency of any of these may lead to diseases. Also grass contains a carbohydrate named cellulose that cannot be digested by us as we lack the enzymes required for its digestion.