

Chapter - 2

Nutrition in Animals

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)

Soln:

Answer is (b) (i) and (iii)

Explanation:

Mashed potato and bread are rich in starch. On adding iodine it reacts with starch to give blue-black color.

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.

Soln:

Answer is (b) molars and premolars.

Explanation:

Our teeth tear, grind the food before swallowing food. There are four types of teeth.

Incisors: front eight teeth, 4 in upper jaw and 4 in lower jaw.

Canines: There are 4 canines, one on each side of each jaws.

Premolars: There are 8 premolars. Two premolars in each of the upper and lower jaws.

Molars: There are 12 molars, three in each half of both upper and lower jaws.

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**

Soln:

Answer is (a) Oesophagus, Large Intestine, Rectum

Explanation:

Oesophagus pushes the food downwards and it is not involved in any digestive functions.

Large intestine absorbs water and some salts from the undigested food material and it is not involved in digestion process.

In rectum remaining waste passes and remains there as semi-solid faeces. It is not involved in any digestive function.

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.**

Soln:

Answer is (d) the contraction of muscles in the wall of food pipe.

Explanation:

Muscles of Esophagus push food down by movement of the wall of the foodpipe. Actually this movement takes place throughout the alimentary canal and pushes the food downwards.

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.**

Soln:

Answer is (a) kills the harmful bacteria that may enter along with the food.

Explanation:

Stomach consists of Hydrochloric acid which kills the bacteria that enter through food. Thus stomach acid is helping in protecting us from harmful bacteria.

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.**

Soln:

Answer is (c) absorb the digested food.

Explanation:

Fingerlike projection are present in small intestine and they are called Villi. Villi absorb nutrients from digested food by increasing space of small intestine.

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)**

Soln:

Answer is (a) (i), (ii) and (iv)

Explanation:

Inner walls of the small intestine have thousands of finger-like outgrowths called villi (singular villus). Villi increase the surface area for absorption of the digested food. 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 transported via 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.

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.**

Soln:

Answer is (c) capture of food and movement.

Explanation:

Amoeba constantly changes its shape and position. It pushes out one, or more finger-like projections, called pseudopodia or false feet for movement and capture of food. Amoeba feeds on some microscopic organisms. When it senses food, it pushes out pseudopodia around the food particle and engulfs it.

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.**

Soln:

Answer is (b) starch into simple sugars.

Explanation:

Saliva consist of salivary amylase enzyme which breaks starch into simple sugar which is further digested by enzymes in stomach and small intestine.

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.**

Soln:

Answer is (b) swallowed and partially digested.

Explanation:

Ruminants quickly swallow the grass and store it in a part of the stomach called rumen .Here the food gets partially digested and is called cud. But later the cud returns to the mouth in small lumps and the animal chews it. This process is called rumination.

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

Soln:

Answer is (a) swallowing → partial digestion → chewing of cud → 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.

Soln:

Answer is (a) human beings do not have cellulose-digesting enzymes.

Very Short Answer Questions

13. 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.

Soln:

- (i) Large intestine
- (ii) Small intestine
- (iii) Tongue
- (iv) Liver

Mark the following statements as True or False. If false, write the correct statements. (a) Tongue is attached to the roof of the mouth cavity at the back.

14. Mark the following statements as True or False. If false, write the correct statements.

- (a) Tongue is attached to the roof of the mouth cavity at the back.
- (b) The large intestine is longer and wider than the small intestine of the human alimentary canal.
- (c) Mucus protects the stomach lining from damage.
- (d) All heterotrophs have a similar basic process of nutrition.

Soln:

- a) False- Tongue is attached to the floor of the mouth cavity at the back.
- b) False – The large intestine is shorter and wider than the small intestine of the human alimentary canal.
- c) True
- d) True

15. 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

Soln:

- i) Answer is Starch because starch is a carbohydrates whereas liver, salivary gland and gall bladder are the glands.
- ii) Answer is stomach because other are digestive glands
- iii) Absorption is the answer because, tongue, swallow and taste are related to buccal cavity but not absoroption.
- iv) Small intestine is the answer because oesophagus, large intestine and rectum will not take part in digestion whereas small intestine plays main role in digestion process.

16. You were blindfolded and asked to identify the drinks provided in two different glasses. You could identify drink A as lime juice and B as bitter gourd juice. How could you do it inspite of being blindfolded?

Soln:

We can identify the juices with the help of different taste buds present in the tongue.

17. 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.

Soln:

- (a) The alimentary canal stretches from Mouth to Anus .
- (b) Teeth are rooted in separate Sockets in between the Gums .
- (c) Digestion of food starts in Buccal cavity and gets completed in Small Intestine .
- (d) Liver is the largest gland in the human body.

18. Following statements describe the five steps in animal nutrition. Read each statement and give one word for each statement. Write the terms that describes each process.

- (a) Transportation of absorbed food to different parts of body and their utilisation.
- (b) Breaking of complex food substances into simpler and soluble substances.
- (c) Removal of undigested and unabsorbed solid residues of food from the body.
- (d) Taking food into the body.
- (e) Transport of digested and soluble food from the intestine to blood vessels.

Soln:

- (a) Assimilation
- (b) Digestion
- (c) Egestion
- (d) Ingestion
- (e) Absorption

Short Answer Questions

19. Match the animals in Column I with their mode of feeding listed in Column II

Column I	Column II
Animals	Mode of Feeding
a) Housefly	i) Biting and chewing
b) Cockroach	ii) Suckling
c) Mosquitos	iii) Sponging
d) Infants	iv) Sucking

Soln:

Column I	Column II
Animals	Mode of Feeding
e) Housefly	iii) Sponging
f) Cockroach	i) Biting and chewing
g) Mosquitos	iv) Sucking
h) Infants	ii) Suckling

20. Boojho took some grains of boiled rice in test tube ‘A’ and Paheli took boiled and chewed rice in test tube ‘B’. Both of them poured 1 – 2 drops of iodine solution into the test tube and observed the colour change. What colour change would they have observed? Give reasons for your answer.

Soln:

In test tube A colour of iodine changes to blue- black because of reaction of iodine with starch. In testtube B colour will not change because salivary amylase acts on starch while chewing reducing it to simpler sugars.

21. ‘A’ got her gall bladder removed surgically as she was diagnosed with stones in her gall bladder. After the surgery, she faced problems in digestion of certain food items when consumed in bulk. Can you tell which kind of food items would they be and why?

Soln:

Those foods will be fats because bile juice present in the gall bladder help in the digestion of fat. Removal of gall bladder makes it hard to digest the fat.

22. Match the organs in Column I with the words listed in Column II.

Column I	Column II
a) Rectum	i) Mucous
b) Gall bladder	ii) Villi
c) Stomach	iii) Taste Buds
d) Tongue	iv) Faeces
e) Small Intestine	v) Bile Juices

Soln:

Column I	Column II
f) Rectum	iv) Faeces
g) Gall bladder	v) Bile Juices
h) Stomach	i) Mucous
j) Tongue	iii) Taste Buds
k) Small Intestine	ii) Villi

23. Ruminants such as cows and buffaloes swallow their food hurriedly and then sit restfully and chew their food. Can you reason why?

Soln:

To digest the food completely ruminants keep the food as cuds.

24. Boojho and Paheli were eating their food hurriedly so that they could go out and play during the recess. Suddenly, Boojho started coughing violently. Think of the reasons why he was coughing and discuss with your friends.

Soln:

Sometimes, when one eats hurriedly, talks or laughs while eating, the flap like valve, epiglottis closing the passage of windpipe remains open. The food may enter the wind pipe and coughing helps to clear it.

Long Answer Questions

25. 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 _____.

Soln:

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

26. Label the below given Figure 2.1 as directed below in (i) to (iv) and give the name of each type of teeth.

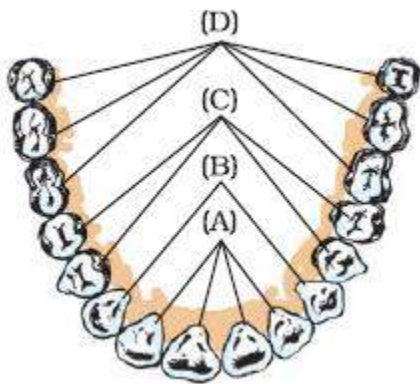


Fig. 2.1

- (i) The cutting and biting teeth as 'A'
- (ii) The piercing and tearing teeth as 'B'
- (iii) The grinding and chewing teeth as 'C'
- (iv) The grinding teeth present only in adult as 'D'

Soln:

- A. Incisors
- B. Canines
- C. Premolars
- D. Molars



27. Read the following passage carefully and answer the questions that follows it. Bile juice is stored in a sac called, gall bladder, located near its organ of secretion, liver. The gall bladder releases the bile juice into the small intestine whenever food reaches there. Though bile juice is devoid of any digestive enzymes, it is required for the digestion of fats. The fats cannot be digested easily because they are insoluble in water and are present as large globules. Bile juice breaks down big fat droplets into smaller droplets. These are then easily digested by the enzymes released from the pancreas.

- (a) Which organ secretes the bile juice?
- (b) Why is digestion of fats difficult as compared to that of other nutrients?
- (c) How does bile juice help in digestion of fat?
- (d) Where is the digestion of fat completed?
- (e) Does bile juice digest fat completely?

Soln:

- (a) Liver
- (b) Insolubility of fat in water.
- (c) Breaks down big fat droplets into smaller droplets.
- (d) Small intestine
- (e) No

28.

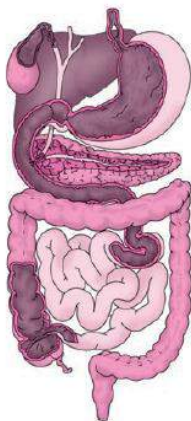


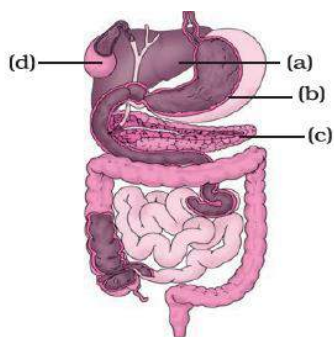
Fig. 2.2

Label the following parts in Figure 2.2 and name them.

- (a) The largest gland in our body.
- (b) The organ where protein digestion starts.
- (c) The organ that releases digestive juice into the small intestine.
- (d) The organ where bile juice gets stored.

Soln:

- (a) Liver
- (b) Stomach
- (c) Pancreas
- (d) Gall bladder



29. Open your mouth, look into a mirror and try to count the different types of teeth in your mouth. Compare them with Figure 2.3 on page 13 of your NCERT textbook. Record your observations in the table below:

Type of Teeth	Number of Teeth	
	In my mouth	In the figure
Incisors		
Canines		
Premolar		
Molar		

- (a) Did you observe any difference in the number of teeth? If yes, could you identify which type of teeth showed the difference?
- (b) Compare the number and type of teeth in an adult (say your parents or cousins who have reached the age of 25–30 or more). Note your observation.

Soln:

Type of Teeth	Number of teeth	
	In my mouth	In the figure
Incisors	4	4
Canines	8	8
Premolar	8	8
Molar	8	12

30. Solve the crossword given as Figure 2.3.

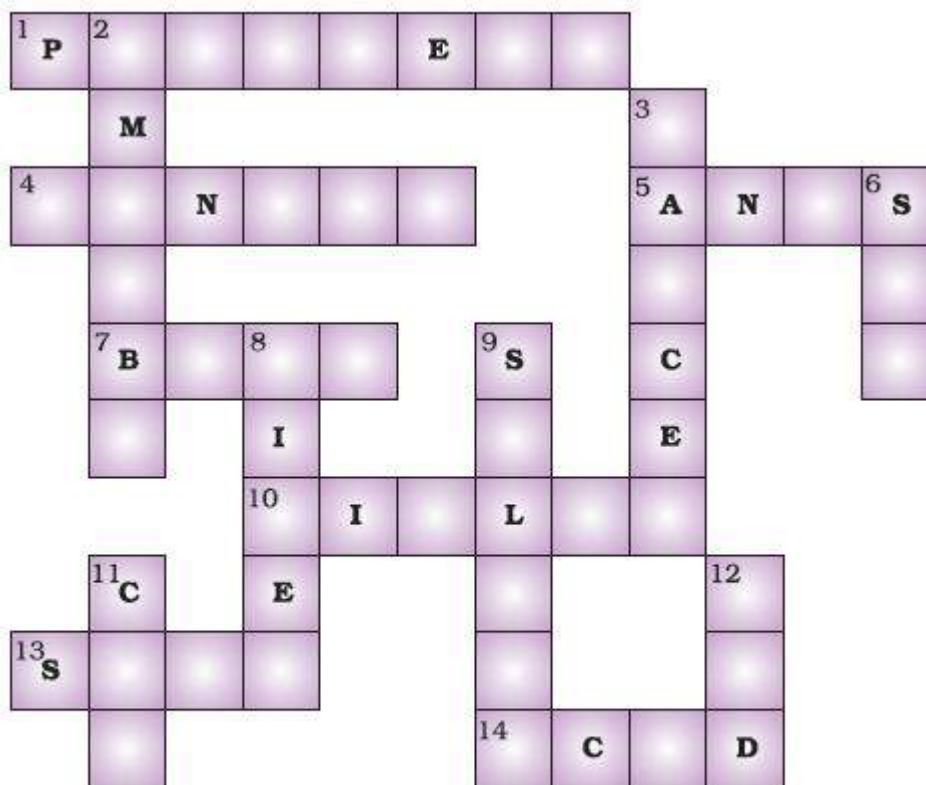


Fig. 2.3

Across

1. Cream-coloured digestive gland
3. Undigested excretory solid residues
4. Organ that mixes saliva with the food
5. Point of defecation
7. Stored in gall bladder
10. Finger-like outgrowth in the small intestine
13. Kind of taste buds
14. Kills bacteria in the stomach

Down

2. Feeds with the help of pseudopodia
6. Total number of molars in one jaw of an adult
8. Largest gland
9. Watery secretion in the mouth
11. A ruminant
12. Form of food chewed by ruminants

Soln:

