

7. Human Nutrition

(Past Year Topical Questions 2010-2015)

May/June 2010 (11)

12 Which condition can sometimes be prevented by eating plenty of fresh fruit and vegetables?

- A bleeding gums
- B brittle bones
- C diabetes
- D soft bones

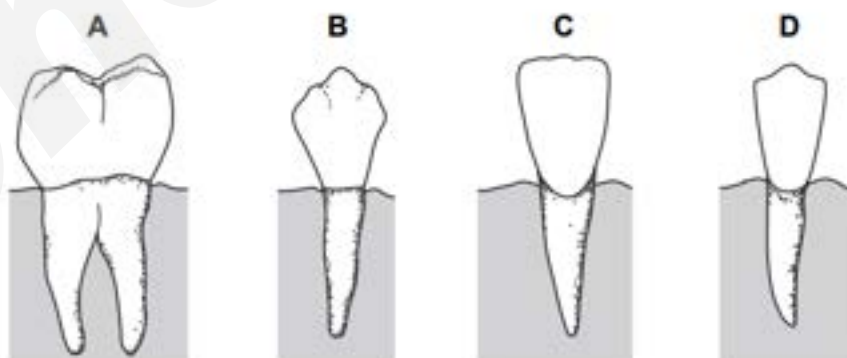
Oct/Nov 2010 (11)

8 Water is a good solvent.

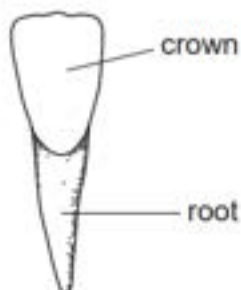
What does this mean?

- A It dissolves well in many other substances.
- B It flows easily through vessels.
- C It is permeable to gases.
- D Many substances dissolve well in it.

13 Which type of tooth is used for crushing food?



14 The diagram shows a type of tooth.



Use the key to identify the tooth.

- 1 double rooted tooth go to 2
- single rooted tooth go to 3
- 2 flattened crown **A**
- deeply ridged crown **B**
- 3 chisel shaped tooth **C**
- cone shaped tooth **D**

15 The table shows vitamin and mineral salt content of four foods.

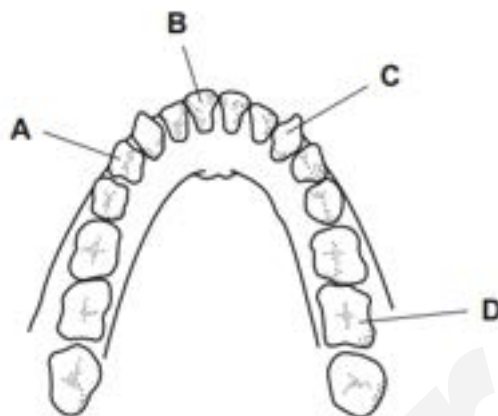
food	vitamin C	vitamin D	calcium	iron
1	low	high	low	low
2	low	low	low	high
3	low	low	high	low
4	high	low	low	low

Which foods would stop a person from suffering from anaemia (lack of haemoglobin) and scurvy (bleeding gums)?

	anaemia	scurvy
A	1	2
B	1	3
C	2	4
D	3	4

Oct/Nov 2011 (11)

13 Which is an incisor tooth?



16 Dietary fibre passes through several structures after leaving the stomach.

In which order does the dietary fibre pass through these structures?

- A duodenum → ileum → colon → rectum
- B duodenum → ileum → rectum → colon
- C ileum → duodenum → colon → rectum
- D ileum → duodenum → rectum → colon

May/June 2012 (11)

12 Which chemical reaction takes place in the stomach?

- A Proteins are digested by protease.
- B Proteins are digested into fatty acids.
- C Starch is digested into amino acids.
- D Starch is digested by lipase.

13 Which row correctly identifies the chemical elements found in proteins?

	carbon	hydrogen	oxygen	nitrogen
A	✓	✓	✓	✓
B	✓	✓	✓	x
C	✓	x	✓	x
D	x	✓	x	✓

key
 ✓ = present
 x = absent

14 A person has bleeding gums.

This could be caused by a lack of which nutrient?

- A** calcium
- B** iron
- C** vitamin C
- D** vitamin D

17 The table shows the main contents of four meals.

Which meal will be the most effective at preventing constipation?

	g/100g			
	carbohydrate	fat	fibre (roughage)	protein
A	18	12	8	25
B	30	32	2	12
C	38	4	22	10
D	48	15	10	5

18 Why does chewing food speed up digestion?

- A Bacteria in the food are killed.
- B Food is mixed with protease.
- C The surface area of the food is increased.
- D The taste of food is improved.

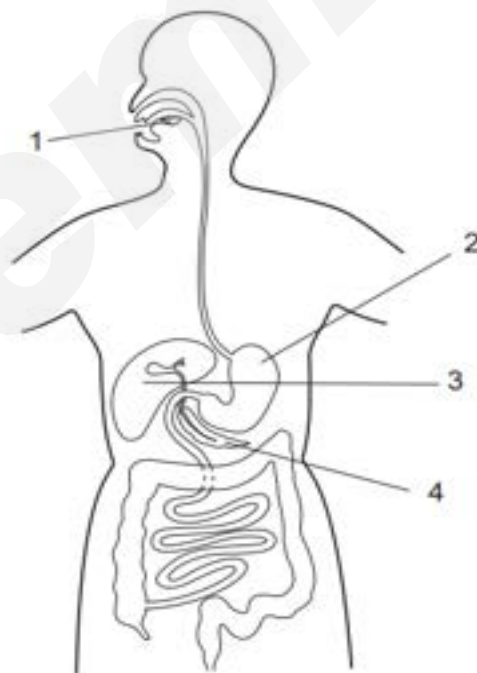
May/June 2012 (12)

13 The activity of lipase is measured in four parts of the gut.

Which part has the most lipase activity?

- A colon
- B duodenum
- C oesophagus
- D stomach

15 The diagram shows some organs of the digestive system.



Where is amylase made?

- A 1 and 4
- B 2 and 3
- C 2 and 4
- D 3 and 4

Oct/Nov 2012 (11)

13 When solution X is tested with iodine solution, a blue-black colour is observed.

A different solution, Y, is added to a new sample of solution X and the mixture is shaken and left for 30 minutes at 40 °C. When tested with iodine solution, an orange-brown colour is observed.

What are solutions X and Y?

	X	Y
A	maltose	amylase
B	maltose	lipase
C	starch	amylase
D	starch	lipase

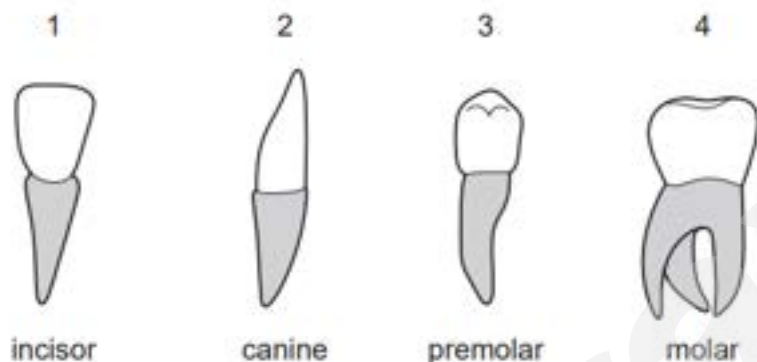
14 A child decided to eat only meat, oily fish, cheese and bread, and drink only water.

Which nutrient would be in low levels in this diet?

- A** calcium
- B** iron
- C** vitamin C
- D** vitamin D

May/June 2013 (11)

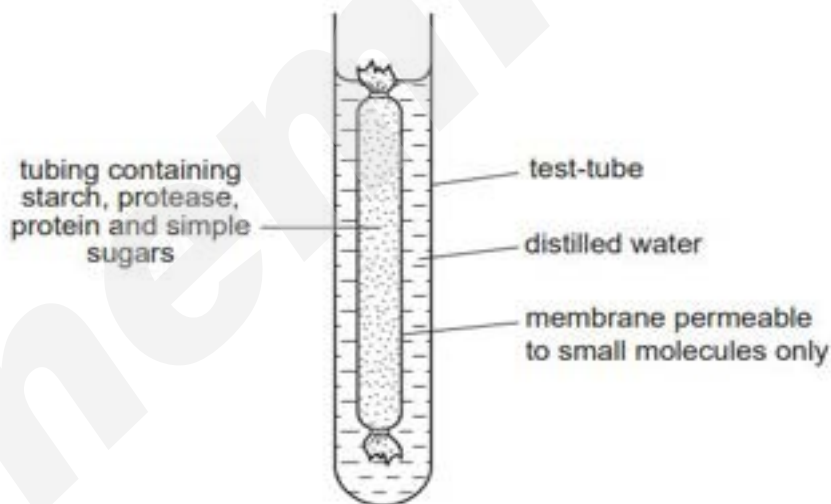
15 The diagram shows the four types of human tooth.



Which teeth are used for cutting rather than grinding food?

- A** 1 and 2 **B** 2 and 3 **C** 3 and 4 **D** 4 and 1

16 The diagram shows an experiment kept at room temperature.



What is present in the water surrounding the membrane after 45 minutes?

- A** amino acids and simple sugars
B protein and amino acids
C protein and simple sugars
D starch and simple sugars

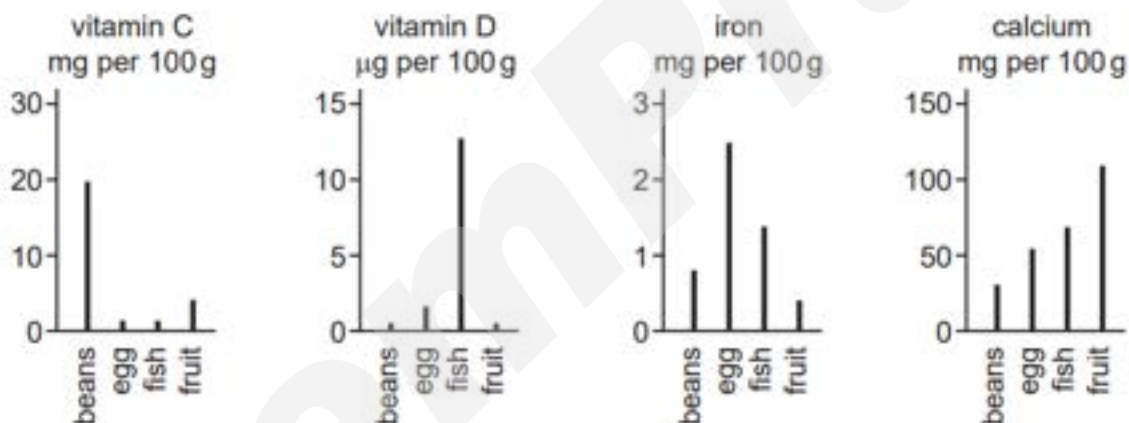
May/June 2013 (12)

14 What is the result of a diet lacking iron?

- A bleeding gums
- B poor wound healing
- C reduced number of red blood cells
- D weak bones and teeth

Oct/Nov 2013 (11)

16 The graphs show the quantities of selected vitamins and mineral ions in four foods.

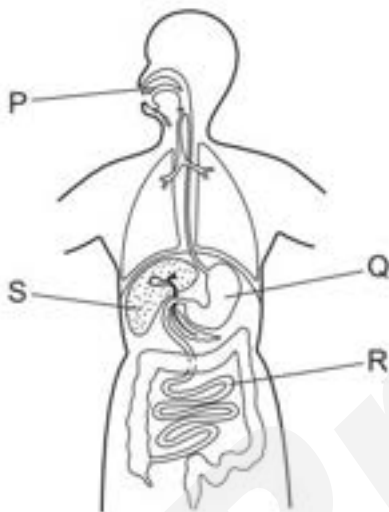


Which food is the richest source of the vitamin or mineral ions essential for the transport of oxygen by the blood?

- A beans
- B egg
- C fish
- D fruit

Oct/Nov 2013 (13)

15 The diagram shows some of the organs of the human body.



In which organs does the digestion of carbohydrates take place?

- A** P and Q **B** P and R **C** Q and R **D** Q and S

May/June 2014 (11)

14 A person has their gall bladder removed.

Which statement is correct?

- A** They cannot eat carbohydrates.
B They can eat fat only in small amounts.
C They can eat only liquid food.
D They must not eat more than one large meal a day.

May/June 2014 (12)

12 The table shows the temperature and pH at which four different enzymes are most active.

Which enzyme is a protease from the stomach?

	optimum temperature /°C	optimum pH
A	25	10
B	37	7
C	40	2
D	50	5

14 The small intestines of cows are similar in general structure and function to the small intestines of humans.

A disease in cows reduces the number of villi in their small intestines.

The cows lose weight and become weak.

What explains this?

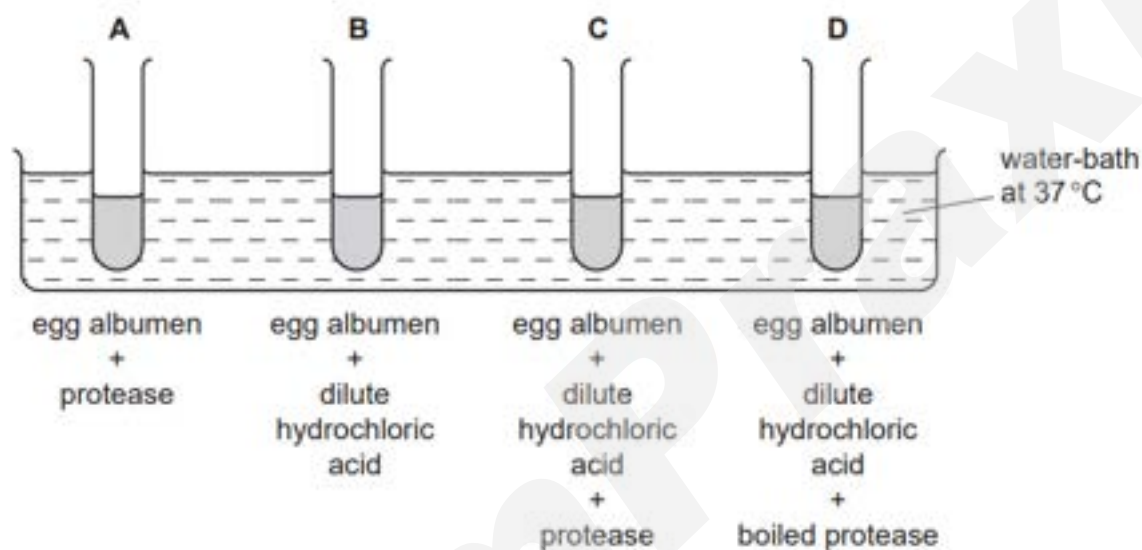
- A** less amylase produced
- B** less peristalsis
- C** slower absorption of nutrients
- D** slower digestion of proteins

May/June 2015 (11)

12 The diagram shows an experiment on the digestion of the protein in egg albumen by protease.

The protease was taken from a human stomach.

In which test-tube will the protein be digested most quickly?



13 Which effect does a gradual decrease in pH from 13 to 1 have on the action of amylase?

- A slows it down only
- B slows it down then speeds it up
- C speeds it up only
- D speeds it up then slows it down

15 Poor nutrition can lead to a condition called rickets in which bones fail to develop properly.

The table shows some minerals and vitamins present in four foods.

Which food would be best for a child who has rickets?

	calcium	iron	vitamin C	vitamin D
A	✓	x	✓	x
B	✓	x	x	✓
C	x	✓	✓	x
D	x	✓	x	✓

key

✓ = substance present

x = substance absent

16 Which components make up most of the dry mass of a balanced diet?

- A** calcium compounds, carbohydrates and fats
- B** carbohydrates, fats and proteins
- C** fats, proteins and vitamins
- D** proteins, vitamins and calcium compounds

19 Why does chewing food speed up digestion?

- A** Bacteria in the food are killed.
- B** Food is mixed with protease.
- C** The surface area of the food is increased.
- D** The taste of food is improved.

May/June 2015 (13)

15 A person ate food X. Food X was **not** affected by enzymes until it reached the duodenum.

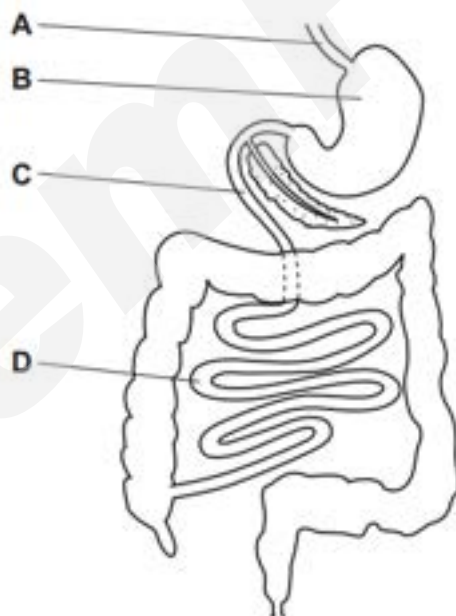
What was in food X?

- A fat
- B mineral ion
- C protein
- D starch

May/June 2015 (12)

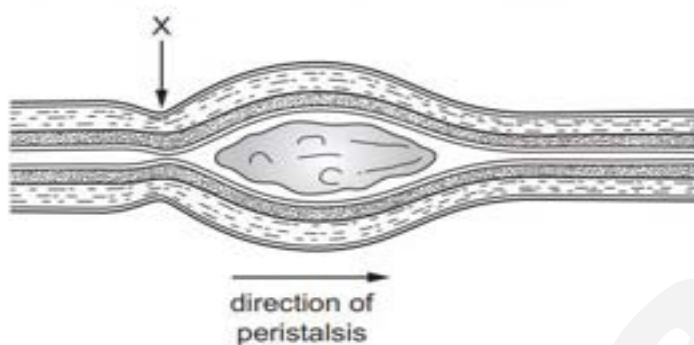
14 The diagram shows part of the human alimentary canal.

In which part does protein digestion begin?



Oct/Nov 2015 (11)

13 The diagram shows a piece of small intestine during peristalsis.

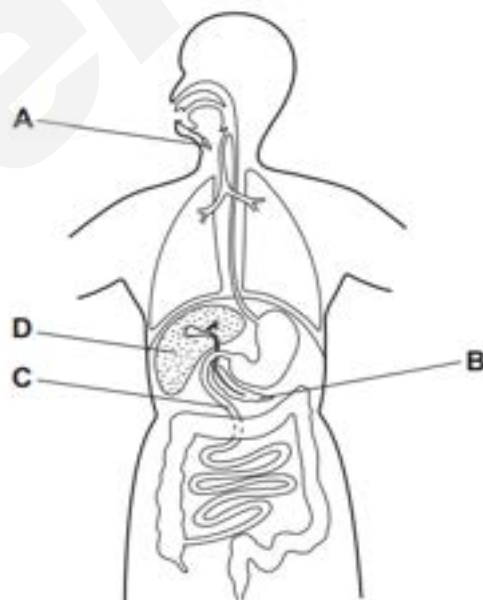


What is happening at X?

	circular muscles	longitudinal muscles
A	contracted	contracted
B	contracted	relaxed
C	relaxed	contracted
D	relaxed	relaxed

15 The diagram shows the human alimentary canal.

Which structure does **not** secrete digestive enzymes?



Oct/Nov 2015 (12)

12 Which substance catalyses the breakdown of fats to fatty acids and glycerol?

- A** adrenaline
- B** alcohol
- C** bile
- D** lipase