

Human nutrition

Question Paper 1

Level	IGCSE
Subject	Biology (0610/0970)
Exam Board	Cambridge International Examinations (CIE)
Topic	Human nutrition
Sub-Topic	Human nutrition
Booklet	Question Paper 1

Time Allowed: 48 minutes

Score: /40

Percentage: /100

Grade Boundaries:

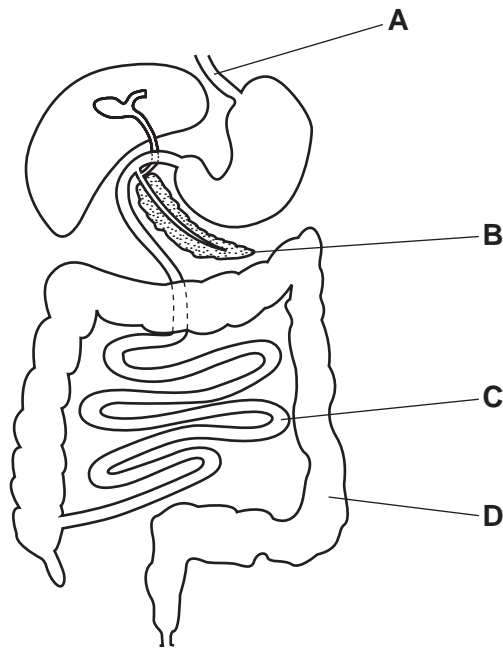
9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	53%	48%	40%	33%	<25%

1. Which type of food is **not** digested before being absorbed by the body?

- A carbohydrate
- B fat
- C protein
- D water

2. The diagram shows the human alimentary canal.

In which structure is most glucose absorbed into the blood?



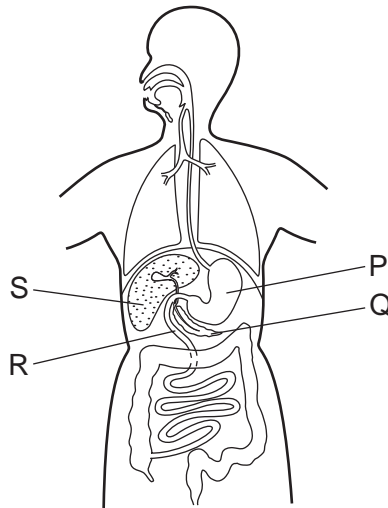
3. Which dietary component is **unlikely** to be deficient in a meat-free diet?

- A fat
- B fibre
- C protein
- D vitamin D

4. The bacterium *Salmonella enterica* can cause severe food poisoning and the lining of the alimentary canal may be damaged. In these cases absorption of digested food products cannot easily take place.

Which region of the alimentary canal is most affected?

- A colon
 - B ileum
 - C oesophagus
 - D stomach
5. The diagram shows some of the organs of the human body.



In which organs does the digestion of proteins take place?

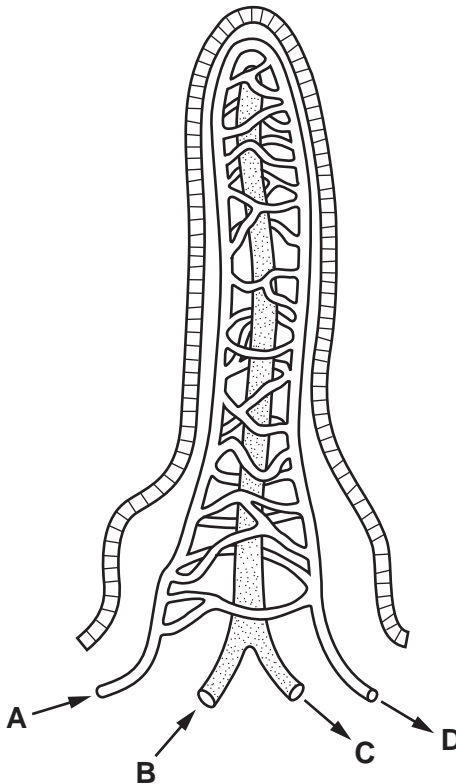
- A P and Q
 - B P and R
 - C Q and R
 - D Q and S
6. Which organ produces amylase?
- A gall bladder
 - B liver
 - C oesophagus
 - D pancreas

7. Which treatment is best for a person with persistent diarrhoea?

- A drinking a solution of sugar and salt
- B drinking pure water
- C eating more fibre
- D eating protein such as boiled eggs

8. The diagram shows a villus. The arrows show the direction of flow within vessels associated with the villus.

Which vessel carries blood to the liver?



9. What is **not** a result of cholera infection?

- A intestinal blockage
- B loss of salts from blood
- C severe dehydration of body tissues
- D severe diarrhoea

10. What is the function of bile?

- A to acidify food entering the duodenum
- B to emulsify starch
- C to increase the surface area of fats for digestion
- D to provide enzymes for fat digestion

11. In which region of the alimentary canal is maltose digested?

- A colon
- B rectum
- C small intestine
- D stomach

12. Which description of the cholera pathogen is correct?

- A The bacterium prevents the kidney from absorbing water, so water is secreted into the small intestine, causing diarrhoea.
- B The bacterium produces a toxin that causes the secretion of chloride ions into the small intestine, drawing in water by osmosis.
- C The virus prevents the kidney from absorbing water, so water is secreted into the small intestine, causing diarrhoea.
- D The virus produces a toxin that causes the secretion of chloride ions into the small intestine, drawing in water by osmosis.

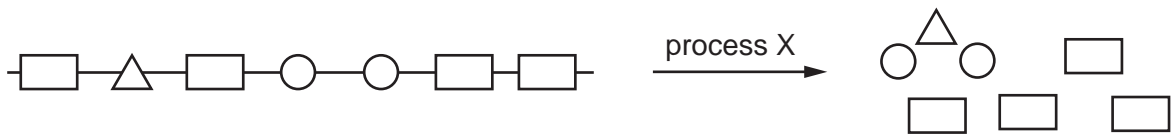
13. The diagram shows a fat globule (P) in one part of the alimentary canal and the same globule (Q) as it appears in another part of the alimentary canal.



In which parts of the alimentary canal are P and Q found?

	P	Q
A	duodenum	stomach
B	ileum	oesophagus
C	oesophagus	ileum
D	rectum	ileum

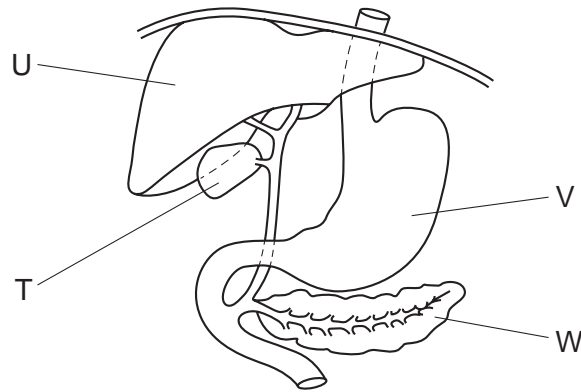
14. The diagram shows a large food molecule changing into smaller molecules.



What is process X?

- A** absorption
- B** chewing
- C** digestion
- D** secretion

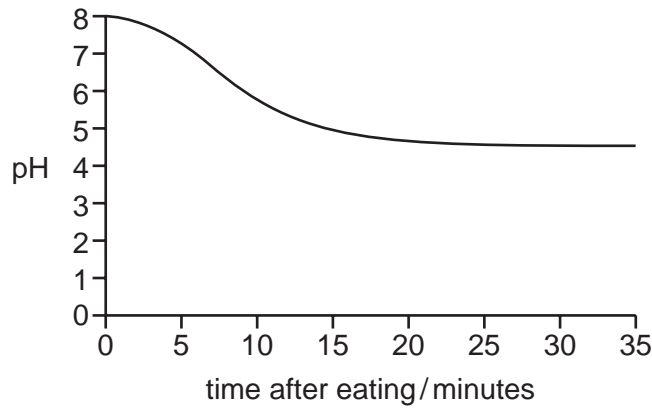
15. The diagram shows part of the alimentary canal and associated organs.



Which structures secrete enzymes that digest proteins?

- A** T and U **B** U and V **C** V and W **D** W and T

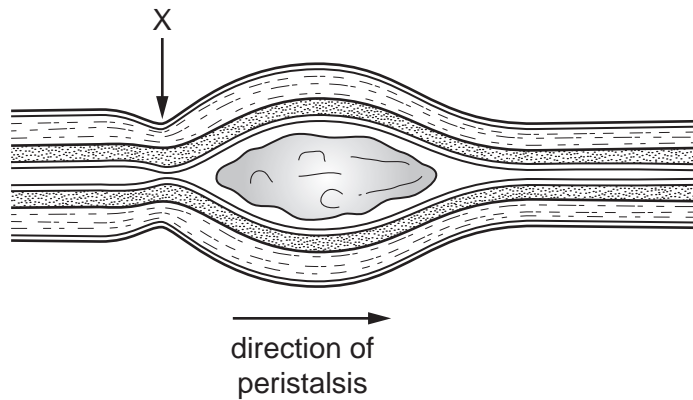
16. The graph shows pH changes in the mouth after eating.



Why is it a good idea to brush teeth after eating?

- A** Acidic conditions help bacteria to grow.
B Acids dissolve tooth enamel.
C Alkaline conditions help bacteria to grow.
D Alkalis dissolve tooth enamel.

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

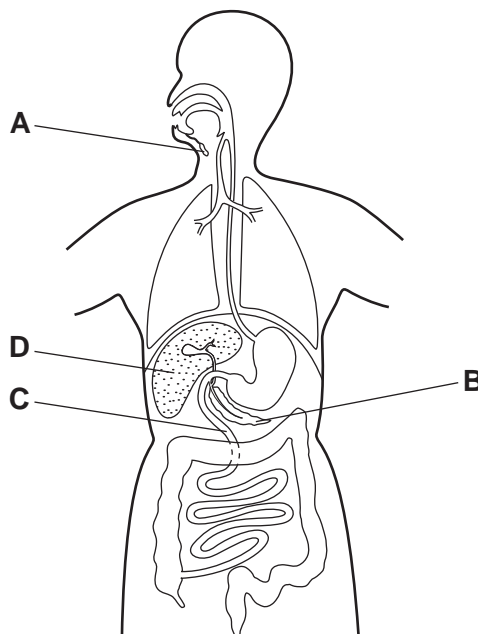


What is happening at X?

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

18. The diagram shows the human alimentary canal.

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



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

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

20. 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

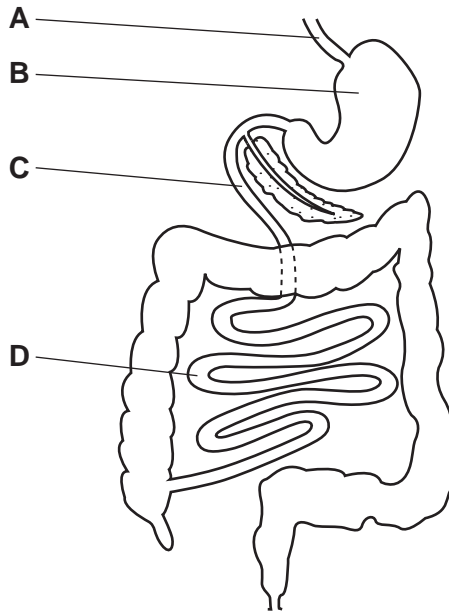
21. Which components make up most of the dry mass of a balanced diet?

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

22. 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.

23. The diagram shows part of the human alimentary canal.
In which part does protein digestion begin?

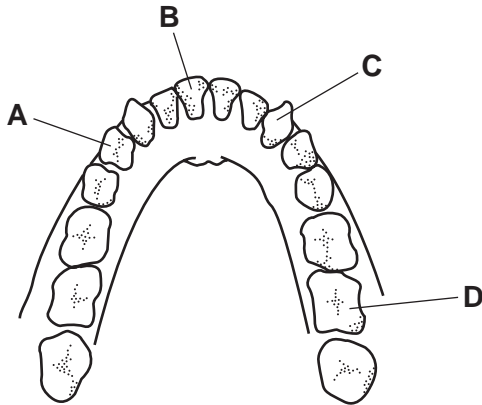


24. A person ate food X. Food X was **not** affected by enzymes until it reached the duodenum.
What was in food X?

- A fat
 - B mineral ion
 - C protein
 - D starch
25. 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.

26. The diagram shows the teeth of the lower jaw of a human.

Which tooth is an incisor?



27. What is the function of the anus?

- A** assimilation
- B** digestion
- C** egestion
- D** excretion

28. 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.

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

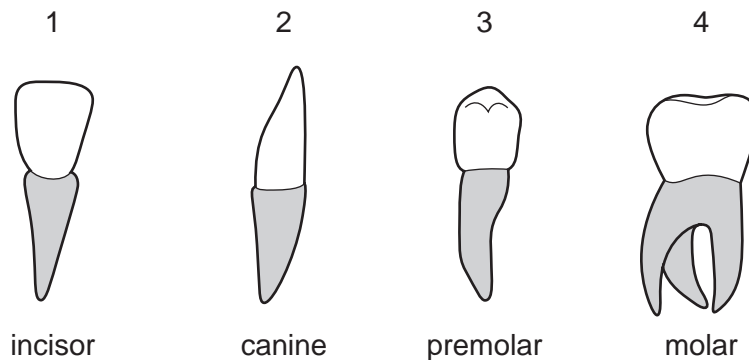
A disease in cows reduces the number of villi in their small intestines.

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

30. 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
31. 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

32. 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

33. 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.

34. 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

35. The table shows the main contents of four meals.

Which meal will be the most effective at preventing constipation?

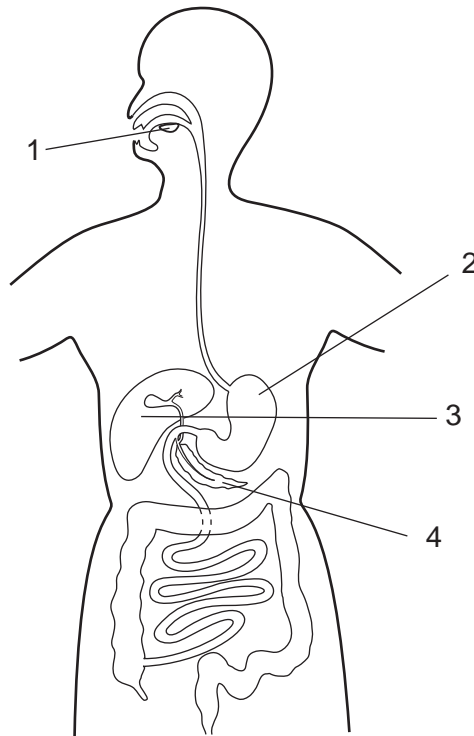
	g / 100 g			
	carbohydrate	fat	fibre (roughage)	protein
A	18	12	8	25
B	30	32	2	12
C	38	4	22	10
D	48	15	10	5

36. 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

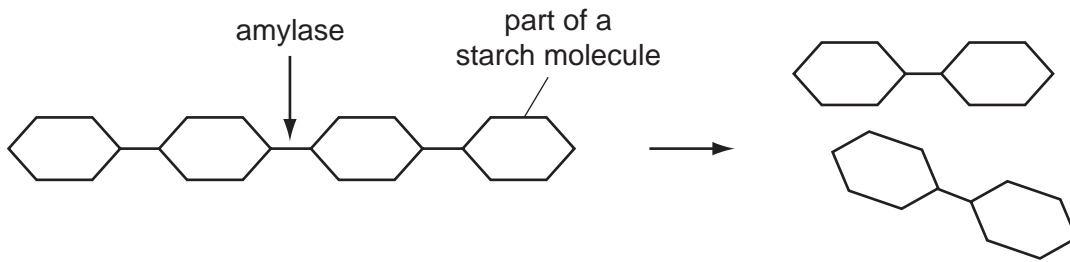
37. The diagram shows some organs of the digestive system.



Where is amylase made?

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

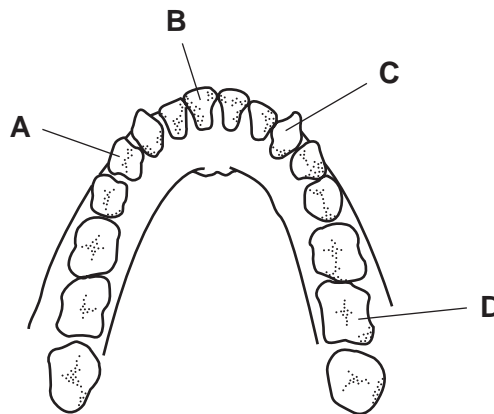
38. The diagram shows the action of amylase.



What is the function of the enzyme amylase?

- A breaks down the substrate into amino acids
- B changes the product into the substrate
- C increases the rate of starch breaking down into glucose
- D increases the rate of starch breaking down into maltose

39. Which is an incisor tooth?



40. 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