

# 5 Nutrition in Humans

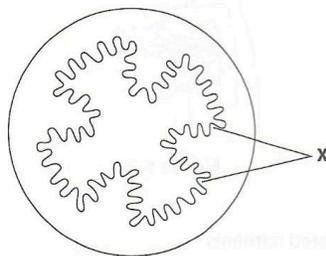
For each question, choose the most suitable option and write the letter (A, B, C or D) in the brackets provided.

**Level 1**

1. Which of the following reactions in the human digestive system does **not** require enzymes to proceed rapidly?

- A Breaking down starch into maltose
- B Breaking down of proteins by protease
- C Emulsification of fats into tiny fat droplets
- D Catabolism of fats into fatty acids and glycerol ( )

2. Figure 5.1 shows a cross-section of a small intestine.



**Figure 5.1**

Which of the following statements describes the role of X?

- A They push food down the small intestine.
- B They produce secretions that emulsify fats.
- C They provide a larger surface area for absorption.
- D They protect the lining of the small intestine from bacterial infection. ( )

3. When a man has a meal that is high in proteins, the body will deaminate the excess proteins. Where does deamination take place and what is the metabolic waste product of deamination?

	Location of Deamination	Metabolic Waste
A	Liver	Amino acids
B	Liver	Urea
C	Kidneys	Amino acids
D	Kidneys	Urea

( )

4. The small intestine absorbs glucose, which is transported to the liver. What happens when excess glucose is transported to the liver?
- A Insulin converts the excess glucose to starch.
  - B Insulin converts the excess glucose to glycogen.
  - C The excess glucose is deaminated and excreted.
  - D Glucagon converts the excess glucose to glycogen.
- ( )

Figure 5.2 shows a human digestive system. Use the diagram to answer questions 5 and 6.

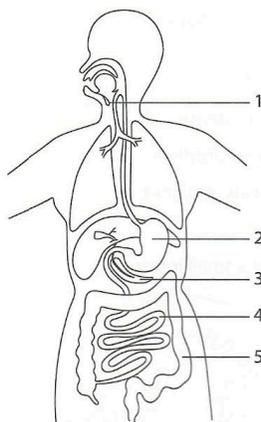


Figure 5.2

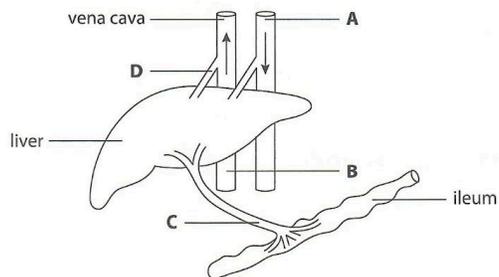
5. Which structure absorbs digested nutrients?
- A 2
  - B 3
  - C 4
  - D 5
- ( )

**Level 2**

6. Which of the following statements is **incorrect** about the structures?
- A 2 is involved in the killing of harmful microorganisms ingested.
  - B 3 produces pancreatic juices that are essential for physical digestion.
  - C 4 is up to six metres long to allow ample time for digestion of nutrients.
  - D 5 absorbs water and mineral salts.
- ( )

7. Which of the following statements describe what happens in the mouth?
- 1 Fats are digested.
  - 2 Food is moistened.
  - 3 Food is mixed with enzymes.
  - 4 Food is cut into smaller pieces.
- A** 1 and 3 only                      **B** 2 and 4 only  
**C** 1, 2 and 3 only                      **D** 2, 3 and 4 only                      (     )
8. An experiment can be conducted to find out if a sample of human pancreatic juice contains amylase. Which experiment should it be?
- A** Mixing pancreatic juice with proteins and test for amino acids.
  - B** Mixing pancreatic juice with starch and test for reducing sugars.
  - C** Mixing pancreatic juice with fats and test for fatty acids and glucose.
  - D** Mixing pancreatic juice with fats and test for fatty acids and glycerol.                      (     )
9. Dave wrote the following statements about the small intestine.
- 1 It produces bile.
  - 2 It is the only site where nutrients are absorbed.
  - 3 There is no protein digestion in the small intestine.
  - 4 Lipase breaks down fats into fatty acid and glycogen in the small intestine.
- Which statement(s) is/are **correct**?
- A** 2 only                                      **B** 2 and 3 only  
**C** 1, 2 and 4 only                      **D** 1, 2, 3 and 4                      (     )

10. Figure 5.3 shows the ileum and the liver with its associated blood vessels.



**Figure 5.3**

A man fasted and did not eat for 24 hours. Which blood vessel, **A**, **B**, **C** or **D**, would have had the highest concentration of glucose when he was fasting?                      (     )

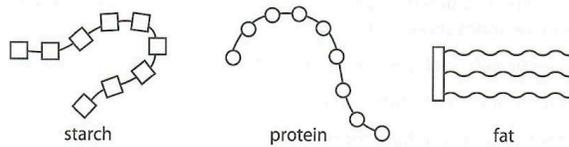
**Level 3**

11. The stomach contains digestive enzymes. Explain why the enzymes do not digest the stomach.

- A Pepsin in the stomach digests only proteins.
- B Gastric juice is secreted only when food is present.
- C There is a layer of thick mucus that lines the stomach wall.
- D Peristalsis in the stomach wall prevents it from being digested.

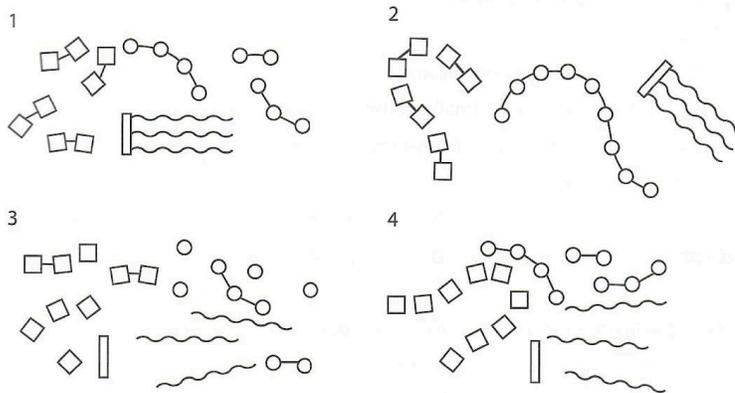
( )

12. Figure 5.4 shows three different nutrients — starch, protein and fat.



**Figure 5.4**

Four samples of food were extracted from different parts of the human digestive system. The contents of the four food samples are shown in Figure 5.5.



**Figure 5.5**

Which food samples were extracted from the mouth and stomach?

	Mouth	Stomach
A	1	2
B	2	1
C	2	3
D	4	3

( )

13. Figure 5.6 shows the percentage of three different types of nutrients as they pass through different parts of the alimentary canal.

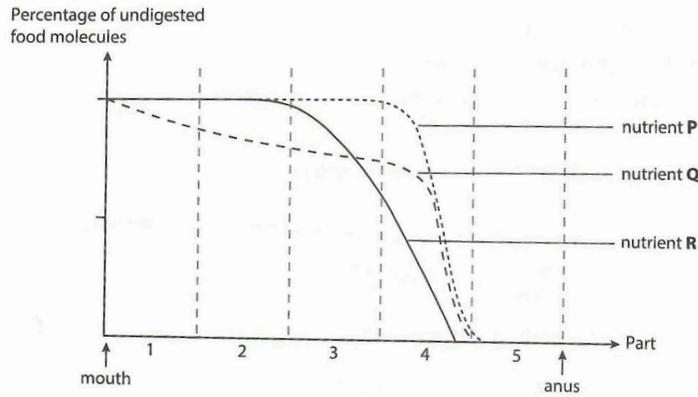


Figure 5.6

What are nutrients P, Q and R?

	P	Q	R
A	Fat	Protein	Carbohydrate
B	Fat	Carbohydrate	Protein
C	Carbohydrate	Protein	Fat
D	Protein	Carbohydrate	Fat

( )

14. Figure 5.7 shows part of the digestive system.

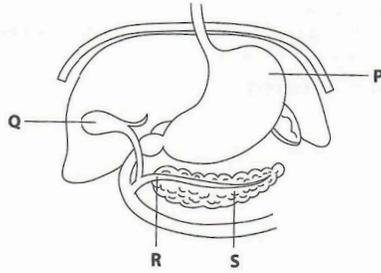


Figure 5.7

Which of the following statements about the labelled structures is **not** true?

- A Structure Q is involved in the digestion of fats.
- B Structure R releases acidic fluids into the small intestine.
- C Structure S makes digestive enzymes that aid in digestion.
- D Structure P produces gastric juice that can kill some harmful microorganisms.

( )

15. If a person's bile duct is blocked, \_\_\_\_\_.

- A fat digestion will be reduced
- B the production of bile will stop
- C protein digestion will be reduced
- D carbohydrate digestion will be reduced

( )

16. Figure 5.8 shows part of the human digestive system.

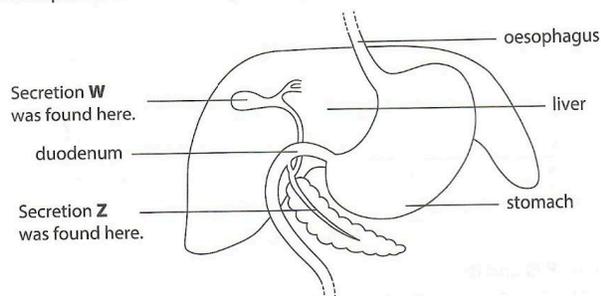


Figure 5.8

Secretions **W** and **Z** are collected, and a series of experiments are conducted by mixing them with oil. Table 5.1 shows the predicted results of mixing the secretions with oil.

Table 5.1

	Secretion(s)	Prediction
1	<b>W</b>	A small amount of fatty acids is formed.
2	<b>Z</b>	A moderate amount of fatty acids is formed.
3	<b>W + Z</b>	A moderate amount of fatty acids is formed.
4	<b>W + Z</b>	A large amount of fatty acids is formed.

Which of the predicted results are **correct**?

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

( )