

# Chemical digestion: practice questions

7 questions • 22 marks • mark scheme at the back

For Cambridge IGCSE Biology 0610 (and 0970, which has the same content). **Supplement** is Extended content, only examined on Papers 2 and 4.

Name .....

Total ..... / 22

**1** Which shows the products of the digestion of fats and oils by lipase? [1 mark]

- A. ☐ Amino acids  
B. ☐ Fatty acids and glycerol  
C. ☐ Simple reducing sugars  
D. ☐ Maltose and glucose

**2** (a) Describe what is meant by chemical digestion. [2] (b) Explain why the products of chemical digestion can be absorbed into the blood. [1] [3 marks]

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**3** Complete the table for the three digestive enzymes. [6 marks]

| Digestive enzymes |           |         |                |
|-------------------|-----------|---------|----------------|
| Enzyme            | Substrate | Product | Where secreted |
| Amylase           |           |         |                |
| Protease          |           |         |                |
| Lipase            |           |         |                |

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**4** Describe two functions of hydrochloric acid in gastric juice. **[2 marks]**

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**5** **Supplement** **[4 marks]**

Describe the digestion of starch in the digestive system.

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**6** **Supplement** **[5 marks]**

(a) Name the protease that works in the stomach. [1] (b) Explain why the same protease does not work in the small intestine. [2] (c) Name the protease that works in the small intestine and state the pH conditions it needs. [2]

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**7** **Supplement** **[1 mark]**

Acidic food and gastric juice enter the duodenum from the stomach. Which substance makes the contents of the duodenum suitable for enzymes to work?

- A. ☐ Amylase
- B. ☐ Hydrochloric acid
- C. ☐ Bile
- D. ☐ Glycerol

# Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

B B

2. [3]

- (a) breakdown of large molecules (1)
- insoluble molecules into small soluble molecules (1)
- (b) they are small and soluble / can pass through the gut wall (1)

3. [6]

- amylase: starch (1)
- amylase: simple (reducing) sugars (1) allow maltose; ignore sugar unqualified
- amylase: salivary glands / pancreas (1)
- protease: protein and amino acids (1)
- protease: stomach / pancreas (1)
- lipase: fats and oils and fatty acids and glycerol (1)
- lipase: pancreas (1)
- Max 6

4. [2]

- kills harmful microorganisms / bacteria in food (1)
- provides an acidic pH for optimum enzyme (protease / pepsin) activity (1)

5. [4] **Supplement**

- amylase (from salivary glands / pancreas) (1)
- breaks starch down to maltose (1)
- maltase breaks maltose down to glucose (1)
- maltase is on the membranes of epithelium lining the small intestine (1)

6. [5] **Supplement**

- (a) pepsin (1)
- (b) stomach is acidic, small intestine is alkaline (1)
- pepsin works (best) in acidic conditions / alkaline pH is not its optimum (1) allow pepsin is denatured in alkaline conditions
- (c) trypsin (1)
- alkaline (conditions) (1)

7. [1] **Supplement**

C C (bile; it is alkaline and neutralises the acid)