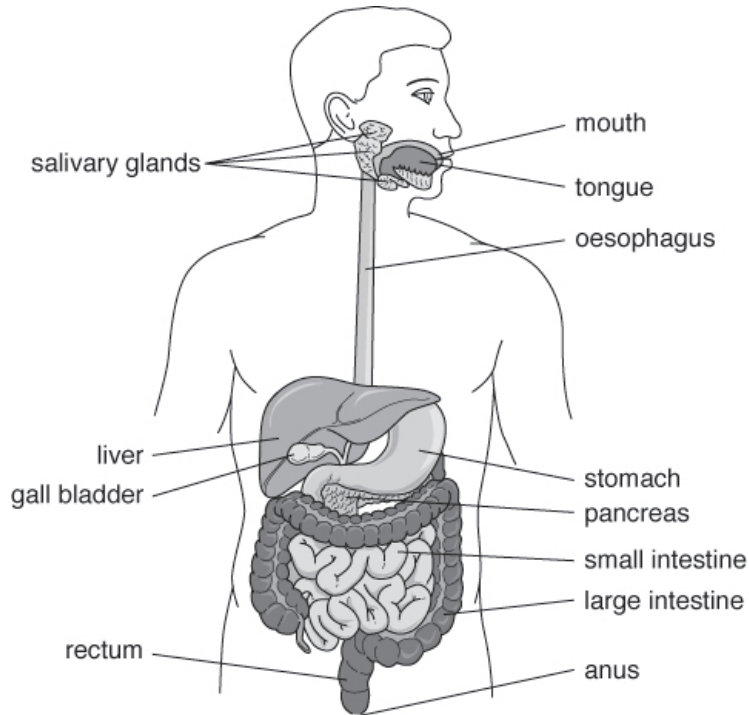


Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

- 1 The drawing is from an advanced level textbook. The diagram shows the organs that help with digestion in the body.



- (a) Give **one** reason why the body needs to digest food.

\_\_\_\_\_ (1)

- (b) Describe how food is pushed through the oesophagus.

\_\_\_\_\_  
\_\_\_\_\_ (2)

**(Total for Question 1 = 3 marks)**

- 2 Look at the nutritional information on the food label below.

<b>BLOGGS SUPERFLAKES</b>		
	<b>Amount per 100g</b>	<b>Amount per 30g serving</b>
	<b>1300kJ</b>	<b>390kJ</b>
Carbohydrate	66g	20g
Protein	5g	1.5g
Fat	5g	1.5g
Fibre	6g	1.8g
Calcium	30mg	9mg

(a) What is measured in kJ? Tick **one** box.

**A** mass

**B** weight

**C** energy

**D** force

(1)

(b) Superflakes are not a good source of protein. Name **one** food that is an excellent source of protein.

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(1)

(c) Describe **two** ways our body can use protein.

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(1)

(d) Give a reason why fibre is good for the body.

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(1)

(e) If you add up the masses of the food substances in 100g, there seems to be nearly 18g missing. What substance might this 18g be? Tick **one** box.

**A** sugar

**B** starch

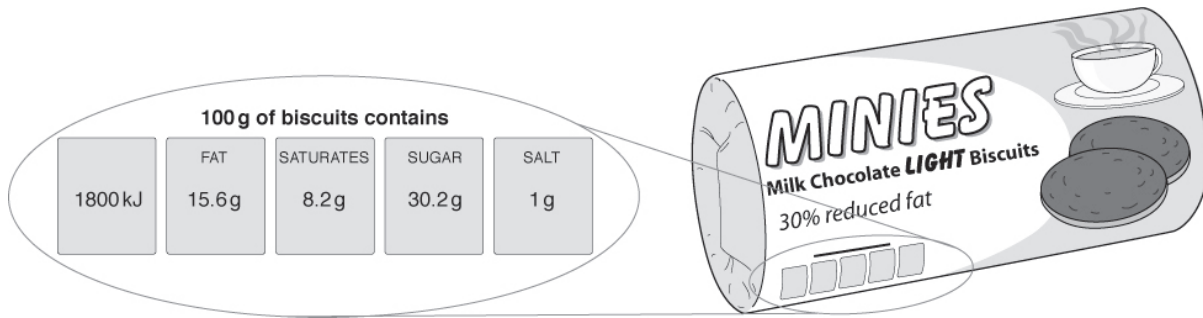
**C** vitamin C

**D** water

(1)

**(Total for Question 2 = 5 marks)**

- 3 Peter works for a building company. He likes to eat Minies Milk Chocolate Light Biscuits at work.



When Peter first started work as a builder he did a lot of lifting and carrying. Now he is a manager and sits at a desk for most of the day. When he first started work, over 20 years ago, he was slim. Now he has a big belly.

- (a) Give **two** reasons why Peter now has a big belly.

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(2)

- (b) Explain why Peter may gain more weight if he keeps eating a lot of sugary foods.

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(1)

- (c) Suggest **one** reason why Peter should lose some weight.

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(1)

**(Total for Question 3 = 4 marks)**

- 4 A student sets up an experiment to test how saliva affects starch.
- He sets up five test tubes. Each tube contains 5cm<sup>3</sup> of starch suspension.
  - He adds 1cm<sup>3</sup> of saliva to each test tube.
  - He puts the tubes into water baths at different temperatures.
  - Every 10 minutes he takes one drop from each tube and mixes it with iodine solution on a well tray.

His results look like this:

		Colour of sample after adding iodine solution					
		colour after 10 minutes	colour after 20 minutes	colour after 30 minutes	colour after 40 minutes	colour after 50 minutes	colour after 60 minutes
Temperature (°C)	15	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue
	25	Dark Blue	Dark Blue	Dark Blue	Light Blue	Light Blue	Light Blue
	35	Dark Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
	45	Dark Blue	Dark Blue	Light Blue	Light Blue	Light Blue	Light Blue
	55	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue	Light Blue
	65	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue

(a) What is the substance that the student is trying to show using iodine solution? Tick **one** box.

- A sugar
- B protein
- C starch
- D fat

(1)

(b) After 40 minutes, the sample taken from the tube at 25°C does **not** produce a black colour with iodine solution. What type of substance in saliva causes this to happen? Tick **one** box.

**A** enzyme

**B** spit

**C** chemical

**D** bile

(1)

(c) At what temperature does the saliva work the fastest?

\_\_\_\_\_ (1)

**(Total for Question 4 = 3 marks)**

**5** There are a lot of bacteria living in the gut. The diagram shows the shape of some bacteria.



(a) Describe **one** advantage of having bacteria in the gut.

\_\_\_\_\_ (1)

(b) Bacteria eat digested food in the gut. After food has been digested, more food is found inside the bacteria. Describe how this happens.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (3)

Imagine that the bacterium above changed its outer layer to look like this.



(c) Explain what effect this change in the outer layer would have on the process you described in part (b).

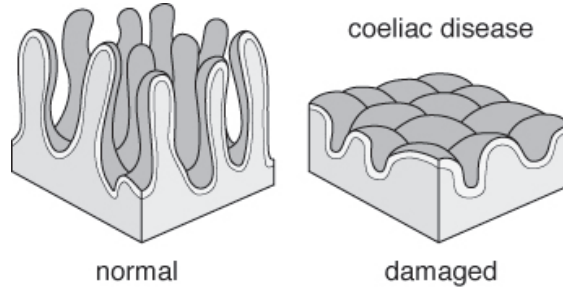
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(2)

**(Total for Question 5 = 6 marks)**

6 The drawing shows villi in the small intestine of a healthy person and villi in the small intestine of a person with coeliac ('see-lee-ack') disease.



(a) In an investigation, 20 healthy volunteers were given a drink containing glycine. Glycine is a soluble substance found in most proteins. After 1 hour, the amount of glycine in their blood had increased by a mean value of 3.81 mg glycine per 100cm<sup>3</sup> of plasma. A man with coeliac disease was also given the drink. After 1 hour, the glycine in his blood had increased by 0.5 mg / 100cm<sup>3</sup> of plasma.

Suggest why the man with coeliac disease was underweight.

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(2)

(b) Explain why people with coeliac disease may develop conditions such as anaemia even though they eat a healthy diet.

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(2)

**(Total for Question 6 = 4 marks)**