

Food and digestion/respiration




8A & 8B

36 min

38 marks

Q1-L3, Q2-L4, Q3-L4, Q4-L5, Q5-L5, Q6-L6

1. The card shows the amounts of fat and fibre in some types of food and drink from a café.

Chez Jean Café			
	fat in g	fibre in g	
type of burger			
single burger	17	0.8	
double burger	38	1.2	
cheeseburger	21	1.0	
type of drink			
strawberry milkshake	8	0	
medium cola	0	0	
medium orange juice	0	0	
type of potato			
regular fries	15	3	
baked potato	0	9	

(a) From the card above, choose a meal consisting of a burger, a drink and some potato, to give:

(i) the least fat;

1 mark

(ii) the most fibre.

1 mark

Write your answers in the table below.

Food and drink	meal with the least fat	meal with the most fibre
type of burger		
type of drink		the drinks do not contain fibre
type of potato		

(b) Draw a line from each nutrient to the main reason why it is needed.
Draw only **four** lines.

nutrient

main reason why the nutrient is needed

calcium

•

• to keep the intestine working properly

• for healthy teeth and bones

fibre

•

• for insulation

protein

•

• to provide energy

sugar

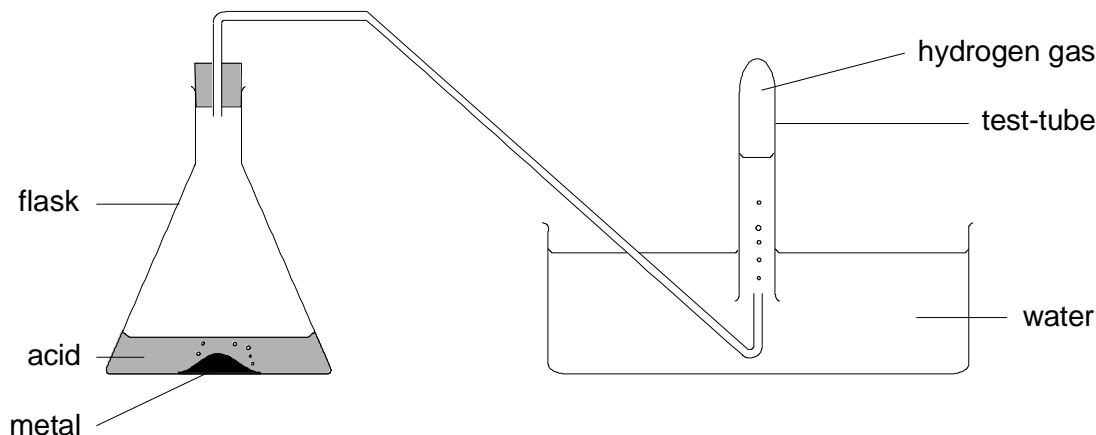
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• for growth and repair

4 marks

Maximum 6 marks

2. In the experiment shown below, metal and acid react together to make hydrogen gas.



(a) Look at the flask. How can you tell that a gas is being produced in this experiment?

.....

1 mark

(b) (i) Hydrogen gas passes through the water and collects in the test-tube. What does this tell you about hydrogen? Tick the correct box.

It dissolves in the water.	<input type="checkbox"/>	It does not dissolve in the water.	<input type="checkbox"/>
It is acidic.	<input type="checkbox"/>	It is alkaline.	<input type="checkbox"/>

1 mark

(ii) What happens to the level of the water in the test-tube as hydrogen is produced?

.....

1 mark

(c) Air contains the following gases:

- nitrogen**
- oxygen**
- water vapour**
- carbon dioxide**

Choose from these gases to answer the questions below.

(i) Which **one** of the four gases do we need to take into the blood in the lungs?

.....

1 mark

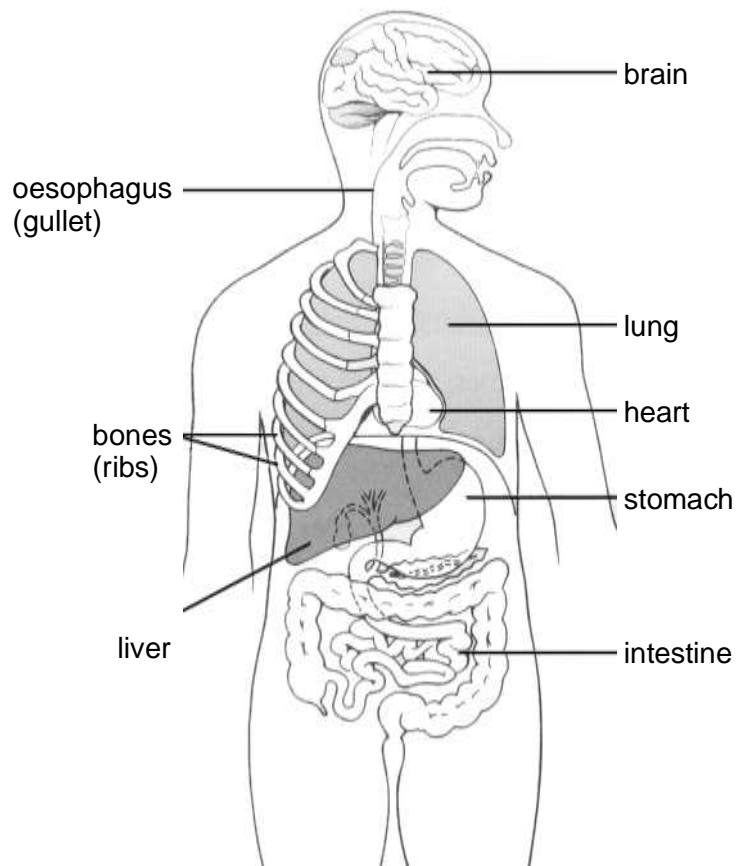
(ii) Which **one** of the four gases can produce droplets on a cold window?

.....

1 mark

Maximum 5 marks

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



(a) Give the names of **two** labelled parts where food is digested.

..... and

1 mark

(b) Why do we need to chew our food and mix it with saliva?

.....
.....
.....

2 marks

(c) (i) Draw **one** line from each bad habit to the organ it harms.

bad habit	organ
drinking too much alcohol	liver
not eating enough fibre	lung
smoking cigarettes	ribs
	intestine

3 marks

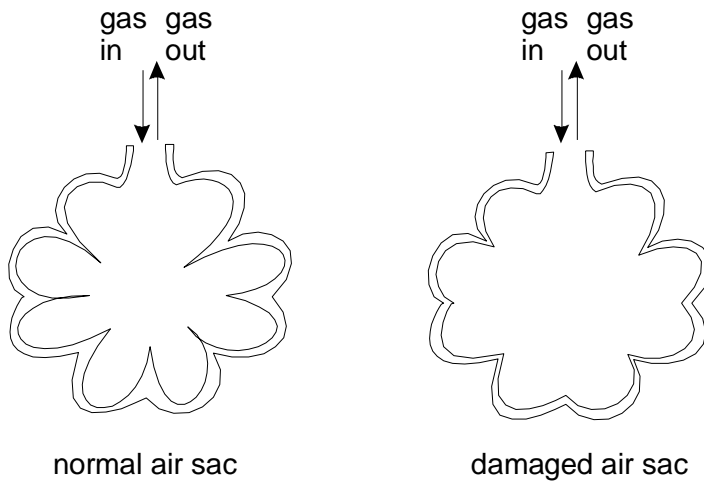
(ii) Which organ in the list below can be harmed if we eat too much fat?
Tick the correct box.

brain		heart	
lung		ribs	

1 mark

Maximum 7 marks

4. People who have emphysema have damaged air sacs in their lungs. The diagrams show a section through a normal air sac and a section through a damaged air sac.



- (a) Gas exchange takes place at the inside surface of the air sac when a person breathes.

- (i) Which **two** gases are exchanged at this surface of the air sac?

..... and

1 mark

- (ii) The amount of gas exchanged is smaller in a damaged air sac. Explain why.

.....

1 mark

- (b) The list shows four substances present in cigarette smoke.

carbon particles carbon monoxide nicotine tar

Choose from the list the substance which:

- (i) causes addiction to smoking cigarettes;

.....

1 mark

(ii) may cause lung cancer;

.....

1 mark

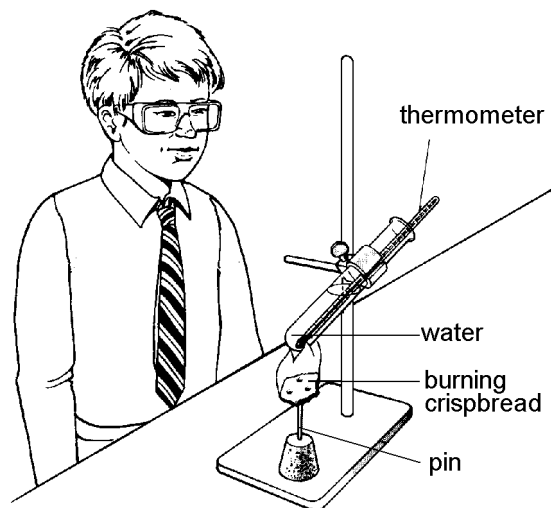
(iii) is carried instead of oxygen in the red blood cells.

.....

1 mark

Maximum 5 marks

5. Peter burns a piece of crispbread to find out how much energy is stored in it. Energy from the burning crispbread raises the temperature of the water in the test-tube.



(a) Describe one way Peter has arranged the apparatus so that he is working safely.

.....
.....

2 marks

(b) Peter wants to find out if potato crisps contain as much energy as crispbread. He does the experiment again using a piece of potato crisp.

Suggest **two** things he must do to make the experiment a fair test.

1.
2.

1 mark

The table shows some of the nutritional information from a packet of crispbread and a packet of potato crisps.

	energy in kJ	protein in g	carbohydrate in g	fat in g	fibre in g
100 g of crisp bread	1455	11.6	58.1	7.3	14.7
100 g of potato crisps	2072	5.8	57.9	28.7	4.3

- (c) Peter burns 1.0 g of potato crisp instead of 1.0 g of crispbread in a similar experiment. What result will he get when he burns the potato crisp? Tick the correct box.

The change in the temperature of the water will be greater.

The change in the temperature of the water will be the same.

The change in the temperature of the water will be smaller.

There will be no change in the temperature of the water.

1 mark

- (d) (i) Fibre contains energy. Explain why this energy can **not** be used by the human body.

.....

1 mark

- (ii) Use the table in part (b) to give **two** reasons for choosing crispbread rather than potato crisps as part of a balanced diet.

1.

 2.

2 marks

- (e) Crispbread does not contain vitamin C. Which of the foods in the list below is the best source of vitamin C?
Tick the correct box.

cheese	eggs	fish	oranges
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1 mark

Maximum 8 marks

6. The words 'contains added iron' were printed on Colin's box of cereal.

- (a) Colin decided to test the cereal to see if it contained tiny pieces of powdered iron metal.

First he crushed 500 g of cereal into a fine powder and mixed it with water.

He put a clean, white, plastic-coated magnet in the mixture.
Then he stirred it.

If the cereal contains tiny pieces of iron metal, what should Colin expect to see?

.....
.....

1 mark

- (b) Colin finds that the cereal **does** contain pieces of powdered iron.
Give **two** differences between iron metal and compounds containing iron.

1.
.....
2.
.....

2 marks

- (c) Colin eats some cereal. The tiny pieces of iron metal in the cereal react with the hydrochloric acid in his stomach.

Complete the word equation to show the reaction of iron with hydrochloric acid.

iron + hydrochloric acid → +

2 marks

- (d) The body needs iron to make red blood cells. The red blood cells transport oxygen to all the cells of the body. People who do not have enough red blood cells may feel that they do **not** have much energy. Explain why.

.....
.....

2 marks

Maximum 7 marks