



KS3 Science

Health Issues

Question Paper

Time available: 32 minutes

Marks available: 46 marks

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1.

In 2007, a new law came in to stop people smoking in public buildings.

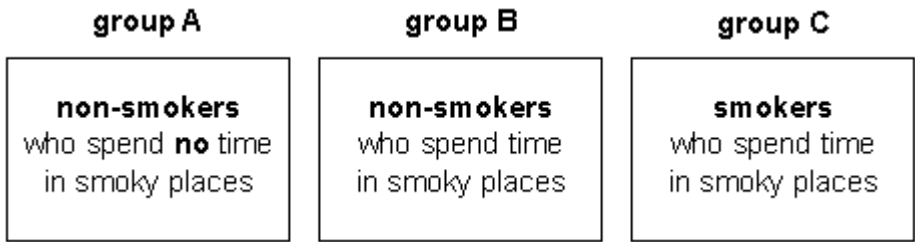
- (a) Smoking can be very harmful.
Which three problems can be caused by smoking?

Tick the **three** correct boxes.

being out of breath easily	<input type="checkbox"/>	lung cancer	<input type="checkbox"/>
being overweight	<input type="checkbox"/>	food poisoning	<input type="checkbox"/>
heart disease	<input type="checkbox"/>		

2 marks

- (b) Some scientists investigate 'passive smoking'. Passive smoking is when people breathe in smoke from other people's cigarettes.
They checked the health of three groups of people.



- (i) Which group of people breathe in the **least** cigarette smoke?
Tick the correct box.

group A	<input type="checkbox"/>	group B	<input type="checkbox"/>	group C	<input type="checkbox"/>
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1 mark

- (ii) Which **two** groups will help scientists find out the effects of passive smoking?
Tick the **two** correct boxes.

group A	<input type="checkbox"/>	group B	<input type="checkbox"/>	group C	<input type="checkbox"/>
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1 mark

- (c) People in **group B** are likely to have similar health problems to people in **group C**.
Explain why.

.....

.....

1 mark

- (d) Four scientists investigated passive smoking. The table below shows the number of people each scientist studied from each group.

scientist	group A	group B	group C
David	289	3	18
Olga	8	6	11
Peter	402	399	403
Mary	15	210	511

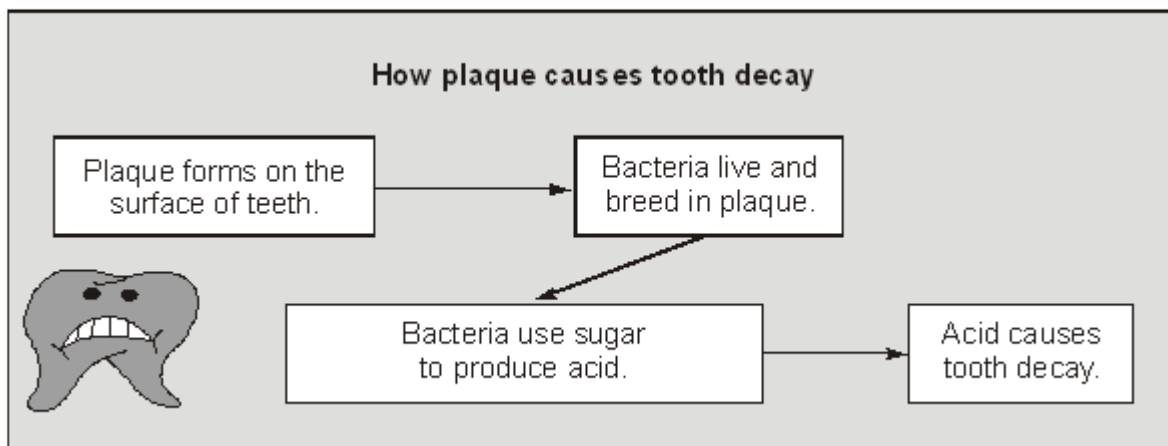
Which scientist is likely to get the most reliable results?
Tick the correct box.

David	<input type="checkbox"/>	Olga	<input type="checkbox"/>
Peter	<input type="checkbox"/>	Mary	<input type="checkbox"/>

1 mark
maximum 6 marks

2.

The dentist's leaflet below shows how plaque causes tooth decay.



- (a) (i) Explain how reducing the amount of plaque can reduce tooth decay.
Use the leaflet to help you.

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.....

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2 marks

- (ii) Using an alkaline toothpaste also reduces tooth decay.
Give the reason for this.

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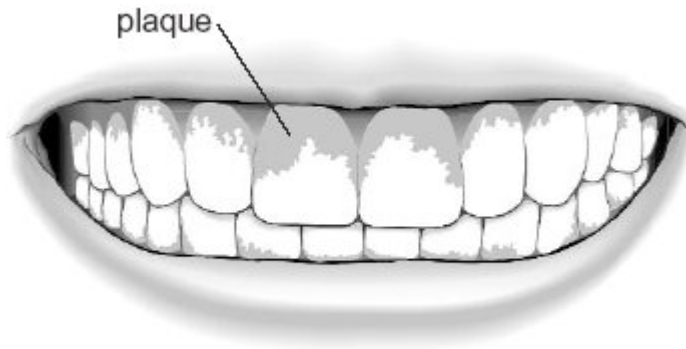
1 mark

- (b) A group of boys wanted to find out how well plaque is removed by brushing teeth.
Every day, before they brushed their teeth, the boys chewed a tablet that stains plaque red.
Explain why the boys looked at their teeth **before and after** brushing.

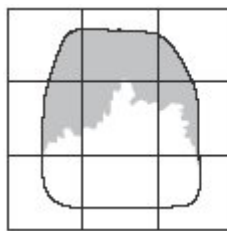
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1 mark

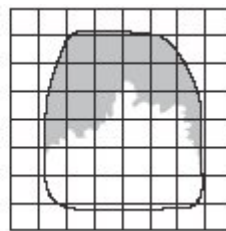
- (c) The diagram below shows teeth with the plaque stained.



The boys used a grid drawn on clear plastic to measure the area of the plaque on their teeth.



A



B

- (i) Grid B is better than grid A for measuring the area of plaque.

Why is a grid with smaller squares better for measuring the area of plaque?

.....
.....

1 mark

(ii) The squares on grid B represent 1 mm^2 .

Use grid B to estimate the area of the tooth covered by plaque.

..... mm^2

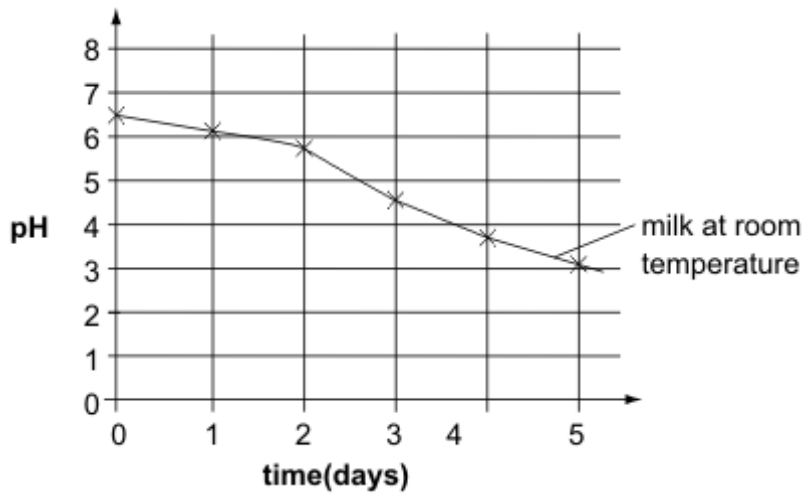
1 mark
maximum 6 marks

3.

Jane stored some milk at room temperature for five days in a sealed container. She used a pH sensor and data logger to record the pH of the milk for 5 days.

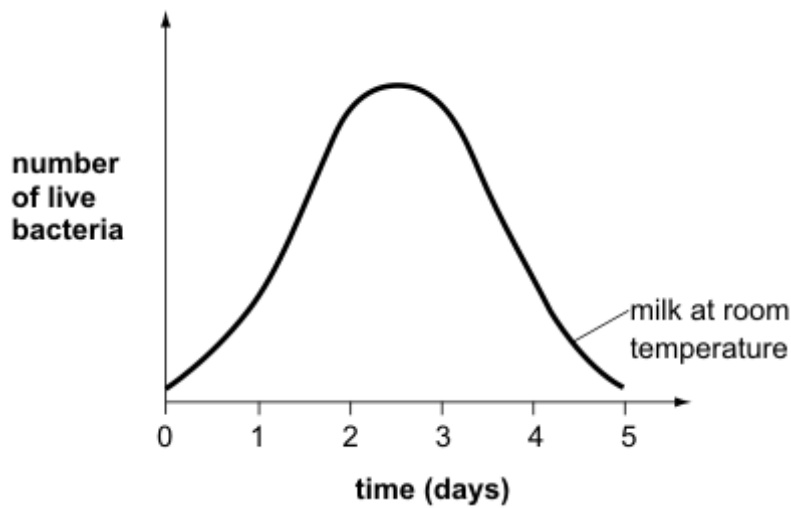
Her results are shown below.

graph 1



(a) Jane predicted that the number of live bacteria in the milk would change as shown below.

graph 2



- (i) Suggest one reason why the number of live bacteria would start to decrease after 3 days.

.....
.....

1 mark

- (ii) What evidence from **graph 1** suggests that there were still some live bacteria in the milk on day 5?

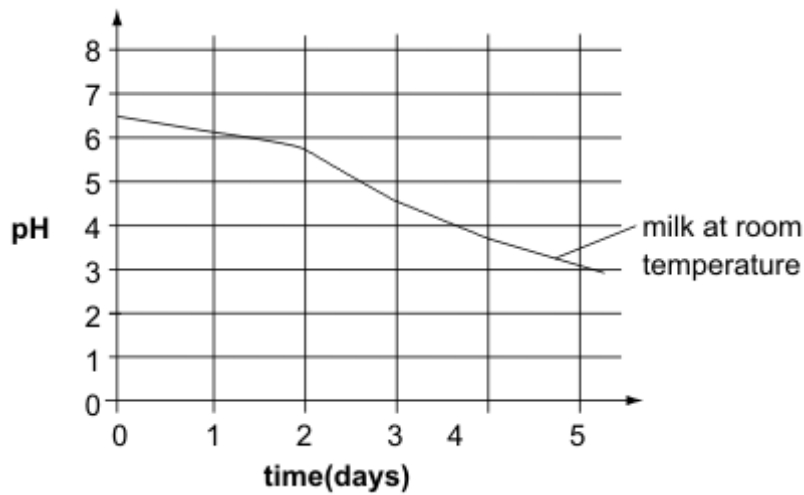
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1 mark

- (b) Jane put some fresh milk in a sealed container in the fridge. She measured the pH of the milk every day for five days.

- (i) On **graph 3** below, draw a line to show the pH of the **refrigerated milk** for five days.

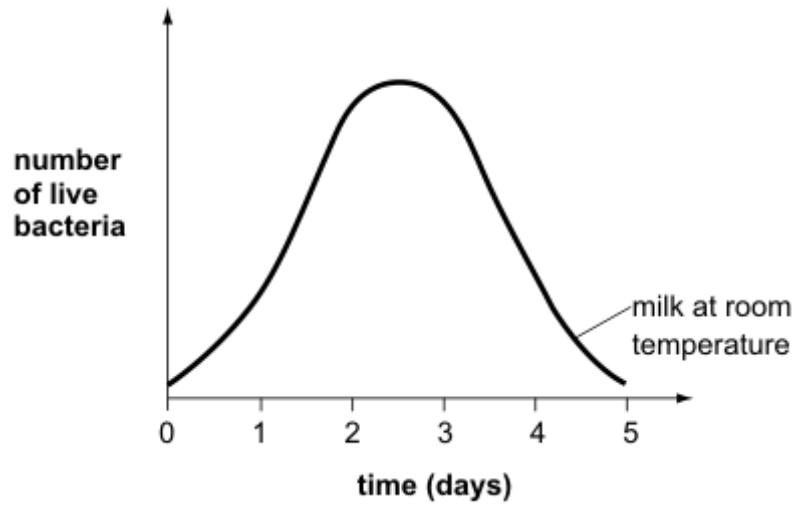
graph 3



2 marks

- (ii) On **graph 4** below, draw a line to predict how the number of live bacteria in **refrigerated milk** will change over five days.

graph 4



1 mark
maximum 5 marks

4.

During pregnancy a woman's body increases in mass. The table shows the average increase in mass in some parts of the body during pregnancy.

part	increase in mass during pregnancy (kg)
foetus	3.6
uterus	0.9
placenta	0.7
red blood cells	0.2
amniotic fluid	0.9
breast tissue	0.4
fat	3.9

- (a) Explain why the mass of the placenta increases as the foetus develops.

.....

.....

.....

2 marks

- (b) Pregnant women need to make sure they have plenty of iron in their diet. Use information in the table to explain why they need extra iron.

.....
.....

1 mark

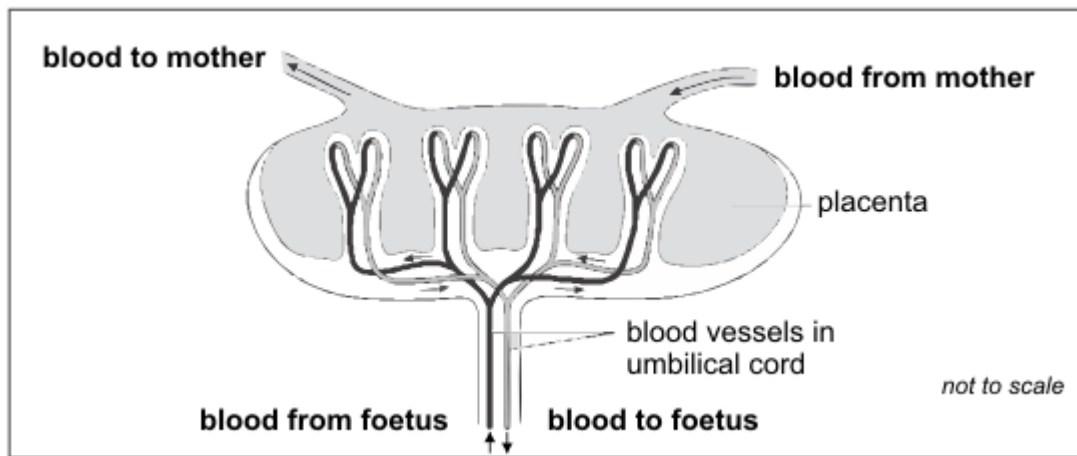
- (c) The foetus is **not** part of a woman's body before she becomes pregnant.

Which **two** other parts from the table are **not** present in her body before she becomes pregnant?

..... and

1 mark

(d) (i) The diagram shows the blood supply in the placenta and umbilical cord.

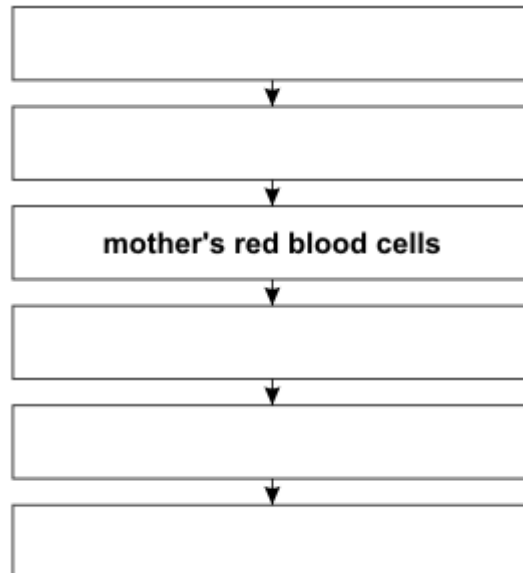


not to scale

When the mother breathes, oxygen and other gases pass to the foetus.

Complete the flow diagram below to show how oxygen passes from the mother to the foetus. Use **all** the words from the list below.

- | | | | | |
|--------------|-----------------------|------------------------|-----------------|-----------------|
| lungs | umbilical cord | blood of foetus | windpipe | placenta |
|--------------|-----------------------|------------------------|-----------------|-----------------|



2 marks

(ii) When a pregnant woman breathes in cigarette smoke, carbon monoxide gas combines with some of her red blood cells.

How could this harm the foetus?

.....

1 mark
 maximum 7 marks

5. (a) Drinking alcohol can cause changes in the body.

(i) Draw a line from each **change** to the **effect** on the body.
Draw only **three** lines.

change	effect
more blood travels to the surface of the body	reactions are slower
activity of the brain slows down	a person loses weight
sense of pain is reduced	skin gets warmer
	a person can get hurt without knowing it

2 marks

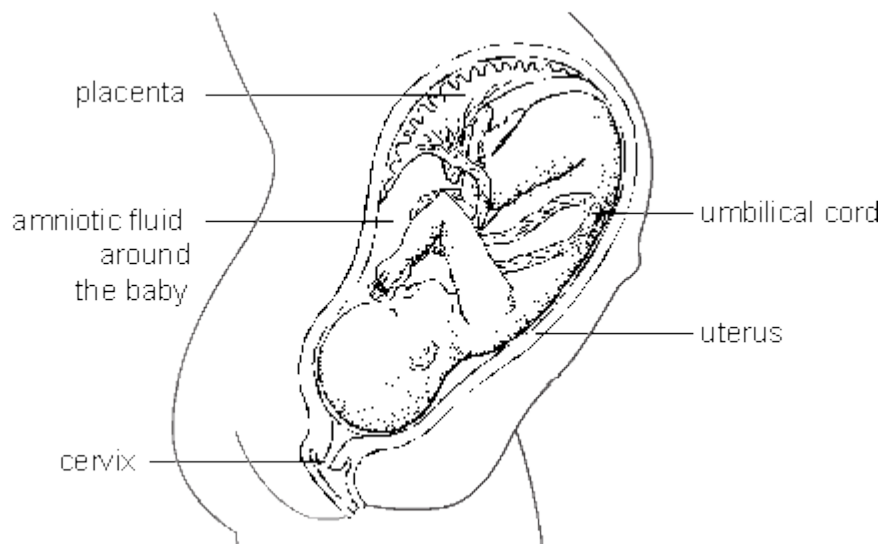
(ii) People who drink alcohol and then drive a car are likely to have accidents.

From the information above, which **effect** of drinking alcohol causes accidents?

.....

1 mark

(b) The drawing below shows a baby in its mother's uterus.



(i) Through which labelled part can alcohol pass from mother to baby?

.....

1 mark

(ii) Which labelled part protects the baby from damage?

.....

1 mark

(c) (i) What do the hazard warning symbols, **A** and **B**, on this tube of glue mean? Choose from the box below and write your answers on the lines.

corrosive	explosive	flammable	toxic	radioactive
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2 marks

(ii) The glue contains a solvent. Why is it dangerous to breathe in the fumes from the glue?

.....
.....

1 mark
maximum 8 marks

6.

The table below shows the mass of six nutrients in 100 cm³ of three types of milk.

nutrient	100 cm ³ of human milk	100 cm ³ of cows' milk	100 cm ³ of milk made from baby-milk powder
carbohydrate (g)	7.4	5.0	7.2
fat (g)	4.2	3.7	3.6
protein (g)	1.1	3.5	1.5
calcium (mg)	35.0	120.0	49.0
iron (mg)	0.075	0.05	0.9
vitamin C (mg)	3.8	1.5	6.9

(a) A scientist compared the three types of milk.

Why was it a fair comparison?

.....
.....

1 mark

(b) Both human milk and milk made from baby-milk powder contain more sugar than cows' milk.

Which data in the table supports this?

.....

1 mark

(c) Why do we need calcium in our diet?

.....

1 mark

(d) (i) Baby-milk powder is made from cows' milk.

What evidence is there in the table that iron is added when making baby-milk powder?

.....
.....

1 mark

(ii) Why do we need iron in our diet?

.....

1 mark

(e) A pupil said, 'There is more vitamin C than protein in human milk'.

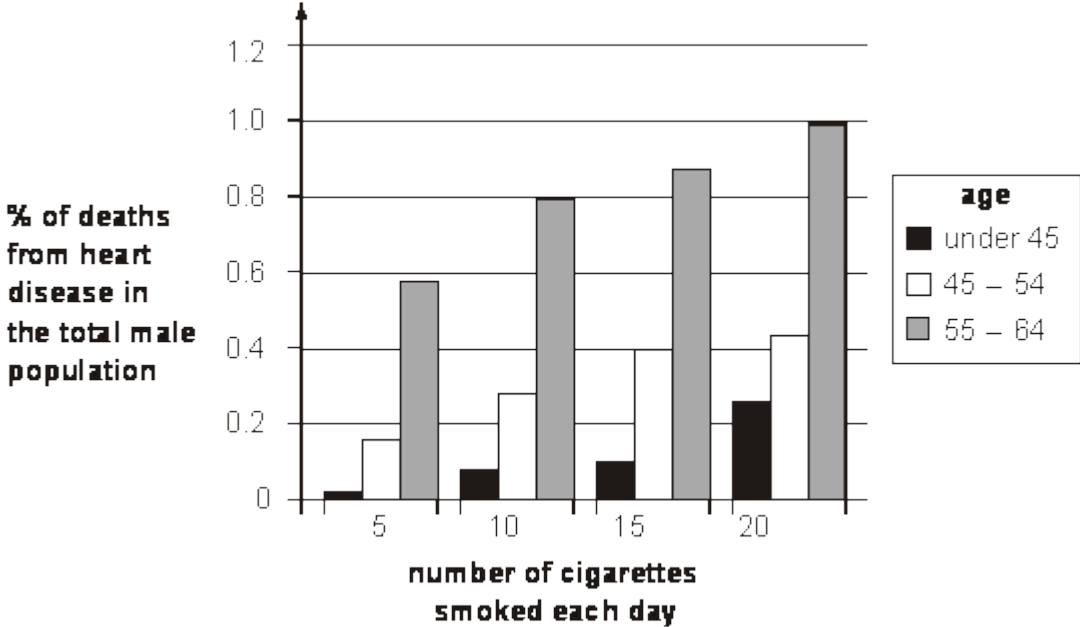
How can you tell from the table that the pupil was wrong?

.....
.....

1 mark
maximum 6 marks

7.

The bar chart below shows how the number of cigarettes smoked is linked to the percentage of deaths from heart disease in the total male population.



(a) Use the information in the bar chart to write **two** conclusions about the relationship between smoking and the number of male deaths from heart disease.

- 1.
-
- 2.
-

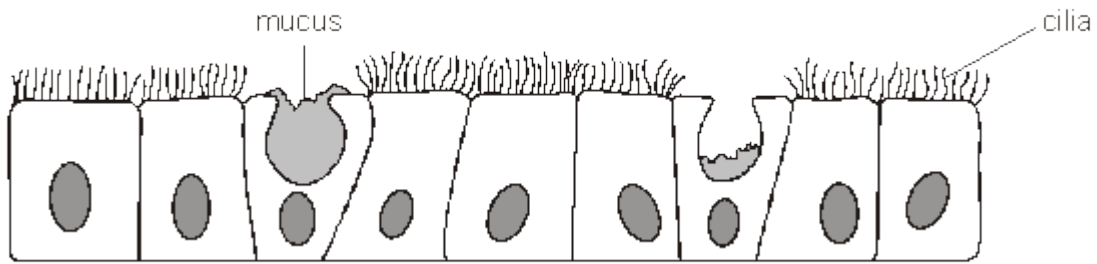
2 marks

(b) Smoking can cause fat to be deposited in the arteries to the heart muscle. Explain how this could prevent the heart muscle from working properly.

-
-
-
-
-
-

3 marks

(c) The drawing below shows part of the lining of the airway leading into the lungs.



(i) Describe how mucus and cilia help to keep the airway free of dust and bacteria.

mucus

.....

cilia

.....

2 marks

(ii) Cigarette smoke contains tar.

What effect does tar have on the cilia?

.....

.....

1 mark
maximum 8 marks