AQA GCSE Biology | 8461

SPECIFICATION POINT 4.2.2.4

Coronary heart disease: a non-communicable disease

Past-paper questions

Tier	**Higher**
Question groups	**18**
Available paper years	**2007–2024**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 01

March 2007 | BLY1A | Original Q9 | Legacy

QUESTION NINE

Cardiovascular disease is a major cause of death. Two drugs which can be used to treat this disease are statins and aspirin.

Read the article.

Statins	Aspirin
Statins are produced by drug companies after carrying out extensive studies on their effectiveness. In these studies, 30 000 patients were monitored over several years. Statins were found to reduce the rate of non-fatal heart attacks by about 30 %. Approximately 0.1 % of the patients suffered serious muscle damage and 0.01 % suffered kidney failure. The cost of treating patients with statins can vary between £150 and £500 per year, depending on the type of heart condition being treated.	Aspirin has been freely available on the market for many years. It was extracted from the bark of willow trees hundreds of years ago and used to treat fever. It is now made artificially. Treatment with aspirin can cost as little as £10 per year. In a study of 1000 patients, aspirin was found to cause bleeding of the stomach in around 0.5 % of patients and there was a slightly increased risk of poor blood clotting. Aspirin was found to reduce the risk of non-fatal heart attacks by 31 %.

9A In the study on statins, how many patients suffered from serious muscle damage?

1 3

2 30

3 300

4 3000

9B It is possible that the information about statins is biased.

This is because . . .

1 a balanced account of the advantages and disadvantages of statins is not given.

2 scientists working for the drug companies have a vested interest in promoting the company.

3 there were insufficient patients in the study to come to a firm conclusion.

4 the status of the scientists may not be sufficiently high for the results to be accepted.

4.2.2.4 Coronary heart disease: a non-communicable disease

9C Some health experts suggest that aspirin is a better treatment than statins because . . .

1 aspirin has been used for much longer than statins.

2 aspirin has similar effectiveness to statins but is much cheaper.

3 aspirin is more effective than statins in reducing the risk of non-fatal heart attacks.

4 aspirin is less likely to cause side-effects.

9D The risk of suffering from cardiovascular disease can be increased by . . .

1 increasing the amount of exercise taken.

2 increasing the amount of LDL-cholesterol in the diet.

3 increasing the amount of polyunsaturated fats in the diet.

4 increasing the amount of non-processed food in the diet.

END OF TEST

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02

June 2007 | BLY1H | Original Q7 | Legacy

7 (a) Describe the relationship between the types of lipoprotein in the blood and heart disease.

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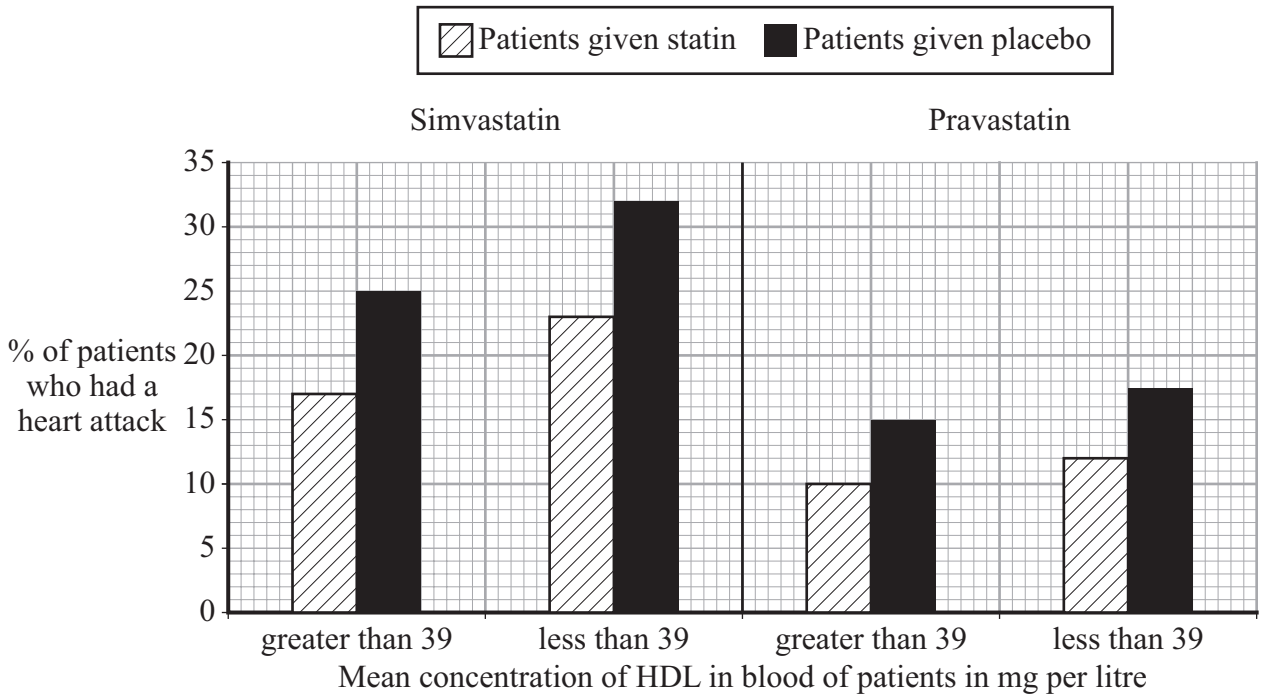
(2 marks)

(b) Statins are drugs used to reduce the risk of heart disease.

The graph shows the results of trials into the effectiveness of two different statins: simvastatin and pravastatin.

Different groups of patients were used in the trials of the two statins. The groups of patients had different initial concentrations of HDL in their blood.

In each trial, half of the patients were given pills containing statins and the other half were given placebos (pills containing no statins). The patients did not know whether or not their pills contained statins.



4.2.2.4 Coronary heart disease: a non-communicable disease

Question 02 · continued

BLANK

State **two** conclusions that can be drawn from the results of the trials.

1 .....

.....

2 .....

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(2 marks)

4

Turn over for the next question

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 03

November 2007 | BLY1A | Original Q5 | Legacy

QUESTION FIVE

This question is about drugs.

5A Alcohol and cocaine . . .

1 are both legal drugs.

2 are both used recreationally.

3 do not harm the body.

4 are both illegal but used recreationally.

5B Which line in the table is correct about the effect of substances in tobacco smoke on the body?

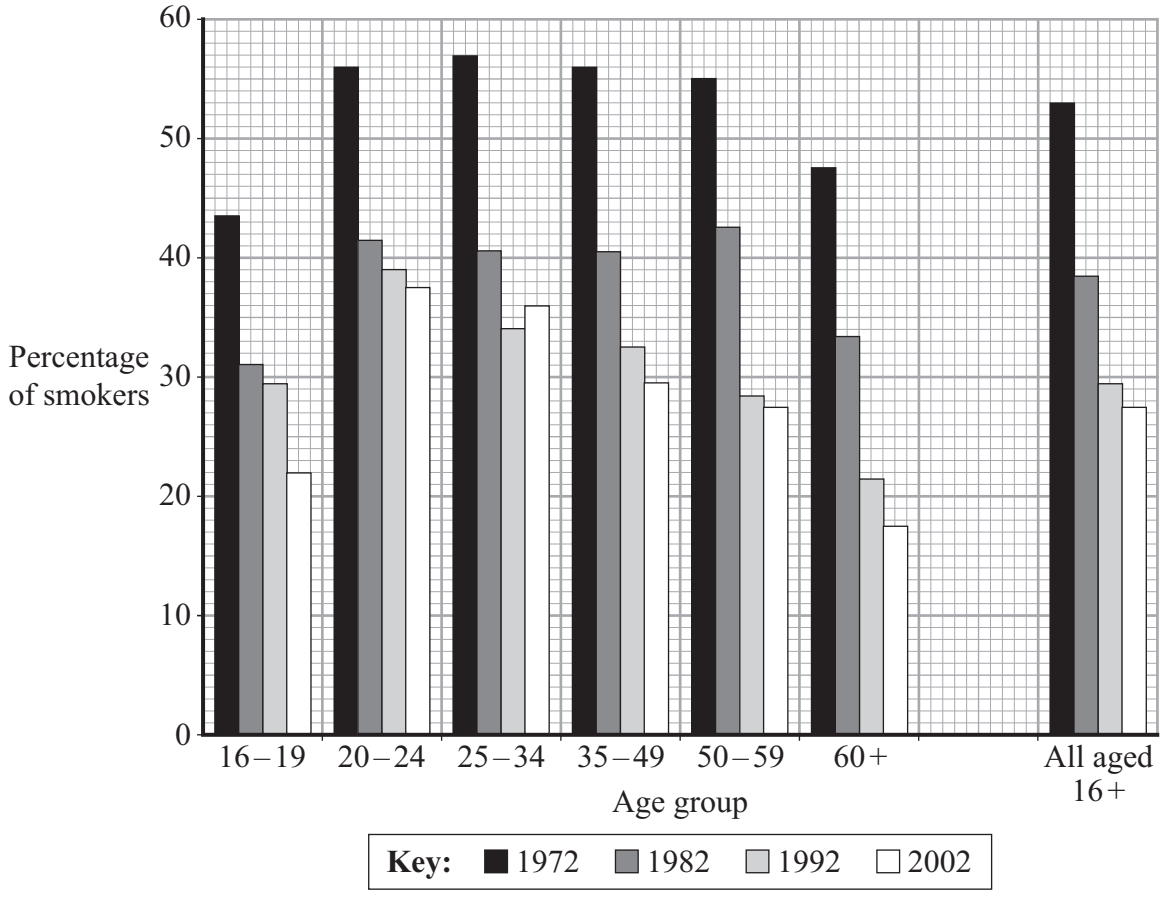
	Nicotine	Carbon monoxide	Carcinogens
1	addictive	causes lung cancer	lowers birth mass of babies
2	lowers birth mass of babies	addictive	causes lung cancer
3	addictive	lowers birth mass of babies	causes lung cancer
4	causes lung cancer	lowers birth mass of babies	addictive

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 03 · continued

Surveys were carried out to find the percentages of males of different ages who were smokers.

The results are shown for surveys taken in 1972, 1982, 1992 and 2002.



5C What percentage of men aged 20–24 did **not** smoke in 1992?

1 37

2 39

3 59

4 61

5D In which age group is the trend in the percentage of smokers not consistently downwards from 1972 to 2002?

1 20–24

2 25–34

3 50–59

4 60+

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 04

November 2009 | BLY1AP | Original Q7 | Legacy

QUESTION SEVEN

Statins are drugs that affect how the liver works.

7A Statins reduce . . .

1 the amount of sugar in the blood.

2 the amount of salt in the blood.

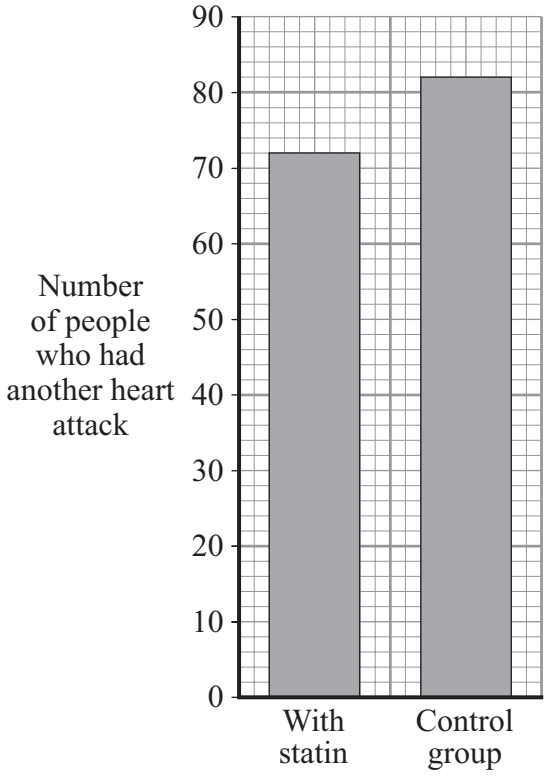
3 the amount of cholesterol in the blood.

4 the amount of nicotine in the blood.

A new statin was trialled on patients who had previously had a heart attack.

- 300 volunteers were involved in the trial, which continued for five years.
- They were split into two equal sized groups.
- Only one group was given the drug; the other volunteers formed the control group.

The number of volunteers who had another heart attack during the five years of the trial is shown in the graph.



4.2.2.4 Coronary heart disease: a non-communicable disease

Question 04 · continued

7B In a well-designed trial, what would the volunteers in the control group have been given instead of the test drug?

1 nothing

2 water

3 a different drug

4 a placebo

7C What conclusion can be drawn from this data?

1 Statins prevent heart attacks.

2 Statins reduce the risk of heart attacks in all people.

3 Statins reduce the risk of a second heart attack.

4 Statins have no effect on the incidence of heart attacks.

7D People who take statins should not drink grapefruit juice. A chemical in grapefruit juice inhibits the action of the liver enzyme that breaks down statins. The effect of this can be breakdown of muscle fibres and, in extreme cases, kidney failure.

What does this information suggest might happen to people who take statins and drink grapefruit juice?

1 The concentration of liver enzymes in the blood will increase.

2 The concentration of statins in the blood will increase.

3 The concentration of statins in the blood will decrease.

4 The concentration of statin breakdown products in the blood will increase.

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 05

June 2010 | BLY1AP | Original Q2 | Legacy

QUESTION TWO

Drugs affect our body chemistry.

Match descriptions, **A**, **B**, **C** and **D**, with the substances **1–4** in the table.

A illegal and addictive

B legal and addictive

C medicinal

D illegal and non-addictive

1	Cannabis
2	Nicotine
3	Heroin
4	Statin

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 06

June 2011 | BLY1AP | Original Q7 | Legacy

QUESTION SEVEN

A protein called 'C-reactive protein' is found in the blood. High levels of blood C-reactive protein have been linked to heart attacks.

In 2006, a double-blind trial was started to see if a new statin could lower levels of blood C-reactive protein.

7A In the trial, people with low levels of blood cholesterol but high levels of blood C-reactive protein were chosen because . . .

1 low levels of blood cholesterol are not linked to heart attacks.

2 cholesterol would react with protein.

3 statins do not affect people with low levels of blood cholesterol.

4 cholesterol is needed for the statins to have an effect.

7B The double-blind trial would have included . . .

1 both the patient and the doctor knowing who is getting the placebo.

2 the patient, but not the doctor knowing who is getting the placebo.

3 the doctor, but not the patient knowing who is getting the placebo.

4 neither the patient nor the doctor knowing who is getting the placebo.

7C The trial was planned to last for five years. The trial was stopped after less than 2 years because the risk of heart attack was reduced by 54 % in the group given the new statin.

The decision to stop the trial was because . . .

1 statins are known to reduce heart attacks and strokes.

2 the researchers decided that the drug was not working.

3 it was unfair on the people taking the placebo to continue taking part in the trial.

4 the scientists ran out of money.

4.2.2.4 Coronary heart disease: a non-communicable disease

7D The trials were supported financially by the company that produced the drug.

This means that the results . . .

1 might be less reliable than if they had been supported by the National Health Service.

2 might be less reliable than if they had been supported by a university.

3 might be biased.

4 should be disregarded even though many patients' lives were saved.

Turn over for the next question

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 07

June 2011 | BLY1H | Original Q2 | Legacy

2 Scientists have trialled a new statin called rosuvastatin.

- 17 802 people took part in the trial.
- All of these people had high levels of a protein called CRP in their blood.
- The higher the level of CRP in the blood, the higher the risk of heart attack.
- None of these people had heart conditions at the beginning of the investigation.
- None of these people had high LDL (low density lipoprotein) levels.
- All of these people were aged 50 or above.
- Half the people were given a rosuvastatin tablet each day; the other half were given a placebo.
- The trial was stopped 7 months early when it was found that the people given rosuvastatin were 54% less likely to have a heart attack than people given the placebo.

2 (a) Give **two** control variable in this investigation.

1 .....

2 .....

(2 marks)

2 (b) What would the placebo be in the investigation?

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(1 mark)

2 (c) The trial gave reliable results.

Give **one** reason why.

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(1 mark)

2 (d) The trial was stopped 7 months early.

Give **one** reason why.

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(1 mark)

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 07 · continued

2 (e) The manufacturers of rosuvastatin paid for the trial.

However, the manufacturers took no part in the trial.

Suggest **one** reason why the manufacturers did not take part in the trial.

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(1 mark)

2 (f) The table shows some of the results of the trial.

Substance	**Concentration in blood in mg per 100 cm^3 after 3 years of trial**	
	People given rosuvastatin	People given placebo
LDL cholesterol	53	106
HDL cholesterol	50	49
Saturated fats	106	123

Rosuvastatin reduces the risk of heart attacks.

Use the data in the table to explain why.

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(2 marks)

8

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 08

November 2011 | BLY1AP | Original Q6 | Legacy

QUESTION SIX

Diabetes is linked to body mass index (BMI).

BMI is calculated using the formula:

$$\text{BMI} = \frac{\text{mass (in kg)}}{\text{height}^2 \text{ (in m}^2\text{)}}$$

A 15 year old girl is 1.61 metres tall, with a mass of 58 kg.

6A Use the formula to calculate her BMI.

Her BMI is . . .

1 0.04

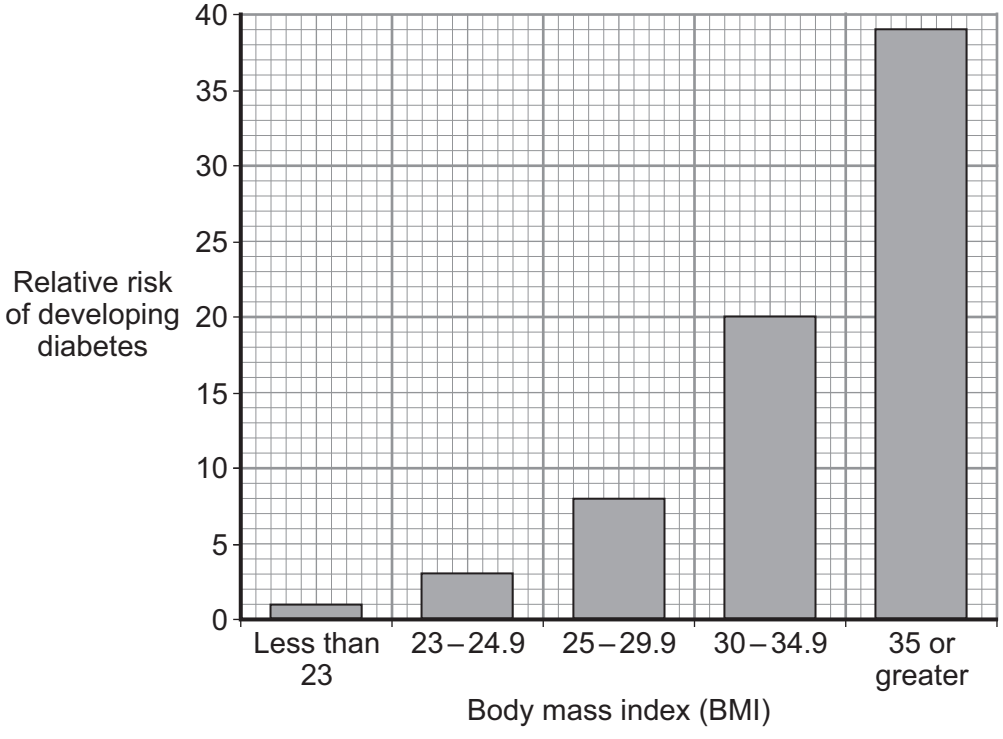
2 18.0

3 22.4

4 36.0

The bar chart shows the link between BMI and the relative risk of developing diabetes.

A relative risk of 1 is the normal risk of developing diabetes.



4.2.2.4 Coronary heart disease: a non-communicable disease

Question 08 · continued

6B One conclusion that can be made from this bar chart is that . . .

1 heavy people usually develop diabetes.

2 an increase in BMI from 24 to 25 increases the risk of developing diabetes by three times.

3 a person with a BMI of 36 will develop diabetes.

4 a person with a BMI of 20 might develop diabetes.

6C An athlete has a BMI of 32. However, her risk of developing diabetes is likely to be less than 20 times the normal risk.

The most likely reason for this is that she . . .

1 is very short.

2 is fit and healthy.

3 has a lot of muscle compared to fat.

4 has a high metabolic rate.

6D A doctor saw a person with a BMI of 35. The doctor advised the person to take statins. Statins affect the levels of LDL and HDL in the blood.

For a healthy heart there should be . . .

1 high levels of LDL and HDL.

2 a high level of LDL and a low level of HDL.

3 a high level of HDL and a low level of LDL.

4 low levels of LDL and HDL.

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 09

January 2012 | BL1HP | Original Q6 | Legacy

6 Drugs must be trialled before the drugs can be used on patients.

6 (a) (i) Before the clinical trials, drugs are tested in the laboratory.
The laboratory trials are **not** trials on people.

What is the drug tested on in these laboratory trials?

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(1 mark)

6 (a) (ii) Drugs must be trialled before the drugs can be used on patients.

Give **three** reasons why.

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(3 marks)

6 (b) Read the information about cholesterol and ways of treating high cholesterol levels.

Diet and inherited factors affect the level of cholesterol in a person's blood.
Too much cholesterol may cause deposits of fat to build up in blood vessels and reduce the flow of blood. This may cause the person to have a heart attack.
Some drugs can lower the amount of cholesterol in the blood.

The body needs cholesterol. Cells use cholesterol to make new cell membranes and some hormones. The liver makes cholesterol for the body.

Some drugs can help people with high cholesterol levels.

Statins block the enzyme in the liver that is used to produce cholesterol.
People will normally have to take statins for the rest of their lives. Statins can lead to muscle damage and kidney problems. Using some statins for a long time has caused high numbers of deaths.

Cholesterol blockers reduce the absorption of cholesterol from the intestine into the blood.
Cholesterol blockers can sometimes cause problems if the person is using other drugs.

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 09 · continued

January 2012 | BL1HP | Original Q6 | Legacy

Evaluate the use of the two types of drug for a person with high cholesterol levels.

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(6 marks)

10

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 10

January 2013 | BL1HP | Original Q4 | Legacy

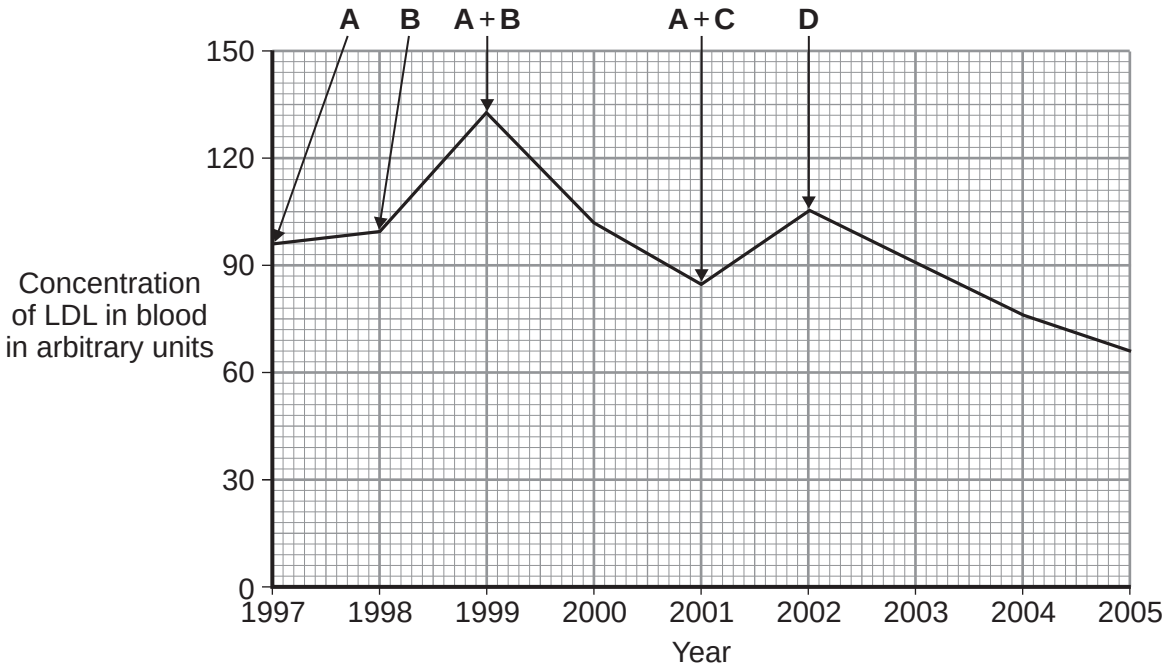
4 LDL is one form of cholesterol found in the blood.

People with a high concentration of LDL in their blood may be treated with drugs called statins.

A high concentration of LDL cholesterol in the blood may result in an increased risk of heart and circulatory diseases.

The graph shows the effects of the treatment of one person with four different statins, **A**, **B**, **C** and **D**, over a period of 8 years. The arrows show when each new treatment was started.

Each treatment was continued until the next treatment was started.



4.2.2.4 Coronary heart disease: a non-communicable disease

Question 10 · continued

Compare the effectiveness of the five treatments in reducing the risk of heart and circulatory diseases for this person.

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(4 marks)

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4.2.2.4 Coronary heart disease: a non-communicable disease

Question 11

June 2013 | BL1HP | Original Q6 | Legacy

6 Drugs are used to treat cardiovascular diseases (diseases of the heart and blood vessels).

6 (a) What is a drug?

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.....

(1 mark)

6 (b) People can be treated for cardiovascular diseases with statins or aspirin.

Information about these two drugs is given in the table.

STATINS	ASPIRIN
Statins are only available on prescription from doctors. In studies, 30 000 patients were monitored over several years. Statins were found to reduce the rate of non-fatal heart attacks by about 30%. Approximately 0.1% of the patients suffered serious muscle damage and 0.01% suffered kidney failure. Statins reduce blood cholesterol which builds up in the walls of blood vessels. The cost of treating patients with statins can vary between £150 and £500 per year, depending on the type of cardiovascular disease being treated.	Aspirin can be bought over the counter. Treatment with aspirin costs up to £15 per year. In a study of 1000 patients, aspirin was found to cause bleeding of the stomach in around 0.5% of patients and there was a slightly increased risk of poor blood clotting at cuts. There was a slightly increased risk of damage to the blood vessels in the brain in older patients. Aspirin was found to reduce the risk of non-fatal heart attacks by 31%.

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 11 · continued

Would you recommend statins or aspirin for the treatment of cardiovascular diseases?

In your answer you should:

- give your recommendation
- use information from the table to support your recommendation by making comparisons of the two drugs.

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(5 marks)

6

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 12

June 2014 | BL3HP | Original Q4 | Legacy

4 Blood is part of the circulatory system.

4 (a) (i) Give **one** function of white blood cells.

[1 mark]

.....

.....

4 (a) (ii) Which of the following is a feature of platelets?

Tick (✓) **one** box.

[1 mark]

They have a nucleus. ☐

They contain haemoglobin. ☐

They are small fragments of cells. ☐

4 (b) Urea is transported by the blood plasma from where it is made to where the urea is excreted.

Complete the following sentence.

[2 marks]

Blood plasma carries urea from where it is made in the .....

to the ..... where the urea is removed from the blood.

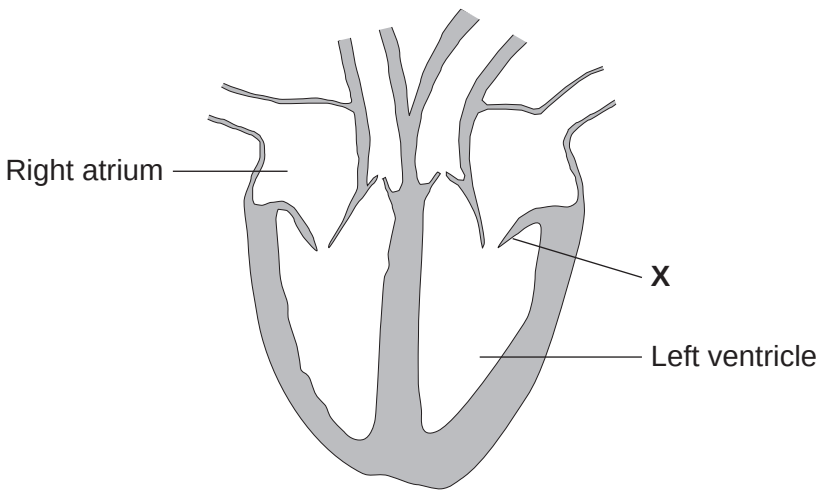
Question 4 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 12 · continued

4 (c) **Figure 4** shows a section through the human heart.

Figure 4



Structure **X** is a valve. If valve **X** stops working, it may need to be replaced.

A scientist is designing a new heart valve. The scientist knows that the valve must be the correct size to fit in the heart.

Suggest **two** other factors the scientist needs to consider so that the newly designed valve works effectively in the heart.

[2 marks]

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4.2.2.4 Coronary heart disease: a non-communicable disease

Question 13

June 2015 | BL1HP | Original Q9 | Legacy

9 (a) A healthy diet should be balanced.

What is meant by a balanced diet?

[2 marks]

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9 (b) Cholesterol has important functions in the body.
Some cholesterol is produced by the liver.

Cholesterol is needed in the body to make the hormone oestrogen.

9 (b) (i) Name the organ in the body which produces oestrogen.

[1 mark]

.....

9 (b) (ii) What effect does oestrogen have on the female reproductive cycle?

[1 mark]

.....

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9 (b) (iii) Oestrogen is a naturally occurring steroid hormone.

Give **one** artificial use of a steroid hormone in the body.

[1 mark]

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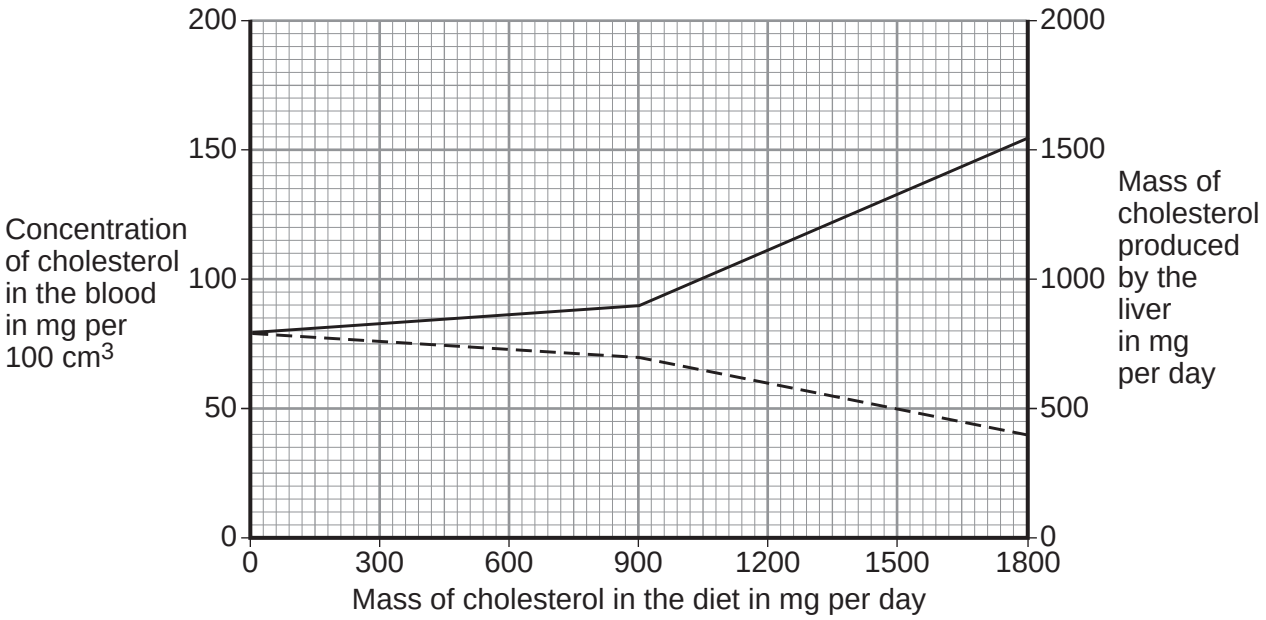
4.2.2.4 Coronary heart disease: a non-communicable disease

Question 13 · continued

9 (c) **Figure 6** shows the effect of the mass of cholesterol in the diet on:

- the concentration of cholesterol in the blood
- the mass of cholesterol produced by the liver.

Figure 6



Key

——— Blood cholesterol concentration

– – – – Production by the liver

Describe the effect of increasing the mass of cholesterol in the diet on the mass of cholesterol produced by the liver.

To gain full marks you should include data from **Figure 6** in your answer.

[2 marks]

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Question 9 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 13 · continued

9 (d) Large amounts of cholesterol in the diet switch off the production of an enzyme called reductase, in the liver.

An increase of the enzyme reductase increases the production of cholesterol by the liver.

9 (d) (i) Which part of a liver cell is responsible for controlling the production of reductase?

[1 mark]

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9 (d) (ii) High blood cholesterol concentrations increase the likelihood of heart and circulatory diseases.

Doctors can prescribe statins to control the concentration of cholesterol in the blood.

Suggest how statins work.

[1 mark]

.....

.....

9

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 14

June 2015 | BL3HP | Original Q2 | Legacy

2 The circulatory system transports substances such as glucose and oxygen around the body.

2 (a) Name **two** other substances that the circulatory system transports around the body.

[2 marks]

1 .....

2 .....

2 (b) (i) Blood is a tissue. Blood contains red blood cells and white blood cells.

Name **two** other components of blood.

[2 marks]

1 .....

2 .....

2 (b) (ii) The heart is part of the circulatory system.

What type of tissue is the wall of the heart made of?

[1 mark]

.....

Question 2 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 14 · continued

2 (c) **In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.**

Every year, many patients need to have heart valve replacements.

Figure 2 gives information about two types of heart valve.

Figure 2

Living human heart valve	Cow tissue heart valve
• It has been used for transplants for more than 12 years. • It can take many years to find a suitable human donor. • It is transplanted during an operation after a donor has been found. • During the operation, the patient's chest is opened and the old valve is removed before the new valve is transplanted.	• It has been used since 2011. • It is made from the artery tissue of a cow. • It is attached to a stent and inserted inside the existing faulty valve. • A doctor inserts the stent into a blood vessel in the leg and pushes it through the blood vessel to the heart.

A patient needs a heart valve replacement. A doctor recommends the use of a cow tissue heart valve.

Give the advantages and disadvantages of using a cow tissue heart valve compared with using a living human heart valve.

Use information from **Figure 2** and your own knowledge in your answer.

[6 marks]

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4.2.2.4 Coronary heart disease: a non-communicable disease

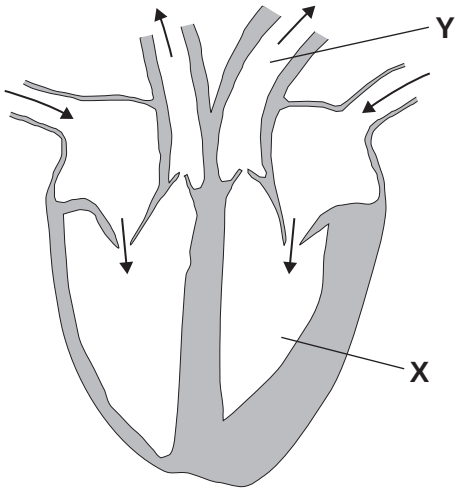
Question 15

June 2017 | BL3HP | Original Q2 | Legacy

2 Each year people need to have treatment for heart problems.

Figure 2 shows a human heart.

Figure 2



2 (a) (i) Name part **X** in **Figure 2**.

[1 mark]

_____

2 (a) (ii) Name part **Y** in **Figure 2**.

[1 mark]

_____

2 (a) (iii) There are valves inside the heart.

What is the function of these valves?

[1 mark]

_____

_____

Question 2 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 15 · continued

2 (b) Some patients need to have their heart valves replaced.

Table 1 shows the percentage of patients who died from different causes after having heart valve replacements.

Two types of heart valve were used:

- mechanical – made of metal and plastic
- pig tissue – made from pig heart tissue on a metal frame.

The data was collected over 15 years and 400 patients were involved.

Table 1

Cause of death	Percentage of patients who died	
	Mechanical valve	Pig tissue valve
Blood clots blocking coronary arteries	9	9
Bleeding	26	15
Second operation	5	15
Bacterial heart infection	4	8
Heart valves stopped working	0	12

Use information from **Table 1** and your own knowledge to answer the following question.

A patient decides to have a mechanical valve replacement rather than a pig tissue valve replacement.

Suggest reasons for **and** against choosing a mechanical valve.

[4 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 15 · continued

2 (c) Some people have narrowed arteries.

Describe how stents can be used to prevent a heart attack in a person with narrowed arteries.

[2 marks]

9

4.2.2.4 Coronary heart disease: a non-communicable disease

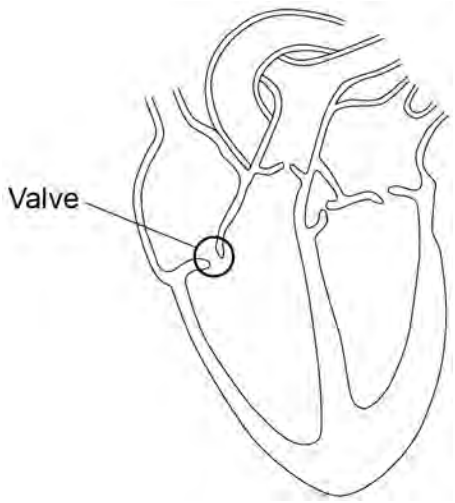
Question 16

June 2019 | 8461/1H | Original Q5

0 5 **Figure 6** shows the internal structure of the human heart.

One of the heart valves is labelled.

Figure 6



Sometimes a valve in the heart can start to leak.

0 5 . 1 Explain why a person with a leaking heart valve has difficulty exercising.

[4 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 16 · continued

A patient with a leaking heart valve may have the valve replaced.

A study compared two different types of replacement heart valve:

- mechanical valves
- biological valves from pigs.

The data used in the study was collected from female patients aged 50–69.

Table 4 shows the data.

Table 4

	Type of replacement heart valve	
	Mechanical	**Biological**
Number of patients given the valve	2852	1754
Number of patients who died from heart-related problems after valve replacement	180	178
Percentage of patients alive after 5 years	91	89
Percentage of patients needing a second valve replacement within 6 years	2.2	5.2
Percentage of patients who had a blood clot on the brain after surgery	5.8	0.1

0 5 . 2 Give **one** conclusion about the death of patients from heart-related problems after a valve replacement.

Include calculations to support your answer.

[3 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 16 · continued

0 5 . 3 One risk of mechanical valves is that blood clots can form on the surface of the valve.

Name the component of the blood that starts the process of blood clotting.

[1 mark]

0 5 . 4 Evaluate the use of mechanical replacement heart valves and biological replacement heart valves.

Use information from **Table 4** and your own knowledge.

[6 marks]

14

4.2.2.4 Coronary heart disease: a non-communicable disease

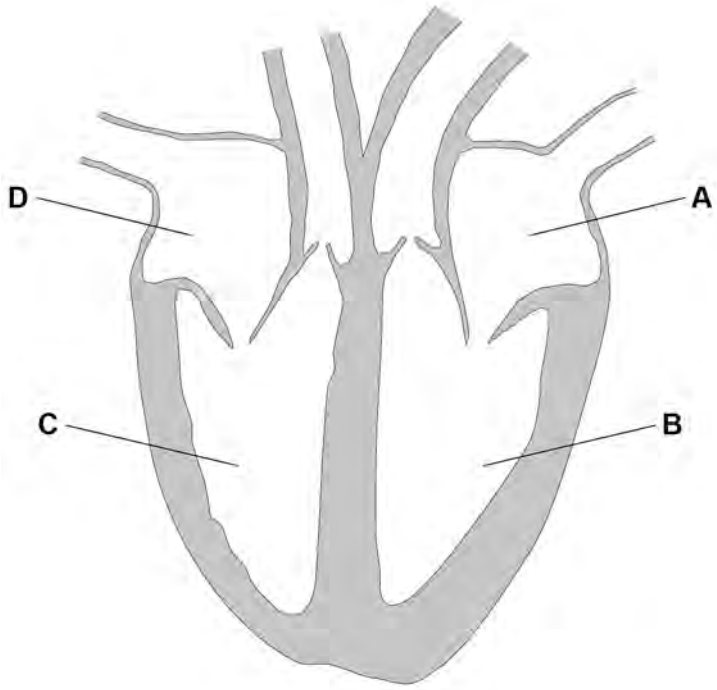
Question 17

June 2023 | 8461/1H | Original Q2

0 2 This question is about the circulatory system.

Figure 1 shows the human heart.

Figure 1



0 2 . 1 Which part of the heart receives oxygenated blood from the lungs?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

0 2 . 2 Which part of the heart pumps deoxygenated blood to the lungs?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 17 · continued

0 2 . 3 A group of cells called the pacemaker controls the resting heart rate.

Where in the heart is the pacemaker found?

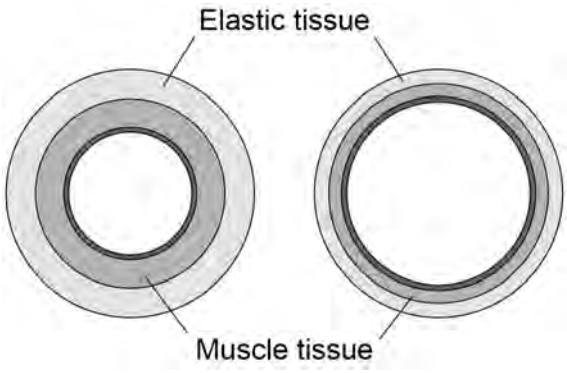
[1 mark]

Tick (✓) **one** box.

- Left atrium ☐
- Left ventricle ☐
- Right atrium ☐
- Right ventricle ☐

0 2 . 4 **Figure 2** shows a cross section of an artery and of a vein.

Figure 2



Describe **two** ways that the structure of an artery is different from the structure of a vein.

[2 marks]

1 _____

_____

2 _____

_____

Question 2 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 17 · continued

0 2 . 5 In coronary heart disease, the coronary arteries become narrower.

A build-up of fatty material can cause a blockage in a coronary artery.

Table 2 shows how a blockage in a coronary artery affects blood flow.

Table 2

Percentage (%) of coronary artery that is blocked	Blood flow in cm^3/minute
0	100
10	64
20	42
50	8
80	2

Describe the trend shown in **Table 2**.

[1 mark]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 17 · continued

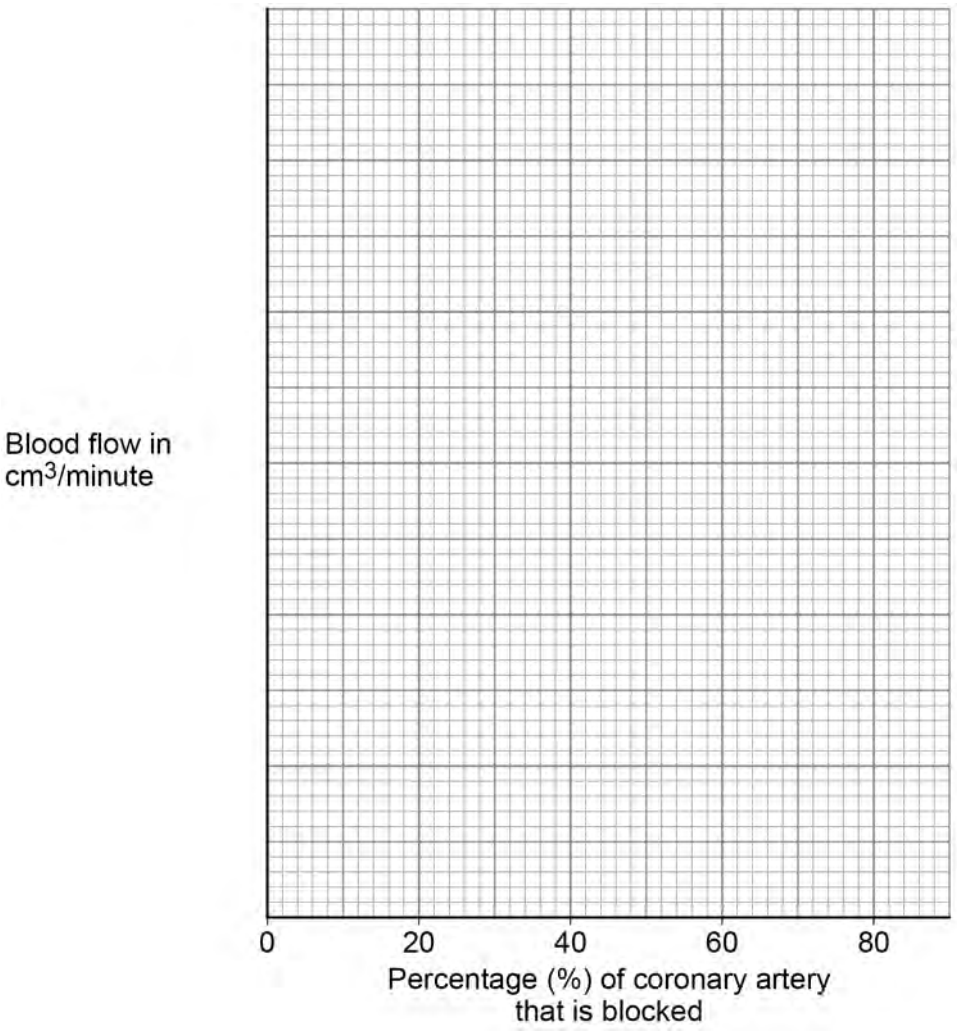
0 2 . 6 Complete **Figure 3**.

You should:

- use a suitable scale for the y-axis
- plot the data from **Table 2**
- draw a line of best fit.

[4 marks]

Figure 3



0 2 . 7 Predict the blood flow in a coronary artery with a 35% blockage.

Use **Figure 3**.

[1 mark]

Blood flow = _____ cm^3/minute

Question 2 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 17 · continued

0 2 . 8 Explain the effect of a partly blocked coronary artery on the human body.

[6 marks]

0 2 . 9 There are different treatments for a blockage in a coronary artery.

Explain how **one** treatment for a blockage in a coronary artery works.

[2 marks]

19

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 18

June 2024 | 8461/1H | Original Q1

0 1 A person has coronary heart disease.

0 1 . 1 Which blood vessels are affected by coronary heart disease?

[1 mark]

Tick (✓) **one** box.

- Arteries ☐
- Capillaries ☐
- Veins ☐

A person's heart stops beating.

The person stops breathing.

A first-aider pushes down on the person's chest.

Pushing down on the person's chest puts pressure on the heart.

0 1 . 2 Explain why putting pressure on the heart helps the person.

[2 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 18 · continued

0 1 . 3 The first-aider also forces air into the person's lungs by blowing into their mouth.

Describe how forcing air into the person's lungs helps the person.

[1 mark]

0 1 . 4 The person's heart starts to beat again and the person starts breathing.

The person has a high level of cholesterol in their blood.

Name **one** type of drug that would decrease the level of cholesterol in the person's blood.

[1 mark]

0 1 . 5 A doctor decides that the person needs to have a stent fitted.

Explain how a stent works to treat coronary heart disease.

[2 marks]

Question 1 continues on the next page

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 18 · continued

Table 1 shows the effect of smoking on the risk of developing different cardiovascular diseases.

Table 1

Cardiovascular disease	Percentage (%) increase in risk compared to people who have never smoked
E	14
F	20
G	29
H	70

0 1 . 6 Give **two** conclusions that can be made from the data in **Table 1**.

[2 marks]

1 _____

_____

2 _____

_____

0 1 . 7 Complete **Figure 1**.

You should:

- label the y-axis
- add the correct scale to the y-axis
- plot the data from **Table 1**
- label each bar.

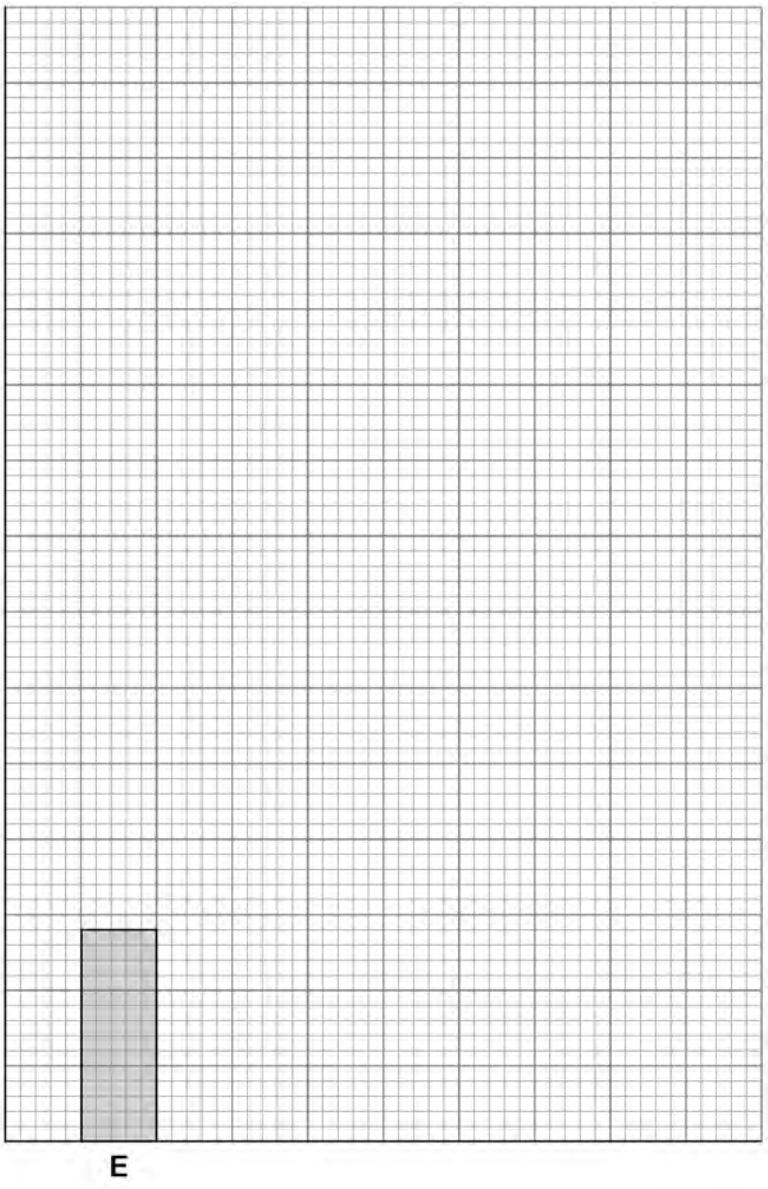
The bar for cardiovascular disease **E** has been plotted for you.

[4 marks]

4.2.2.4 Coronary heart disease: a non-communicable disease

Question 18 · continued

Figure 1



0 1 . 8 Describe **one** lifestyle factor that can increase the risk of cardiovascular disease.

Do **not** refer to smoking in your answer.

[1 mark]

14