AQA GCSE Biology | 8461

SPECIFICATION POINT 4.2.2.6

# The effect of lifestyle on some non-communicable diseases

## Past-paper questions

| | |
|---|---|
| Tier | **Higher** |
| Question groups | **39** |
| Available paper years | **2007–2025** |

## 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.

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 01**

March 2007 | BLY1A | Original Q2 | Legacy

## QUESTION TWO

This table is about some possible effects of some substances on the body.

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

**A** may cause damage to the liver and brain

**B** may cause less oxygen to be carried by the blood

**C** may cause withdrawal symptoms

**D** may lead to becoming addicted to a hard drug

| | **May be caused by . . .** |
|---|---|
| **1** | breathing in carbon monoxide in cigarette smoke. |
| **2** | drinking alcohol. |
| **3** | giving up taking cocaine. |
| **4** | taking cannabis. |

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 02

March 2007 | BLY1A | Original Q7 | Legacy

## QUESTION SEVEN

Cholesterol is carried around the body as a lipoprotein.

There are two types of lipoproteins, LDL and HDL.

The balance of these two lipoproteins is important for good health.

The table shows the risk to health of having different amounts of HDL and cholesterol in the blood.

| HDL concentration in arbitrary units | Total cholesterol concentration in arbitrary units | | | | | |
|---|---|---|---|---|---|---|
| | 161–170 | 171–180 | 181–190 | 191–200 | 201–210 | 211–220 |
| below 21 | low | average | average | very high | very high | very high |
| 21–30 | low | average | high | high | high | very high |
| 31–35 | very low | low | average | average | high | high |
| 36–40 | very low | low | low | average | average | high |
| 41–45 | very low | very low | low | average | average | average |
| 46–50 | very low | very low | low | low | average | average |
| 51–55 | very low | very low | very low | low | low | average |
| 56–60 | very low | very low | very low | low | low | low |
| 61–65 | very low | very low | very low | low | low | low |
| 66–70 | very low | very low | very low | very low | low | low |
| 71–75 | very low | very low | very low | very low | very low | low |

**7A** A man has a total cholesterol concentration of 195 units and an HDL concentration of 48 units.

What is his health risk due to cholesterol?

**1** average

**2** high

**3** low

**4** very high

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 02 · continued** March 2007 | BLY1A | Original Q7 | Legacy

**7B** What happens to the risk to health as a man's HDL concentration rises from 30 to 75 arbitrary units and his total cholesterol concentration rises from 161 to 220 arbitrary units?

**1** It changes from low to very high.

**2** It changes from very high to low.

**3** It remains the same.

**4** It changes from very low to very high.

**7C** Which trend is shown by these data?

**1** As the HDL concentration increases, the risk to health stays the same.

**2** As the cholesterol concentration decreases, the risk to health rises.

**3** As both the cholesterol and HDL concentrations increase, the risk to health falls.

**4** As the cholesterol level increases and the HDL concentration decreases, the risk to health rises.

**7D** Which of the following describes the health effects of high concentrations of cholesterol?

**1** They can affect the nervous system, slowing down reactions.

**2** They increase the risk of heart attacks.

**3** They may cause severe limb abnormalities in babies.

**4** They may reduce the oxygen-carrying capacity of the blood.

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 03

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.<br><br>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 %.<br><br>Approximately 0.1 % of the patients suffered serious muscle damage and 0.01 % suffered kidney failure.<br><br>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.<br><br>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.<br><br>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.

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 03 · continued



**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**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 04

June 2007 | BLY1A | Original Q4 | Legacy

## QUESTION FOUR

Nicotine replacement therapy (NRT) is used to help people to give up smoking.

**4A** Nicotine is used to help people to give up smoking because it . . .

**1** is not carcinogenic.

**2** is **not** the addictive substance in cigarette smoke.

**3** makes smoking a cigarette distasteful.

**4** removes the craving to smoke a cigarette.

Trials were carried out to assess different methods of giving NRT.
1000 people took part in each trial.
The results of these trials are shown in the table.

| | | Percentage of people who had given up smoking after one year | |
|---|---|---|---|
| **Method of giving nicotine** | **Number of trials** | **Nicotine replacement therapy** | **Control group** |
| **Chewing gum** | 39 | 18.2 | 10.6 |
| **Patches** | 9 | 20.5 | 10.8 |
| **Nasal spray** | 1 | 21.8 | 9.9 |
| **Inhaler** | 1 | 15.2 | 5.0 |

**4B** Which method of giving NRT showed the greatest difference between people given NRT and the control group?

**1** chewing gum

**2** patches

**3** nasal spray

**4** inhaler

4.2.2.6 The effect of lifestyle on some non-communicable diseases



**4C** For which method of giving NRT would the results be most reliable?

**1** chewing gum

**2** patches

**3** nasal spray

**4** inhaler

**4D** Which would be the best way to display these results?

**1** One bar chart showing the results for each method.

**2** One line graph, with one line showing the results for each method.

**3** Four bar charts, each bar chart showing the results for one method.

**4** Four pie charts, each pie chart showing the results for one method.

**Turn over for the next question**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 05

June 2007 | BLY1A | Original Q5 | Legacy

## QUESTION FIVE

This question is about disease.

**5A** Many processed meals contain a large amount of salt.

Too much salt in the diet can . . .

**1** alter the balance between HDLs and LDLs.

**2** clog up the arteries.

**3** lead to arthritis.

**4** lead to high blood pressure.

**5B** Which of the following is linked to lack of food?

**1** limb abnormalities

**2** diabetes

**3** low cholesterol levels

**4** reduced resistance to infection

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 05 · continued** June 2007 | BLY1A | Original Q5 | Legacy

**5C** The Body Mass Index (BMI) is used to classify people into different obesity groups.

The BMI is calculated by the formula: $\frac{\text{mass}}{\text{height}^2}$

People with a BMI between 30 and 35 inclusive are considered to be obese.

People with a BMI between 36 and 40 inclusive are considered to be very obese.

People with a BMI over 40 are considered to be severely obese.

The chart shows the relationship between mass, height and BMI.

| | | **Mass in kilograms** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Height in metres** | | **50** | **55** | **60** | **65** | **70** | **75** | **80** | **85** | **90** | **95** | **100** | **105** | **110** | **115** |
| | **1.35** | 29 | 31 | 34 | 36 | 39 | 41 | 43 | 46 | 48 | 51 | 53 | 56 | 58 | 60 |
| | **1.40** | 27 | 29 | 31 | 34 | 36 | 38 | 49 | 43 | 45 | 47 | 49 | 52 | 54 | 56 |
| | **1.45** | 25 | 27 | 29 | 31 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 |
| | **1.50** | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 | 49 |
| | **1.55** | 22 | 24 | 26 | 27 | 29 | 31 | 33 | 35 | 37 | 38 | 40 | 42 | 44 | 46 |
| | **1.60** | 21 | 22 | 24 | 26 | 28 | 29 | 31 | 33 | 34 | 36 | 38 | 40 | 41 | 43 |
| | **1.65** | 19 | 21 | 23 | 24 | 26 | 27 | 29 | 31 | 33 | 34 | 36 | 37 | 39 | 40 |
| | **1.70** | 18 | 20 | 21 | 23 | 24 | 26 | 27 | 29 | 30 | 32 | 34 | 35 | 37 | 38 |
| | **1.75** | 17 | 19 | 20 | 22 | 23 | 24 | 26 | 27 | 29 | 30 | 32 | 33 | 35 | 36 |
| | **1.80** | 16 | 18 | 19 | 20 | 22 | 23 | 24 | 26 | 27 | 28 | 30 | 31 | 33 | 34 |
| | **1.85** | 15 | 17 | 18 | 19 | 21 | 22 | 23 | 24 | 26 | 27 | 28 | 30 | 31 | 32 |
| | **1.90** | 15 | 16 | 17 | 18 | 20 | 21 | 22 | 23 | 24 | 26 | 27 | 28 | 29 | 30 |
| | **1.95** | 14 | 15 | 16 | 17 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 27 | 28 | 29 |
| | **2.00** | 13 | 14 | 15 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 28 |

The number of values in the chart which show a person to be very obese is . . .

**1** 22

**2** 23

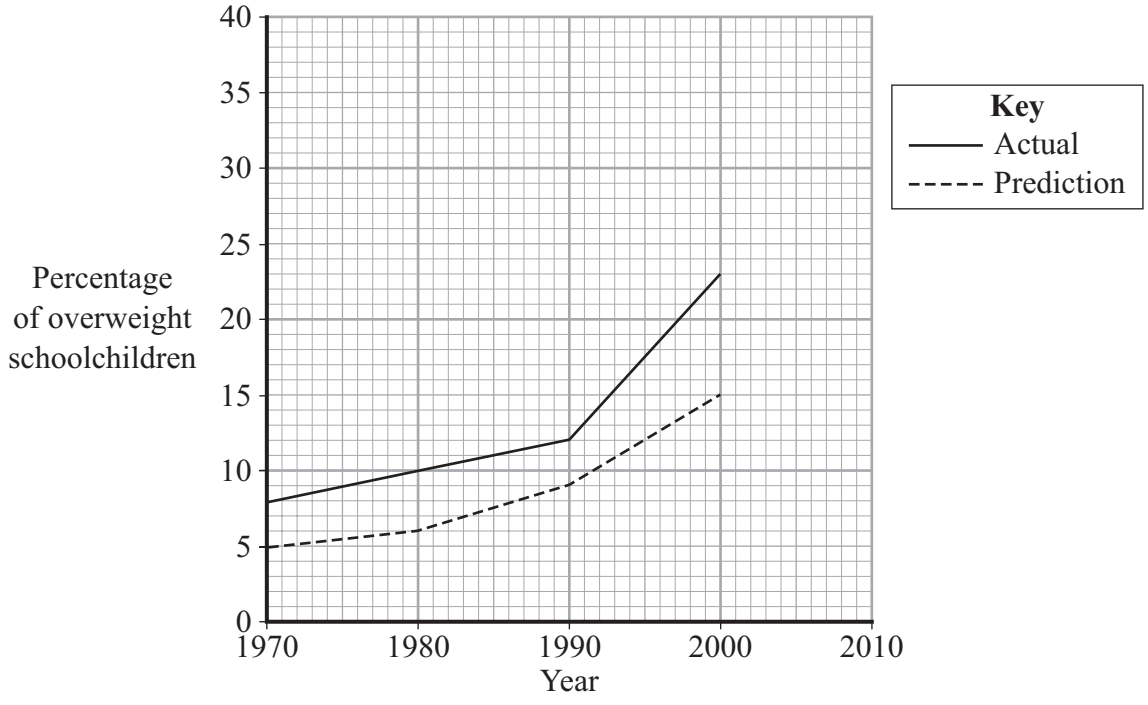
**3** 26

**4** 27

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 05 · continued** June 2007 | BLY1A | Original Q5 | Legacy

**5D** The graph shows the percentage of schoolchildren who were predicted to be overweight from 1970 to 2000, and the actual percentage of schoolchildren who were overweight from 1970 to 2000.




If the trends from 1990 to 2000 continue, what will be the difference between the actual percentage and the predicted percentage of schoolchildren who will be overweight in 2010?

**1** 11

**2** 13

**3** 24

**4** 26

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 06**

November 2007 | BLY1A | Original Q4 | Legacy

## QUESTION FOUR

This question is about obesity.

**4A** Which one of the following diseases is linked to obesity?

**1** arthritis

**2** brain damage

**3** deficiency disease

**4** lung cancer

**4B** One way to prevent obesity is to increase the amount of exercise that people take.

Exercise helps to prevent obesity mainly because . . .

**1** exercise increases the metabolic rate.

**2** exercise decreases the amount of muscle in the body.

**3** people have less time to eat when they are exercising.

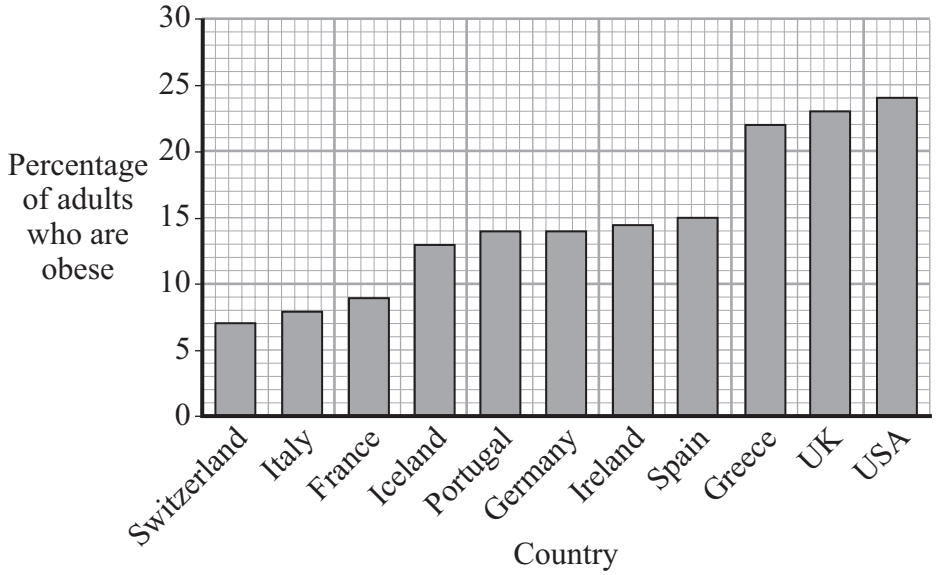
**4** people who exercise are usually fitter than those who do not.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 06 · continued**



A manufacturer of slimming foods carried out a telephone survey in 11 countries to find the percentage of the population who are obese.
The results of the telephone survey of 5000 people are shown in the bar chart.




**4C** The information in the bar chart shows that . . .

**1** people in Greece have a healthier diet than people in Ireland.

**2** obesity levels are rising in all countries.

**3** whether or not you are obese depends directly on where you live in the world.

**4** obesity levels in the USA are three times those in Italy.

**4D** The information in the bar chart may be biased.

This is because . . .

**1** it only considers a few countries.

**2** it was gathered by a manufacturer of slimming foods.

**3** the total number of people in the survey was small.

**4** the survey was carried out to find the percentage of obese people, not the actual number.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 07**

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 |

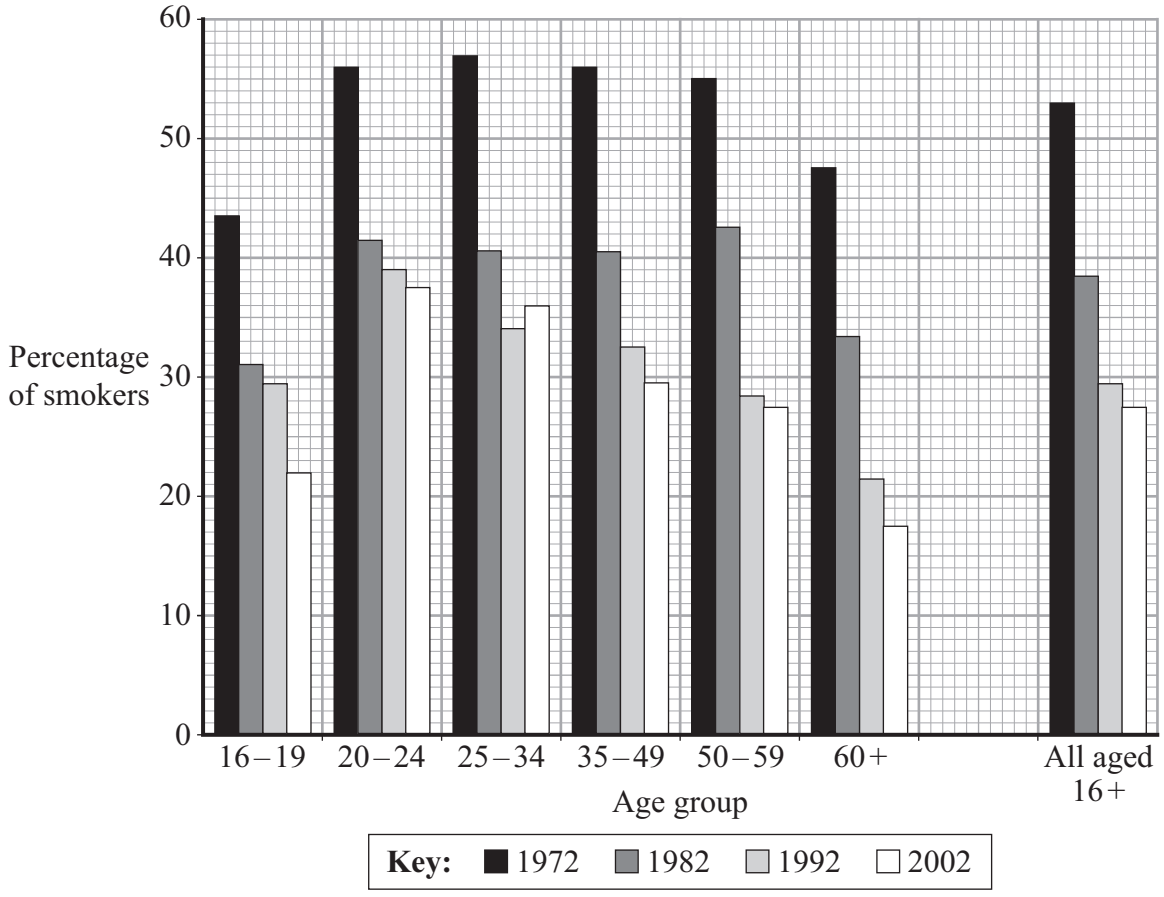
**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 07 · 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+

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

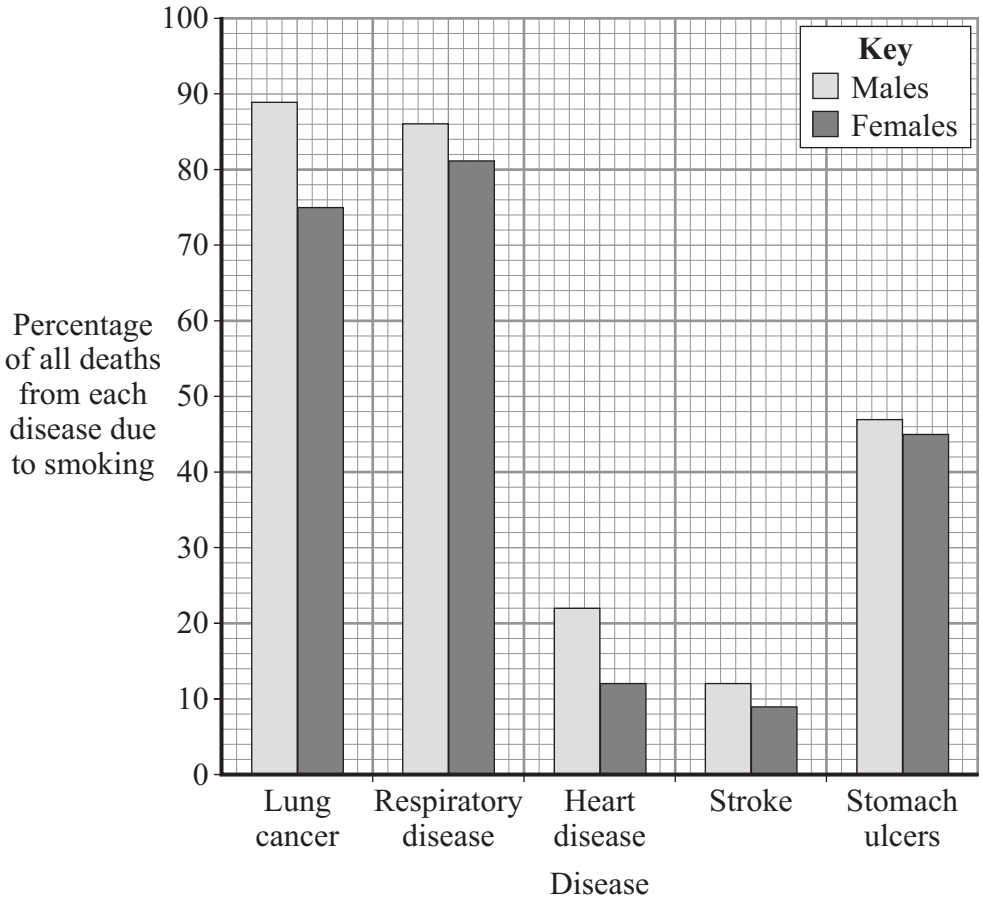
**Question 08**

June 2008 | BLY1AP | Original Q3 | Legacy

## QUESTION THREE

This question is about smoking and disease.

The bar chart shows the percentages of deaths due to smoking for five different diseases.




**3A** In women, which disease shows the highest percentage of deaths that are thought to be due to smoking?

**1** lung cancer

**2** respiratory disease

**3** heart disease

**4** stroke

**3B** What percentage of deaths from respiratory disease in males is due to causes other than smoking?

**1** 12

**2** 14

**3** 81

**4** 86

**3C** The total number of women who died from stomach ulcers was 2220.

How many of these deaths were caused by smoking?

**1** 550

**2** 999

**3** 1110

**4** 1665

**3D** Which is the best conclusion that can be drawn from the bar chart?

**1** Smoking causes most of the deaths due to stomach ulcers.

**2** The chance of dying from any of the five diseases is increased if you smoke.

**3** There is a strong link between smoking and death from heart disease.

**4** The chance of dying from a stroke is not increased by smoking.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 09**

June 2008 | BLY1H | Original Q7 | Legacy

**7** Read the description of an investigation into the link between smoking cannabis and heroin addiction.

Six 'teenage' rats were given a small dose of THC – the active chemical in cannabis – every three days between the ages of 28 and 49 days. This is the equivalent of human ages 12 to 18.

The amount of THC given was roughly equivalent to a human smoking one cannabis 'joint' every three days.

A control group of six 'teenage' rats did not receive THC.

After 56 days catheters (narrow tubes) were inserted in all twelve of the now adult rats and they were able to self-administer heroin by pushing a lever.

All the rats began to self-administer heroin frequently. After a while, they stabilised their daily intake at a certain level.

The ones that had been on THC as 'teenagers' stabilised their heroin intake at a much higher level than the others. They appeared to be less sensitive to the effects of heroin. This pattern continued throughout their lives.

Reduced sensitivity to the heroin means that the rats take larger doses. This has been shown to increase the risk of addiction.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 09 · continued**



*for mark*

**7** Evaluate this investigation with respect to establishing a link between cannabis smoking and heroin addiction in humans.

Remember to include a conclusion to your evaluation.

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*(5 marks)*

5

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 10**

January 2009 | BLY1H | Original Q3 | Legacy

**3** Nicotine is the addictive substance in tobacco.
People can be helped to stop smoking by giving them nicotine replacement therapy (NRT).

The table gives the results of trials of different types of NRT.

| Type of NRT | Smokers given NRT | | Smokers given placebo | |
|---|---|---|---|---|
| | Number of smokers in trial | Percentage of smokers who gave up smoking | Number of smokers in trial | Percentage of smokers who gave up smoking |
| **Gum** | 7387 | 20 | 9319 | 12 |
| **Patch** | 7708 | 14 | 5969 | 8 |
| **Nasal spray** | 448 | 24 | 439 | 12 |
| **Inhaler** | 490 | 14 | 486 | 8 |
| **Tablet** | 243 | 20 | 245 | 13 |

**3** (a) (i) What is a placebo?

.....

.....

*(1 mark)*

**3** (a) (ii) Why was a placebo used in these NRT trials?

.....

.....

*(1 mark)*

**3** (b) (i) In which trial was the data most reliable?

.....

*(1 mark)*

**3** (b) (ii) Give the reason for your answer.

.....

.....

.....

*(1 mark)*

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 10 · continued**



*for mark*

**3** (c) (i) Which type of NRT was most effective?

.....

*(1 mark)*

**3** (c) (ii) Explain the reasons for your answer.

.....

.....

.....

.....

.....

*(2 marks)*

7

**Turn over for the next question**

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 11**

March 2009 | BLY1AP | Original Q2 | Legacy

## QUESTION TWO

A combination of balanced diet and regular exercise is needed to keep our bodies healthy.

Match words, **A**, **B**, **C** and **D**, with the numbers **1–4** in the sentences.

**A** constant

**B** greater

**C** insufficient

**D** irregular

Lack of food can result in a woman's periods becoming . . . **1** . . . .

Obesity may result from . . . **2** . . . exercise.

When an adult's energy intake balances their energy consumption, their body mass will be . . . **3** . . . .

When people do more exercise, their metabolic rate becomes . . . **4** . . . .

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 12**

March 2009 | BLY1AP | Original Q5 | Legacy

## QUESTION FIVE

Nicotine replacement therapy (NRT) is used to help people to stop smoking.

**5A** NRT is used to help people to stop smoking because nicotine . . .

**1** reduces the amount of oxygen carried by the blood.

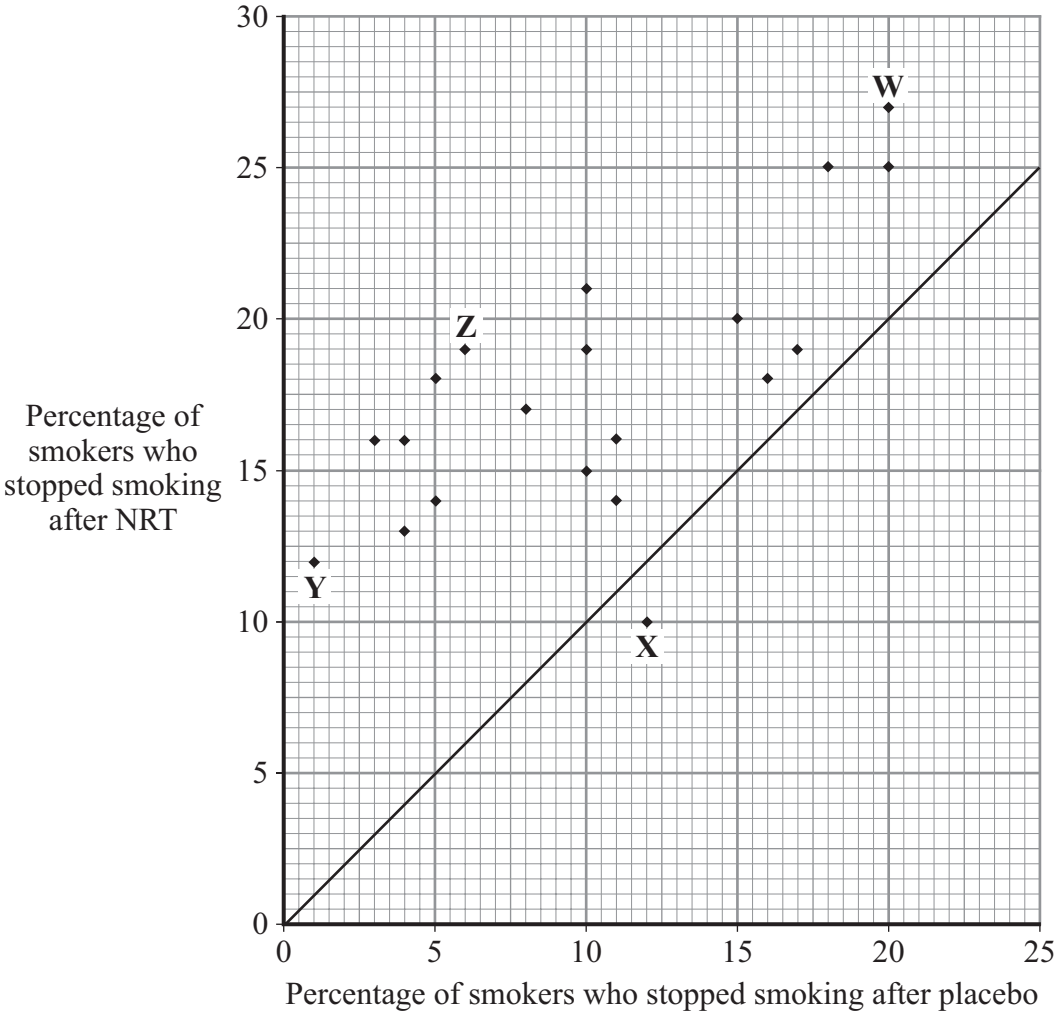
**2** causes lung cancer.

**3** alters chemical processes in the body.

**4** increases appetite.

The scattergram shows the results of 20 investigations into the use of different types of NRT tablets. In each investigation, some smokers were given NRT and some were given a placebo.

Each plot represents **one** investigation. Each plot represents the percentage of smokers who stopped smoking after NRT and the percentage of people who stopped smoking after being given a placebo in that investigation.



**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 12 · continued** March 2009 | BLY1AP | Original Q5 | Legacy

**5B** In these investigations, the placebo would be . . .

**1** a tablet that tasted of nicotine.

**2** a white tablet.

**3** a tablet with sugar.

**4** a tablet with no nicotine.

**5C** In which investigation did more people stop smoking after using the placebo than after using NRT?

**1** **W**

**2** **X**

**3** **Y**

**4** **Z**

**5D** What conclusion can be drawn from the results of the investigations?

**1** NRT was more effective than a placebo in most of the investigations.

**2** Patients given a placebo do not stop smoking.

**3** All the people given NRT stopped smoking.

**4** Most of the people in the investigations gave up smoking.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 13**

March 2009 | BLY1AP | Original Q6 | Legacy

## QUESTION SIX

Body mass index (BMI) is an indication of a person's obesity.

A person's BMI is calculated using the formula below.

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

The table shows the relationship between BMI and obesity.

| BMI | Obesity category |
|---|---|
| less than 18.5 | underweight |
| 18.5 – 24.9 | normal |
| 25.0 – 29.9 | overweight |
| 30.0 and over | obese |

**6A** A 1.83 m tall adult with a body mass of 61 kg is . . .

**1** underweight.

**2** normal.

**3** overweight.

**4** obese.

**6B** Scientists want to survey 2000 adults for BMI.

Which factor would be most difficult to control in the survey?

**1** age

**2** ethnic origin

**3** diet type

**4** gender

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 13 · continued** March 2009 | BLY1AP | Original Q6 | Legacy

**6C** Compared with an adult female whose BMI is 19, an adult female with a BMI of 28 is more likely to have . . .

**1** a high blood sugar level.

**2** irregular periods.

**3** a low blood LDL level.

**4** reduced resistance to infection.

**6D** Muscle tissue is more dense than fat. Athletes who train regularly build up their muscles. As a result, they have a higher muscle to fat ratio than non-athletes.

An adult athlete with a BMI of 26.2 . . .

**1** is likely to be healthy and fit even though he is outside the 'normal' guideline in the obesity category.

**2** should begin a diet programme to encourage weight loss.

**3** should still be classed as 'normal' in the obesity category.

**4** would have a lower metabolic rate than non-athletes.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 14**

June 2009 | BLY1AP | Original Q7 | Legacy

## QUESTION SEVEN

There are many support methods that people can use to help them to stop smoking. Some of them are shown in the table.

The figures given for the success rate of each support method show the extra people who stopped smoking using a support method compared with those who succeeded without support of any kind.

| Support method | How it works | Success rate |
|---|---|---|
| NRT medication | Gum, nasal spray, patch. Reduces the need to smoke. Prescription not necessary. | Approximately 1 in 5 extra people stopped smoking. |
| Zyban medication | Prescription-only tablets. Can cause side effects, worst is having fits (chance of 1 in 1000). | Approximately 1 in 10 extra people stopped smoking. |
| Champix medication | Tablets. Reduces the need to smoke. Available on prescription. | Approximately 1 in 7 extra people stopped smoking after one course. More stopped after two courses. |
| Face-to-face counselling | Works best with a fully trained adviser. | Approximately 1 in 20 extra people stopped smoking. |
| Smokers' support group meetings | Smokers help each other with problems, and try not to let the group down. | Approximately 1 in 20 extra people stopped smoking. |

**7A** Which of the following support methods is the least likely to cause any undesirable physical side effects?

**1** NRT medication

**2** Zyban medication

**3** Champix medication

**4** Support group meetings

**7B** Which of the following support methods appears to be the most effective on its own?

**1** NRT medication

**2** Zyban medication

**3** Champix medication

**4** Face-to-face counselling

**7C** Smokers' support group meetings . . .

**1** are about as effective at helping people to stop smoking as face-to-face counselling with a trained adviser.

**2** are only as effective at helping people to stop smoking as some of the drugs in the table.

**3** need to be tried out with non-smoking volunteers before they are made generally available to the public.

**4** reduce the physical urge to smoke.

**7D** Which one of the following is **not** a correct statement about people who have smoked for many years?

**1** They are likely to die younger than if they had been a non-smoker.

**2** They experience urges to smoke after they have stopped.

**3** They have an increased risk of contracting various diseases.

**4** They will eventually get lung cancer.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 15**

June 2009 | BLY1AP | Original Q9 | Legacy

## QUESTION NINE

Read the information about drugs.

> **Tobacco**
> About 100 000 people die each year in Britain from tobacco-related illnesses. Among other dangerous substances, tobacco smoke also contains the addictive drug nicotine. Buying tobacco is legal in the UK from the age of 18.
>
> **Alcohol**
> About 28 000 people die each year in England and Wales from alcohol-related illnesses. Alcohol is an addictive substance which is often associated with antisocial behaviour and violent crime. Buying alcohol is legal in the UK from the age of 18.
>
> **Cannabis**
> This is a substance which is smoked, often mixed with tobacco. There are no records of cannabis being directly responsible for any deaths or being responsible for violent crimes. Most experts regard cannabis as much less addictive than tobacco or alcohol, but some users have difficulty giving it up. It does carry some health risks due to inhaling smoke, and may cause long-term mental illness. It is illegal to sell or buy cannabis in the UK.
>
> Hard drugs are addictive and are often linked with violent crime. They may also cause death. Soft drugs are not generally associated with high levels of addiction, violence, crime or death.

**9A** The information above suggests that . . .

**1** smoking cannabis always affects the health of other people around the smoker.

**2** smoking cannabis may be physically less harmful than smoking tobacco.

**3** it is perfectly safe to use cannabis.

**4** giving up smoking cannabis would result in more severe withdrawal symptoms than giving up smoking tobacco.

**9B** From the information in the passage, which of the following is a true statement?

**1** Alcohol and cannabis are hard drugs.

**2** Alcohol and tobacco are soft drugs.

**3** Cannabis and tobacco are hard drugs.

**4** Cannabis is a soft drug.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 15 · continued** June 2009 | BLY1AP | Original Q9 | Legacy

**9C** Heroin and cocaine are extremely addictive hard drugs. Most users admit to having smoked cannabis before using these drugs. Research indicates that the majority of cannabis smokers do not progress to these hard drugs.

Which is the most valid conclusion from this information?

**1** All users of heroin or cocaine started by using cannabis.

**2** Regular users of cannabis are not at risk of progressing to heroin or cocaine use.

**3** There is no link between smoking cannabis and addiction to heroin or cocaine.

**4** There may be a link between smoking cannabis and addiction to heroin or cocaine.

**9D** From the information in the passage, what would be the best advice to give to a 17 year-old girl who might be tempted to try cannabis?

**1** 'Don't smoke cannabis if you are under the influence of alcohol.'

**2** 'Don't try it, smoke ordinary cigarettes instead.'

**3** 'If you try it, don't drive while still experiencing its effects.'

**4** 'Don't try it, it has health risks associated with it.'

**END OF TEST**

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 16**

June 2009 | BLY1H | Original Q3 | Legacy

**3** Many people use recreational drugs.

**3** (a) Give **one** example of:

**3** (a) (i) a legal recreational drug

.....

*(1 mark)*

**3** (a) (ii) an illegal recreational drug.

.....

*(1 mark)*

**3** (b) Some recreational drugs are addictive.

**3** (b) (i) Give **one** example of a recreational drug that is very addictive.

.....

*(1 mark)*

**3** (b) (ii) Explain how the action of a drug makes a person become addicted to it.

.....

.....

*(1 mark)*

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 16 · continued**



*for mark*

**3** (c) Some doctors think that smoking cannabis causes depression.

Doctors investigated the cannabis smoking habits of 1500 young adults.

The table shows the percentage of cannabis smokers in the investigation who became depressed.

| How many times the men or women had smoked cannabis in the last 12 months | Percentage of men who became depressed | Percentage of women who became depressed |
|---|---|---|
| Less than 5 times | 9 | 16 |
| More than 5 times, but less than once per week | 10 | 17 |
| 1 – 4 times per week | 12 | 31 |
| Every day | 15 | 68 |

From the data, give **two** conclusions that can be drawn about the relationship between cannabis and depression.

1 .....

.....

2 .....

.....

*(2 marks)*

*(Extra space)* .....

.....

6

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 17**

November 2009 | BLY1AP | Original Q1 | Legacy

**QUESTION ONE**

Some substances can harm the body.

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

**A** alcohol

**B** carbon monoxide

**C** carcinogen

**D** thalidomide

| | **Effect on body** |
|---|---|
| **1** | reduces the amount of oxygen carried in the blood |
| **2** | may cause liver damage |
| **3** | may cause cancer |
| **4** | may cause limb abnormalities in babies |

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 18**

November 2009 | BLY1AP | Original Q3 | Legacy

## QUESTION THREE

Smoking cannabis may affect health.

**3A** Cannabis . . .

**1** is a very addictive drug.

**2** is a legal drug.

**3** is a recreational drug.

**4** contains nicotine.

The table shows the results of a survey about cannabis smoking and depression.

| How many times cannabis was used in the past year | Men | | Women | |
|---|---|---|---|---|
| | Number in survey | % who got depression | Number in survey | % who got depression |
| Fewer than 5 | 523 | 9 | 7 | 19 |
| Between 5 and 50 | 60 | 10 | 46 | 17 |
| 1 to 4 times each week | 73 | 12 | 32 | 31 |
| Daily | 73 | 15 | 37 | 68 |

**3B** 60 men in the survey used cannabis between 5 and 50 times per year.

How many of these men got depression?

**1** 6

**2** 10

**3** 50

**4** 70

**3C** Which pattern is shown by all the data in the table?

**1** Cannabis has a greater effect on men than on women.

**2** Cannabis has a greater effect on women than on men.

**3** Men and women are affected equally by cannabis.

**4** Increased use of cannabis always results in an increase in the percentage of users who get depression.

**3D** Which of the following is a true statement?

**1** The data proves that smoking cannabis causes depression.

**2** The data provides evidence of a link between smoking cannabis and depression.

**3** The data shows that there is no link between smoking cannabis and depression.

**4** There were too few people in the survey to draw a reliable conclusion.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

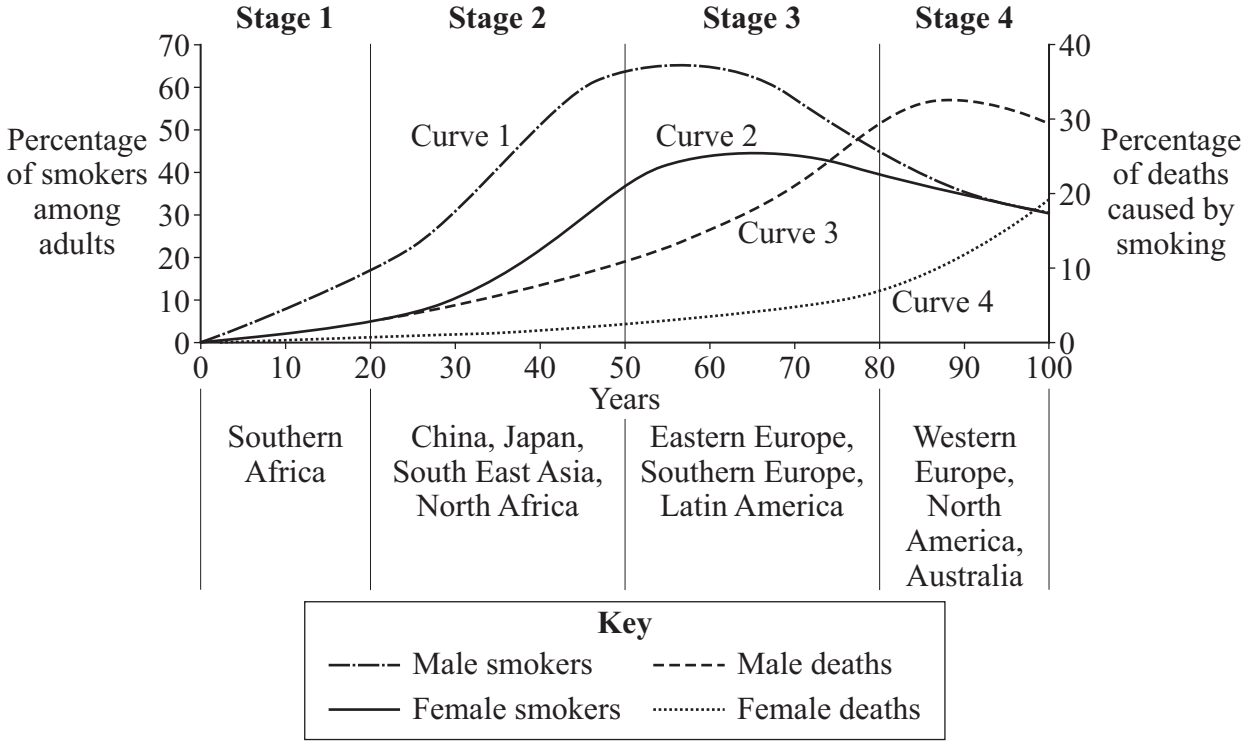
**Question 19**

November 2009 | BLY1AP | Original Q6 | Legacy

## QUESTION SIX

Scientists have developed a model to show the way in which the worldwide spread of tobacco dependency can be divided into four stages. The graph shows the percentage of adult smokers and the percentage of smoking-related deaths at each stage. The names of some regions have been added to show which stage they are at.

The way in which the number of smokers in a region rises and falls is shown by curves 1 and 2. Curves 3 and 4 show the percentage of deaths due to smoking-related diseases some years later.




**6A** In which region does smoking among women appear to be falling?

**1** Australia

**2** Southern Africa

**3** Japan

**4** North Africa

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 19 · continued** November 2009 | BLY1AP | Original Q6 | Legacy

**6B** The percentage of deaths caused by smoking reaches a peak many years after the percentage of smokers in a region reaches a peak.

About how many years are there between these two peaks for male smokers?

**1** 15

**2** 30

**3** 40

**4** 45

**6C** Which of the following is a correct conclusion from the data?

**1** Female smokers have a higher chance of death due to a smoking-related disease than male smokers.

**2** Smoking more cigarettes increases the chance of death due to a smoking-related disease.

**3** Not all smokers die due to a smoking-related disease.

**4** At any stage, in any country, there are likely to be more female smokers than male smokers.

**6D** Not all regions fit this 'tobacco dependency' model perfectly.

Approximately 2% of Chinese women smoke.

This means that . . .

**1** the number of Chinese female smokers will probably increase to a peak in about forty years' time.

**2** 2% of Chinese female smokers die each year due to smoking related diseases.

**3** smoking among Chinese females is in **Stage 1** of the tobacco dependency model.

**4** there are more female smokers in China than in Southern Africa.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 20**



**5** A European Union report estimates that by 2011, one million children in the Union will be obese and have raised blood cholesterol levels.

**5** (a) Body mass is dependent on the *metabolic rate* of the body.

What is meant by *metabolic rate*?

.....

.....

.....

.....

*(2 marks)*

**5** (b) Cholesterol is carried around the body by the two types of lipoprotein: low-density lipoproteins (LDLs) and high-density lipoproteins (HDLs).

Describe the relationship between the two types of lipoproteins and heart health.

.....

.....

.....

.....

.....

.....

.....

.....

*(3 marks)*

**5**

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 21**

March 2010 | BLY1AP | Original Q5 | Legacy

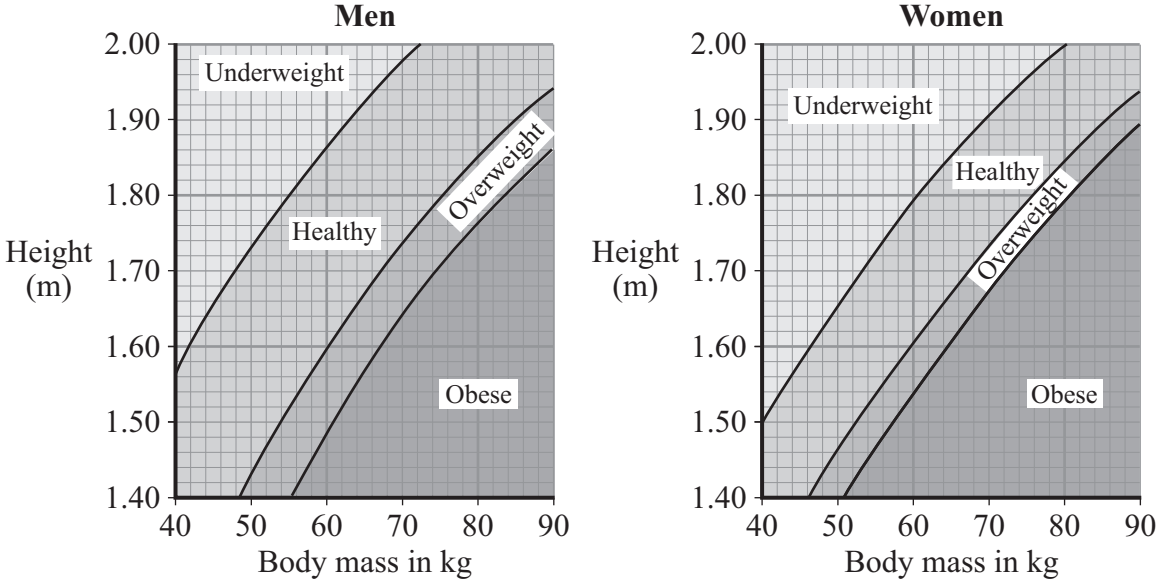
## QUESTION FIVE

A combination of a balanced diet and exercise are needed to keep the body healthy.

**5A** Which row in the table correctly shows a cause and an effect of obesity?

| | Cause of obesity | | Effect of obesity | |
|---|---|---|---|---|
| | **High salt** | **High fat** | **Arthritis** | **Lung cancer** |
| **1** | ✓ | | ✓ | |
| **2** | | ✓ | | ✓ |
| **3** | ✓ | | | ✓ |
| **4** | | ✓ | ✓ | |

The charts are used to find if a person has a healthy mass for his/her height.




**5B** A woman is 1.6 m tall and has a mass of 66 kg.

From the chart, she is . . .

**1** underweight.

**2** healthy.

**3** overweight.

**4** obese.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 21 · continued** March 2010 | BLY1AP | Original Q5 | Legacy

**5C** A man is 1.70 m tall. He is overweight.

His body mass is between . . .

**1** 48 and 68 kg.

**2** 66 and 72 kg.

**3** 67 and 74 kg.

**4** 76 and 84 kg.

**5D** The metabolic rate of a healthy person eating a balanced diet will **not** be affected by . . .

**1** the proportion of muscle to fat in the body.

**2** taking vitamin tablets.

**3** inherited factors.

**4** the amount of exercise taken.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 22**

March 2010 | BLY1AP | Original Q8 | Legacy

## QUESTION EIGHT

There are different opinions about the link between smoking cannabis and the use of hard drugs.

**8A** Cannabis is the most commonly used illegal drug.

It was a class C drug, but it has been reclassified up to the more dangerous class B.

What is the main reason for this?

**1** Users could be imprisoned for a longer period of time.

**2** Its effects on the liver are worse than initially thought.

**3** The government will make more money from fines.

**4** There is evidence that it is linked to mental illness.

Scientists investigated the link between smoking cannabis and heroin addiction.

- THC is the active chemical in cannabis.
- Six 'teenage' rats were given a small dose of THC every 3 days between the ages of 28 and 49 days. The rat ages are the equivalent of humans aged 12 to 28 years.
- The amount of THC given was roughly equivalent to a human smoking one cannabis 'joint' every three days.
- A control group of six 'teenage' rats did not receive THC.
- After 56 days, the now adult rats were allowed to self-administer heroin frequently. After a short while, they stabilised their daily intake at a certain level. The rats that had been on THC as 'teenagers' stabilised their heroin intake at a much higher level than the others. The THC 'teenagers' appeared to be less sensitive to the effects of heroin.

**8B** Which row in the table shows two features of the design which made the investigation more valid?

| | **Design features** | |
|---|---|---|
| **1** | use of teenage rats | use of an appropriate sample size |
| **2** | THC dose typical of human cannabis use | use of a control group |
| **3** | rats allowed to choose how much heroin to take | rats are suitable animals to use as substitutes for humans |
| **4** | heroin administration was similar to that in humans | heroin was provided only for adult rats |

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 22 · continued** March 2010 | BLY1AP | Original Q8 | Legacy

**8C** In what way could the design of the investigation be improved?

**1** carry out the investigation using humans instead of rats

**2** give the rats a larger dose of THC every day

**3** use groups with a larger number of rats

**4** use 'adult' rats instead of 'teenage' rats

**8D** Which conclusion can be drawn from this investigation?

**1** All humans who use cannabis as teenagers are likely to become addicted to heroin as adults.

**2** Only the rats given THC became addicted to heroin.

**3** Rats that were not given THC did not like the effects of heroin.

**4** There is evidence, but no proof, for a link between THC and heroin use in humans.

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

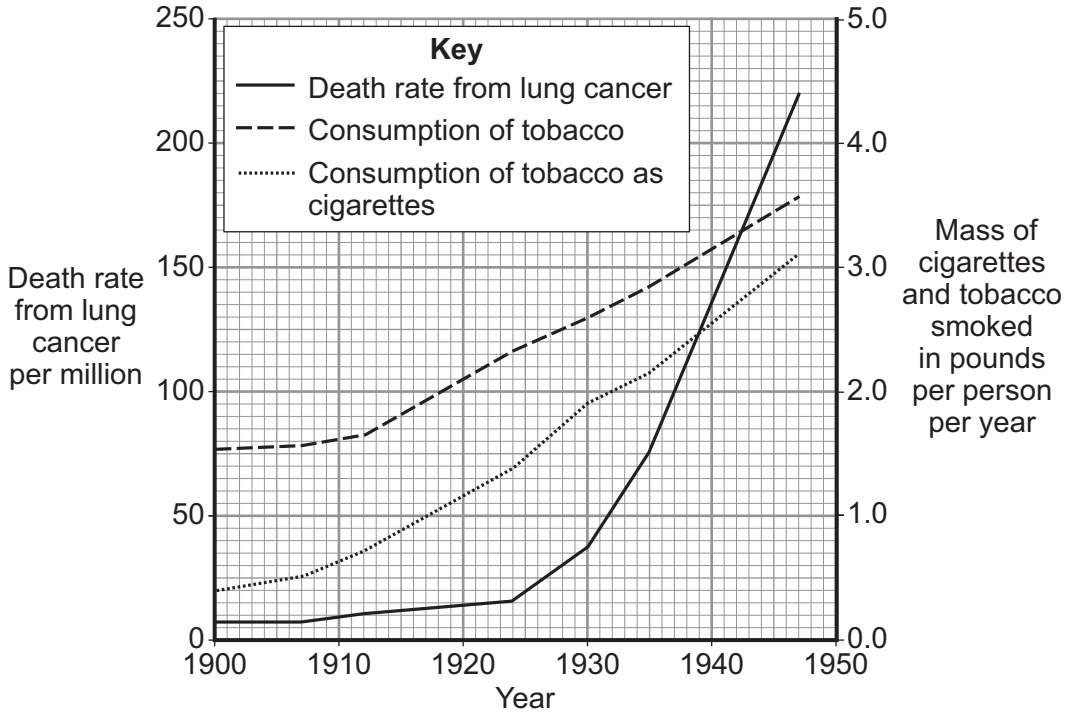
**Question 23**

June 2010 | BLY1AP | Original Q7 | Legacy

**QUESTION SEVEN**

In the 1950s, Richard Doll used surveys to investigate the causes of lung cancer.

The graph shows one set of data that he produced.




**7A** By how much did the consumption of tobacco as cigarettes increase between 1900 and 1947?

**1** 2.7 pounds per person per year

**2** 3.0 pounds per person per year

**3** 3.5 pounds per person per year

**4** 5.4 pounds per person per year

**7B** The death rate from lung cancer between 1900 and 1947 . . .

**1** increased at a constant rate.

**2** increased slowly at first, then more rapidly.

**3** increased rapidly at first, then more slowly.

**4** increased rapidly, then levelled off.

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 23 · continued** June 2010 | BLY1AP | Original Q7 | Legacy

Doll interviewed hospital patients about their smoking habits.

The table shows some of the results.

| Numbers of cigarettes smoked each day | 0 | 1–4 | 5–14 | 15–24 | 25 or more |
|---|---|---|---|---|---|
| Number of lung cancer patients | 2 | 12 | 36 | 27 | 21 |
| Number of patients with diseases other than lung cancer | 9 | 9 | 30 | 19 | 11 |

**7C** This data shows that . . .

**1** there is a possible link between smoking and lung cancer.

**2** there is no link between smoking and lung cancer.

**3** smoking causes lung cancer.

**4** smoking causes a wide range of diseases.

**7D** It took many years for Doll's work to be widely accepted by other doctors.

The main reason for this was that . . .

**1** his work mainly involved collecting statistics.

**2** large amounts of money were spent on tobacco advertising.

**3** interviews about smoking habits produce very unreliable data.

**4** many doctors were smokers.

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 24**

June 2019 | BLY1H | Original Q4 | Legacy

**4** Diet and exercise affect health.

**4 (a)** Many people are obese (very overweight).

Obesity can lead to heart disease.

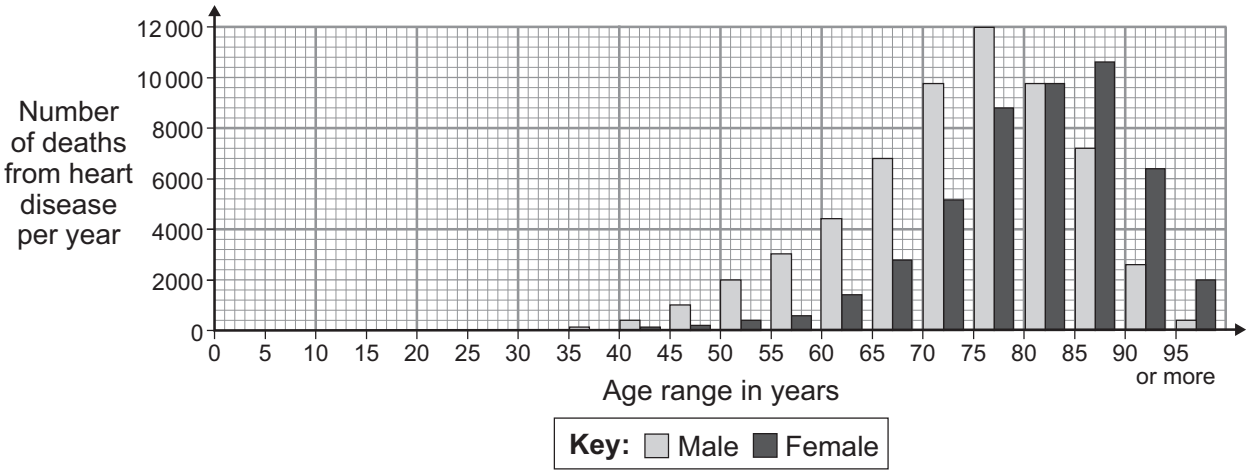
Other than heart disease, name **two** conditions which are linked to obesity.

1 .....

2 .....

*(2 marks)*

**4 (b)** The graph shows the number of deaths from heart disease each year in the UK.




The pattern for deaths from heart disease in men is different from the pattern in women.

**4 (b) (i)** Give **two** differences between the patterns for men and women.

1 .....

.....

2 .....

.....

*(2 marks)*

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 24 · continued**



**4 (b) (ii)** Suggest **two** reasons for the difference in the number of deaths from heart disease in men and women between the ages of 40 and 60.

1 .....

.....

2 .....

.....

*(2 marks)*

**4 (c)** Scientists have developed drugs to reduce the concentration of cholesterol in the blood.

Give the **three** main stages in testing a new drug before it is sold to the public.

1 .....

.....

2 .....

.....

3 .....

.....

*(3 marks)*

**9**

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 25**

November 2010 | BLY1AP | Original Q2 | Legacy

**QUESTION TWO**

Smoking damages your health.

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

**A** carbon monoxide

**B** carcinogen

**C** nicotine

**D** oxygen

| | |
|---|---|
| **1** | the addictive substance in tobacco smoke |
| **2** | a cancer-causing chemical in tobacco smoke |
| **3** | reduces the birth mass in babies |
| **4** | a fetus needs this substance |

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 26

November 2010 | BLY1AP | Original Q6 | Legacy

## QUESTION SIX

Most recreational drugs damage the body.

**6A** Heroin is addictive because . . .

**1** heroin produces withdrawal symptoms.

**2** heroin can change the chemical processes in the body.

**3** heroin affects the way the body responds to stimuli.

**4** people taking heroin have a gene that makes them addicted.

**6B** Most people who are addicted to heroin smoked cannabis before they started using heroin. However, the majority of people who smoke cannabis do not progress to using heroin.

Which is the most valid conclusion from this information?

**1** There is no link between smoking cannabis and becoming addicted to heroin.

**2** Regular cannabis smokers are not at any risk of progressing to heroin.

**3** All heroin addicts have smoked cannabis at some time.

**4** There may be a link between smoking cannabis and becoming addicted to heroin.

**6C** An athlete's performance can be affected for several hours after smoking a cigarette.

This is because . . .

**1** the blood is not carrying enough oxygen.

**2** there are carcinogens in tobacco smoke.

**3** reaction times are slower.

**4** smoking affects self-control.

**6D** Legal recreational drugs generally cause more ill-health than illegal recreational drugs because . . .

**1** legal drugs are more harmful.

**2** illegal drugs are used by fewer people.

**3** illegal drugs are addictive.

**4** only a doctor can prescribe legal drugs.

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 27**

November 2010 | BLY1AP | Original Q9 | Legacy

## QUESTION NINE

The amount of energy we need depends on age, gender and activity.

**9A** The table shows the mean energy needed per day by different people.

| Person | Mean energy needed per day in kJ | |
|---|---|---|
| | Male | Female |
| 6-year old | 7 500 | 7 500 |
| 16-year old | 13 000 | 10 000 |
| 30-year old office worker | 11 000 | 9 500 |
| 30-year old labourer | 16 000 | 13 500 |
| Pregnant woman | | 10 500 |

From the data in the table, which of the following has the biggest effect on the amount of energy needed by the body?

**1** your gender

**2** pregnancy

**3** how active you are

**4** how fit you are

**9B** Of the following, who needs least food?

People who . . .

**1** exercise little and live in cold climates.

**2** exercise a lot and live in warm climates.

**3** exercise little and live in warm climates.

**4** exercise a lot and live in cold climates.

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 27 · continued

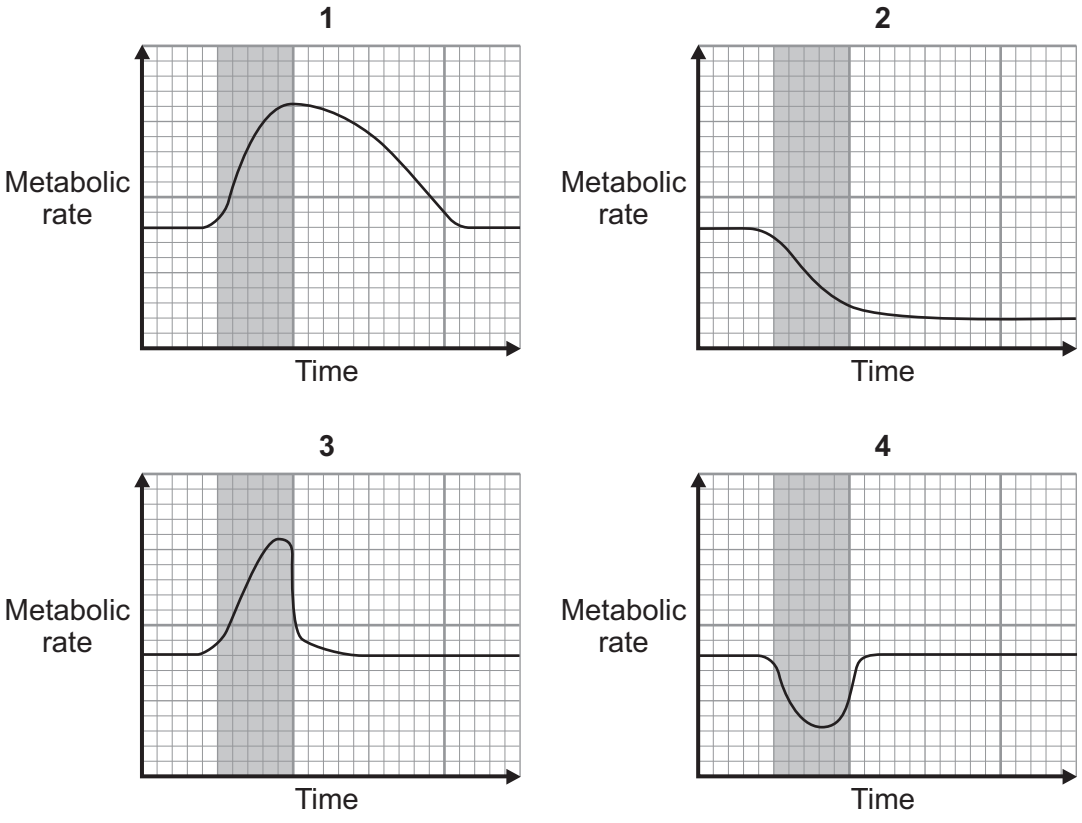


**9C** Some people take more energy into their body than they use.

Which row in the table shows diseases linked with this?

| | Arthritis | Cancer | Diabetes | Rubella | Deficiency diseases |
|---|---|---|---|---|---|
| 1 | ✓ | ✓ | | ✓ | |
| 2 | | | ✓ | | ✓ |
| 3 | ✓ | | ✓ | | |
| 4 | | ✓ | | ✓ | ✓ |

**9D** Which graph shows a person's metabolic rate, before, during and after a 20-minute period of exercise?




**Key:** 20-minute period of exercise

**END OF TEST**

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 28**

January 2011 | BLY1H | Original Q5 | Legacy

**5** Scientists estimate that about one third of cancers in the UK may be linked to obesity.

**5 (a)** Name **two** diseases linked to obesity.

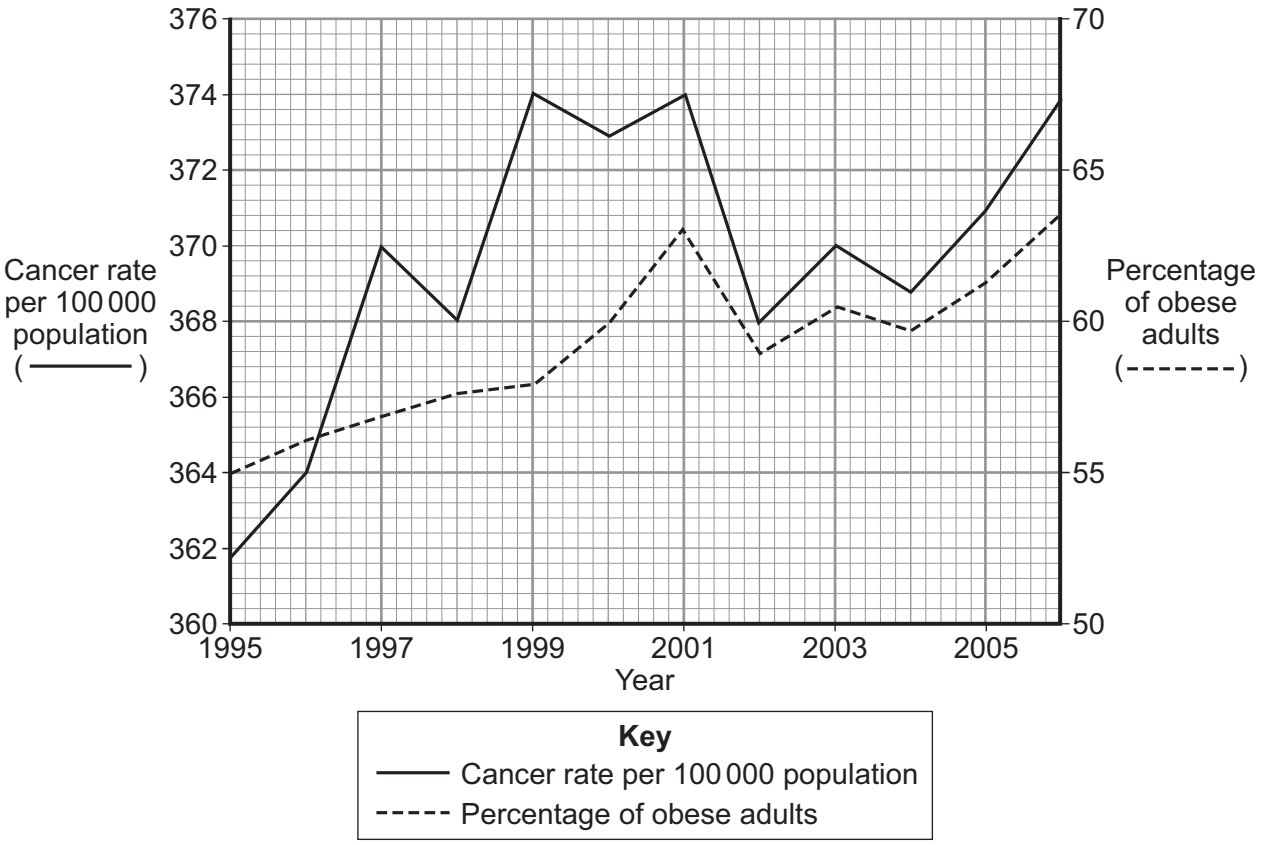
Do **not** give cancer as one of your answers.

1 .....

2 .....

*(2 marks)*

The graph shows the changes in the cancer rate and the changes in the percentage of obese adults in the UK from 1995 to 2006.



4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 28 · continued



**5 (b)** Does the data in the graph prove that obesity causes cancer?

Draw a ring round your answer. **Yes** / **No**

Explain the reason for your answer.

.....

.....

.....

.....

.....

*(2 marks)*

**5 (c)** Exercise helps a person to lose weight.

Explain why.

.....

.....

.....

.....

.....

*(2 marks)*

6

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 29**



**6** Many recreational drugs harm the body.

**6 (a)** Some people become dependent on a recreational drug.

What happens to people's bodies when they become dependent on a drug?

.....

.....

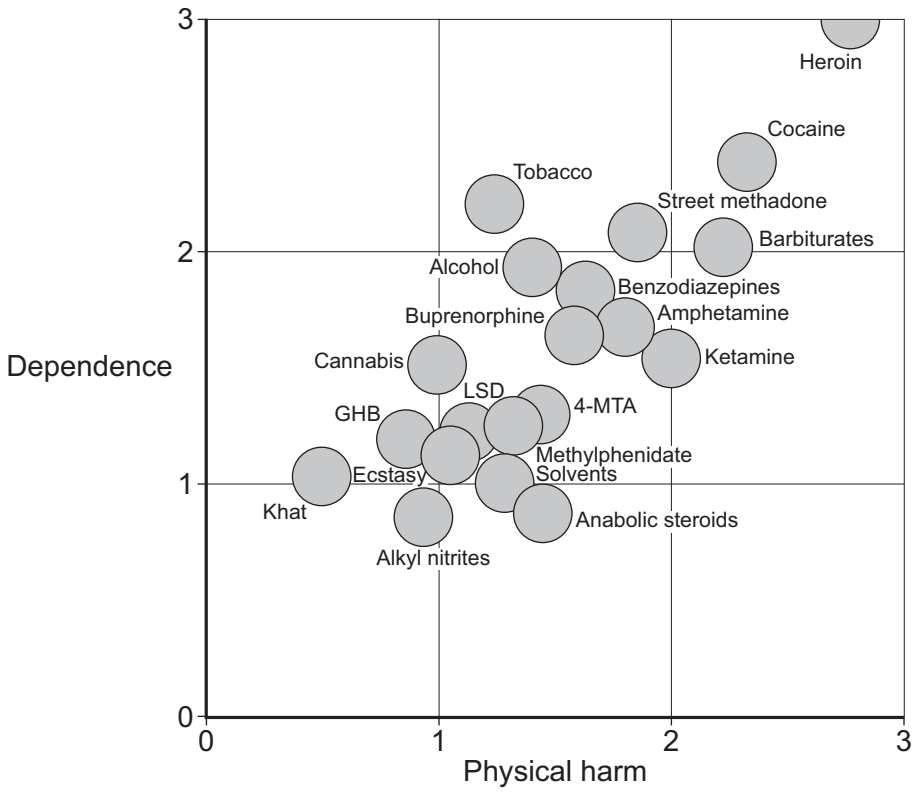
.....

.....

.....

*(2 marks)*

The scattergram shows the dependence and the physical harm caused by recreational drugs.



4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 29 · continued



**6 (b)** Describe fully the relationship between physical harm and dependence on a drug.

Use data from the scattergram to help you.

.....

.....

.....

.....

*(2 marks)*

**6 (c) (i)** Based on the data in the graph, would you expect the overall effect of alcohol on the health of the UK population to be more than the effect of heroin?

Draw a ring round your answer. **Yes** / **No**

Explain the reason for your answer.

.....

.....

*(1 mark)*

**6 (c) (ii)** In fact the overall effect of alcohol on the health of the UK population **is** much more than the effect of heroin.

Suggest an explanation for this.

.....

.....

.....

.....

.....

*(2 marks)*

7

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

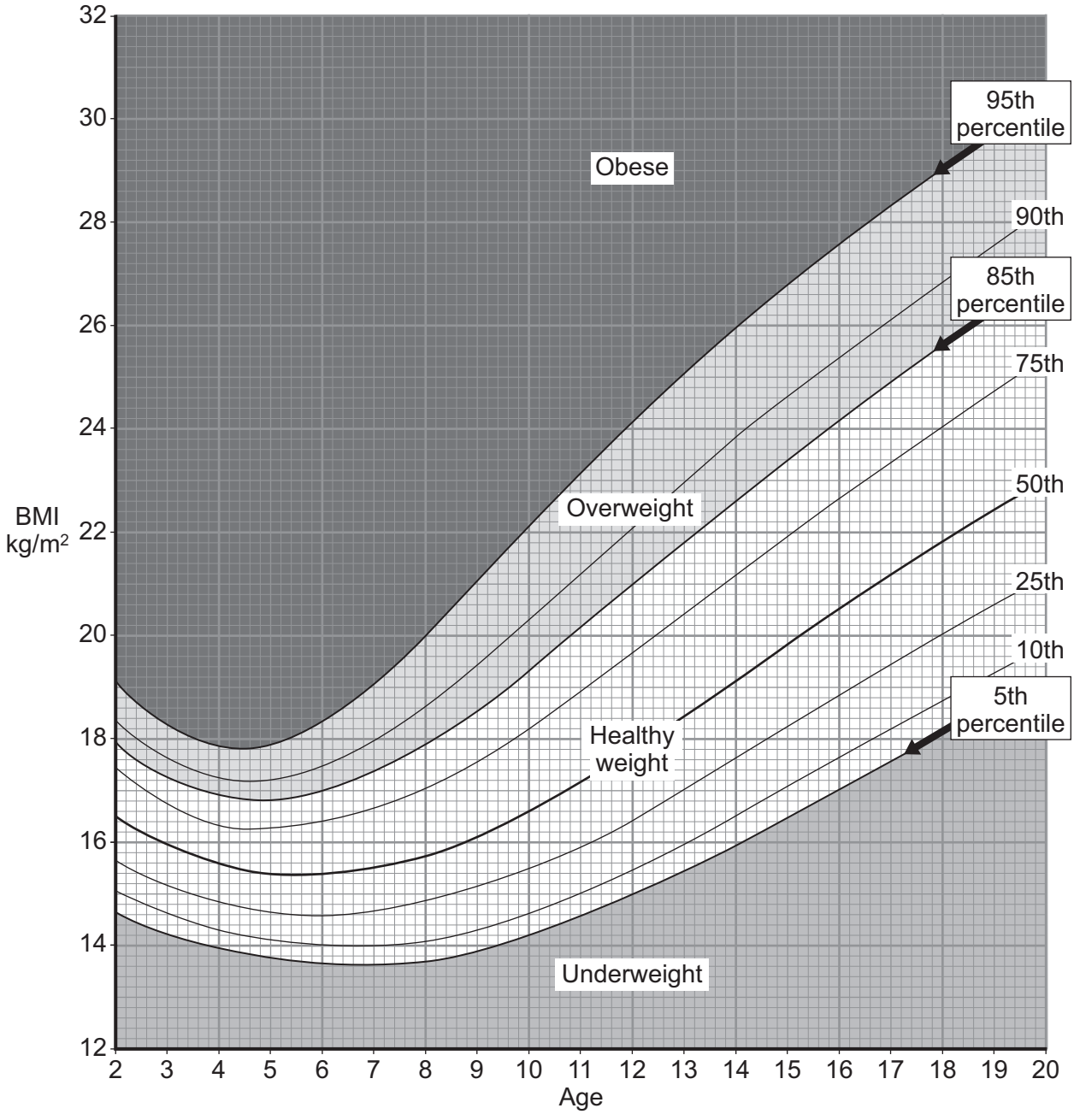
**Question 30**

March 2011 | BLY1AP | Original Q6 | Legacy

## QUESTION SIX

Body mass index (BMI) is a reliable indicator of body fatness for most people.
BMI is a number calculated from a person's mass and height.
The BMI number is plotted on a BMI-for-age growth chart. This chart compares a young person's BMI number with the BMI numbers of other young people of the same sex and age.

The lines obtained by this method are called percentiles. The graph shows the BMI percentiles for males aged from 2 to 20.



**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 30 · continued** March 2011 | BLY1AP | Original Q6 | Legacy

**6A** A 10-year-old male with a BMI of 21 is . . .

**1** obese.

**2** overweight.

**3** a healthy weight.

**4** underweight.

**6B** An 18-year-old male on the 75th percentile is . . .

**1** obese.

**2** overweight.

**3** a healthy weight.

**4** underweight.

**6C** The formula for calculating BMI is mass ÷ height$^2$.

From the shape of the curves on the graph, we can see that between the ages of 2 and 4 . . .

**1** height$^2$ and mass increase at the same rate.

**2** height$^2$ increases faster than mass.

**3** mass increases faster than height$^2$.

**4** a boy does not grow much.

**6D** The metabolic rate of a young male with a BMI of 34 is most probably . . .

**1** lower than average.

**2** greater than average.

**3** about average.

**4** about the same BMI as an adult.

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 31**

November 2011 | BLY1AP | Original Q2 | Legacy

**QUESTION TWO**

Our weight depends on:

- inherited factors
- the amount of exercise we take
- our diet.

If our energy intake is less than 3300 kJ a day, we slowly use muscle tissue rather than fat to get our energy.

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

**A** higher muscle to fat ratio

**B** obesity

**C** reduced cholesterol levels, decrease in weight

**D** very low metabolic rate, muscle loss

| | | |
|---|---|---|
| **1** | regular exercise | 2800 kJ per day, low fat diet |
| **2** | regular exercise | high energy, low fat diet |
| **3** | very little exercise | 2800 kJ per day, low fat diet |
| **4** | very little exercise | high energy, high fat diet |

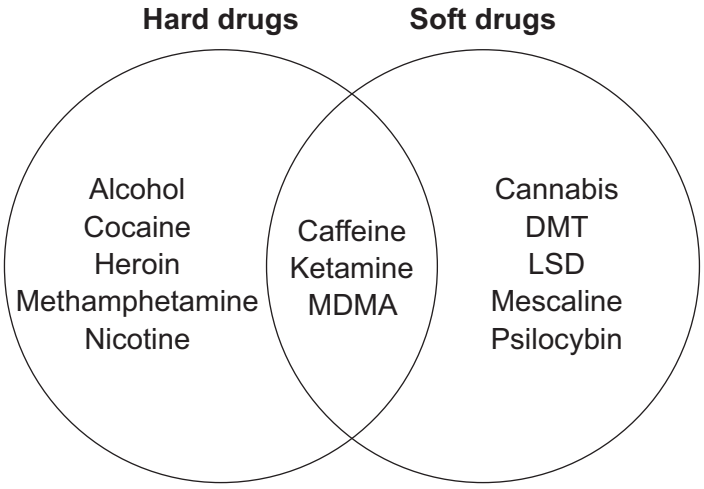
4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 32

November 2011 | BLY1AP | Original Q9 | Legacy

## QUESTION NINE

Most drugs can be classified as hard drugs or soft drugs.
The diagram shows the classification of some different drugs.




**9A** The diagram shows that . . .

**1** hard drugs are legal but soft drugs are illegal.

**2** all drugs can be classified as ‘hard’ or ‘soft’.

**3** hard drugs are illegal but soft drugs are legal.

**4** the classification of drugs depends on more than one factor.

**9B** People who smoke tobacco may have withdrawal symptoms when they try to give up smoking.

What is the cause of these symptoms?

**1** Regular smokers get used to the effects of nicotine so need more nicotine to get the same effect.

**2** People who give up smoking often feel sick, may shake and put on weight.

**3** Nicotine causes changes in chemical processes of the body.

**4** Tobacco smoke contains carcinogenic substances which damage cells in the lungs.

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 32 · continued** November 2011 | BLY1AP | Original Q9 | Legacy

The table shows some of the symptoms of giving up smoking.

| Symptom | How long the symptom lasts after giving up smoking |
|---|---|
| Anxiety | 2–4 weeks |
| Decreased heart rate | More than 10 weeks |
| Depression | Less than 3 weeks |
| Increased aggression | 4 weeks |
| Increased appetite | More than 10 weeks |
| Restless sleep | Less than 1 week |
| Poor concentration | 1 week |

**9C** Which conclusion does the information in the table support?

**1** Smoking may help you to lose weight.

**2** Smoking makes concentration worse.

**3** Smoking makes someone more aggressive.

**4** Smoking tends to slow down the heart rate.

**9D** Which row in the table shows the symptoms that may last for at least three weeks after giving up smoking?

| | Symptom | | | | |
|---|---|---|---|---|---|
| | **Anxiety** | **Decreased heart rate** | **Depression** | **Increased aggression** | **Restless sleep** |
| **1** | ✓ | | ✓ | ✓ | |
| **2** | | ✓ | | ✓ | ✓ |
| **3** | | | ✓ | ✓ | ✓ |
| **4** | ✓ | ✓ | | ✓ | |

**END OF TEST**

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 33**

June 2016 | BL1HP | Original Q1 | Legacy

**1** Nicotine and alcohol are drugs that affect the brain.

**1 (a) (i)** What is the correct description of both nicotine and alcohol?

**[1 mark]**

Tick (✓) **one** box.

- illegal, medical drugs ☐
- illegal, recreational drugs ☐
- legal, medical drugs ☐
- legal, recreational drugs ☐

**1 (a) (ii)** Why do people find it difficult to stop smoking?

**[1 mark]**

_____

_____

**1 (b)** A drug company has developed a new drug which helps people to stop smoking. The new drug prevents the feeling of pleasure caused by nicotine in the smoke.

The new drug is now being tested on rats which have been given a lot of alcohol to drink.
The company wants to find out if the drug can help people to stop drinking alcohol.

**1 (b) (i)** It is important that the tests on rats are done by an independent company.

What is meant by an independent company?

**[1 mark]**

_____

_____

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 33 · continued**



**1 (b) (ii)** Why is it important that the tests are done by an independent company?

**[1 mark]**

**1 (b) (iii)** Some scientists believe that the part of the brain sensitive to alcohol is the same as the part of the brain sensitive to nicotine.

Explain why the new drug might be useful for treating people who find it difficult to stop drinking alcohol.

**[2 marks]**

**Question 1 continues on the next page**

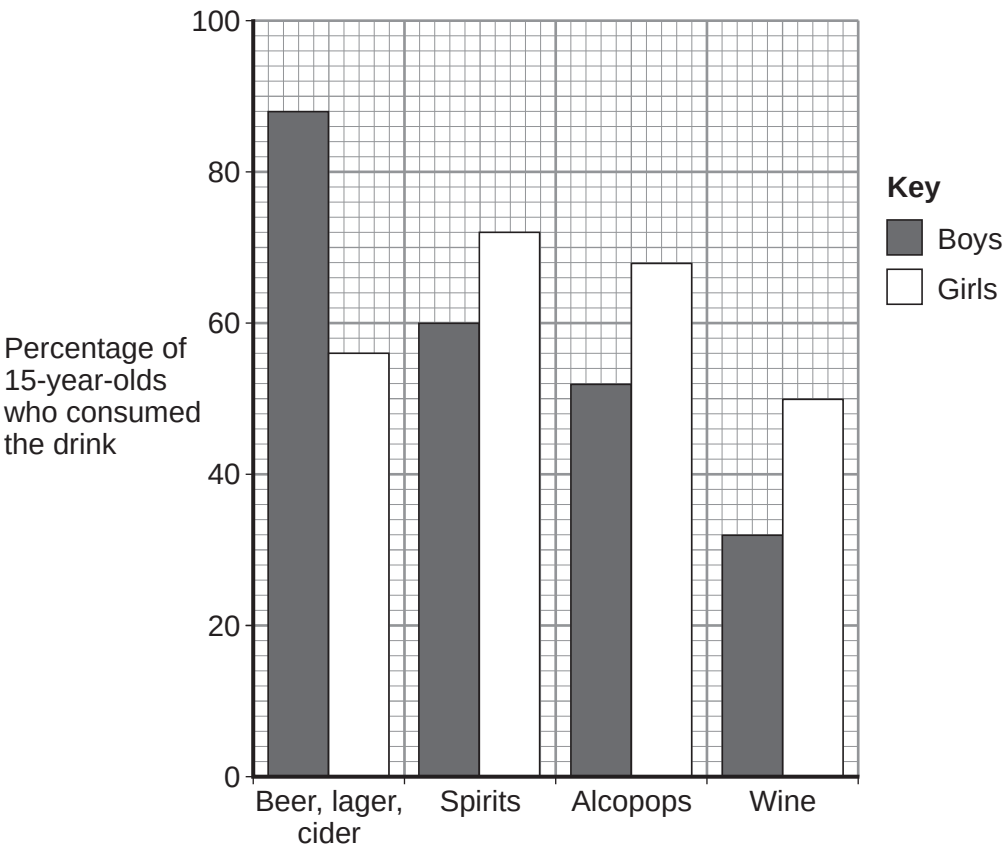
**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 33 · continued**



**1 (c)** **Figure 1** shows the results of a survey into the different types of alcoholic drinks consumed by one hundred 15-year-old boys and one hundred 15-year-old girls in the UK.

**Figure 1**




**1 (c) (i)** Describe the differences between the **types** of alcoholic drink consumed by boys and by girls.

Use **only** information from **Figure 1**.

**[2 marks]**

**1 (c) (ii)** A newspaper headline stated:

**"All boys drink alcohol"**

Use information from part **(c)** and **Figure 1** to give **one** reason why the newspaper headline may **not** be correct.

**[1 mark]**

9

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 34**

November 2020 | 8461/1H | Original Q6

**0 6** Data from 'The Million Women' survey in the UK was collected for over 15 years.

Scientists analysed the data to study the effect of consuming alcohol on liver disease.

The scientists:

- included 400 000 women who regularly consumed alcohol
- included 400 000 women who did **not** consume alcohol
- excluded women who already had a liver disease.

**0 6 . 1** Age and gender were two factors controlled in this analysis.

Many other factors were also controlled.

Suggest **two** other factors which the scientists would have controlled.

**[2 marks]**

1 _____

_____

2 _____

_____

**Question 6 continues on the next page**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 34 · continued



The data was analysed for:

- women who drank alcohol with meals
- women who drank alcohol **not** with meals
- women who did **not** drink alcohol.

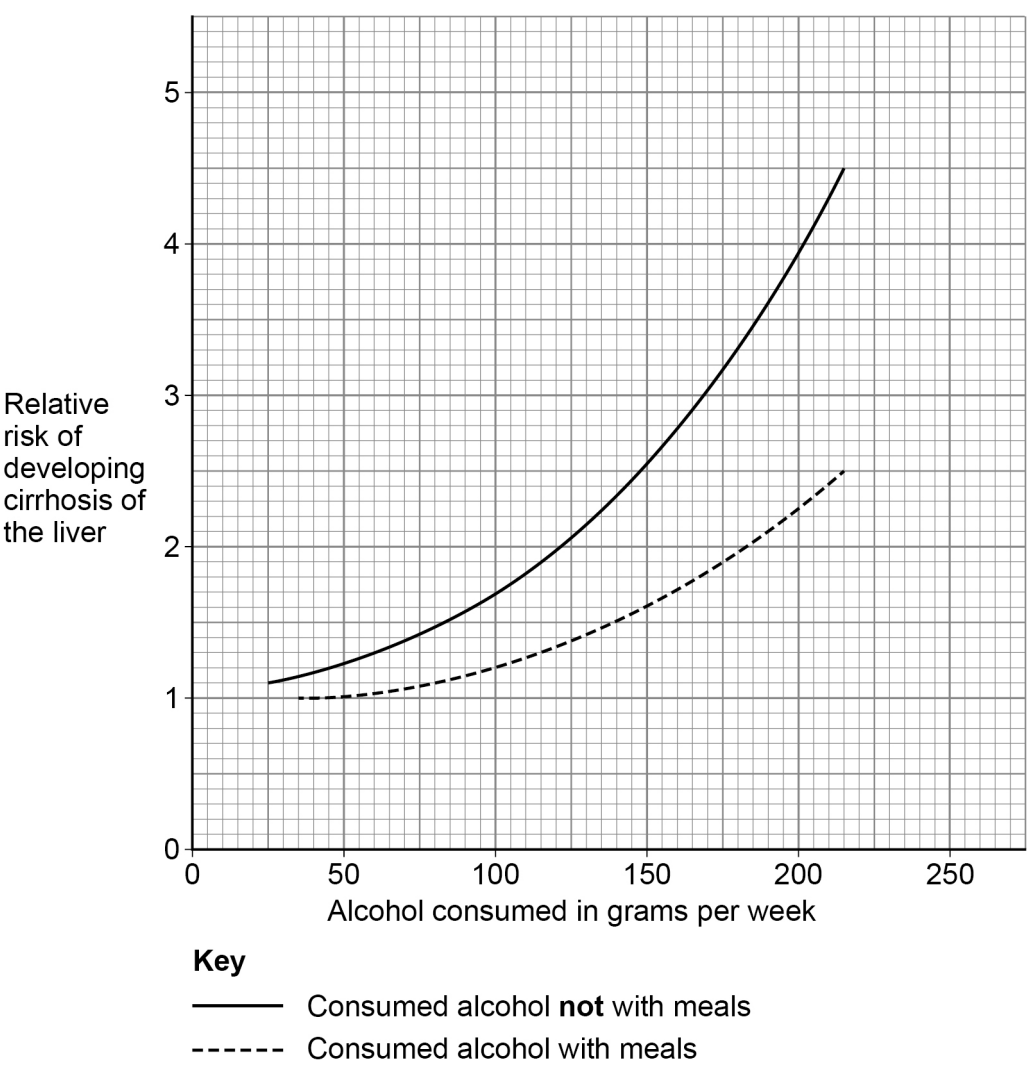
During the survey approximately 1500 women developed a liver disease called cirrhosis of the liver.

Scientists calculated the relative risk of developing cirrhosis of the liver for each group who consumed alcohol.

A relative risk of 1.0 means there was no statistical difference between the groups who did consume alcohol and the group who did **not** consume alcohol.

**Figure 10** shows a summary of the results.

**Figure 10**



4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 34 · continued



**0 6 . 2** A woman drinks 150 g of alcohol per week **not** with meals.

The woman decides to change to drinking 150 g of alcohol per week with meals.

Calculate the percentage decrease in relative risk of developing cirrhosis of the liver for this woman.

**[2 marks]**

Percentage decrease = _____ %

**0 6 . 3** One glass of wine contains 12 g of alcohol.

A different woman drinks two glasses of wine each day with her meals.

Calculate the relative risk of developing cirrhosis of the liver for this woman.

**[2 marks]**

Relative risk = _____

**Question 6 continues on the next page**

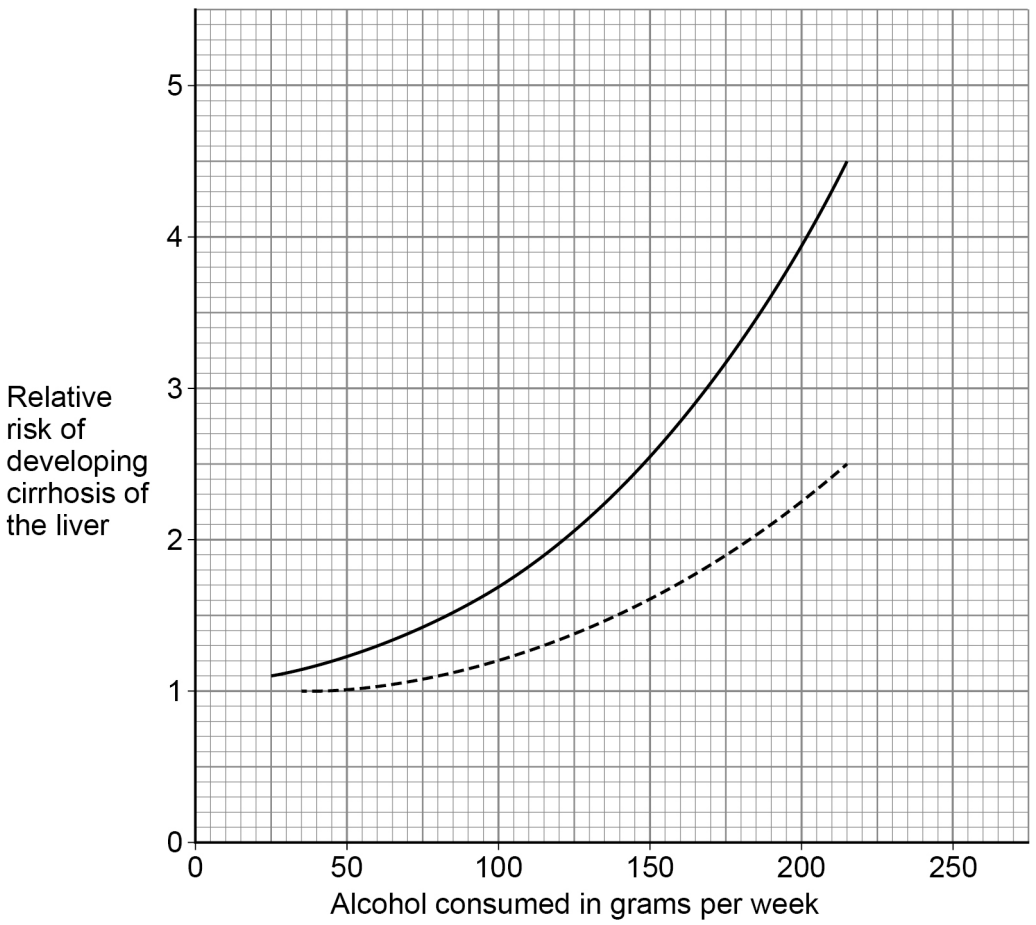
4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 34 · continued



**Figure 10** is repeated below.

**Figure 10**




**0 6 . 4** Consuming alcohol with meals instead of not with meals decreases the relative risk of developing cirrhosis of the liver.

Give **two** other conclusions about the relative risk of developing cirrhosis of the liver related to alcohol consumption.

Use data from **Figure 10** in your answer.

**[2 marks]**

1 _____

_____

_____

2 _____

_____

_____

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 34 · continued

November 2020 | 8461/1H | Original Q6

**0 6 . 5** Suggest **two** reasons why the data is considered to be valid.

**[2 marks]**

1 _____

_____

2 _____

_____

**0 6 . 6** Suggest **one** aspect of the survey which might reduce validity.

**[1 mark]**

_____

_____

**0 6 . 7** Cirrhosis of the liver leads to liver failure.

Describe the effects of liver failure on the human body.

**[4 marks]**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

15

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 35

November 2021 | 8461/1H | Original Q3

**0 3** Body Mass Index (BMI) is a way of finding out if a person's body mass falls within a healthy range for their height.

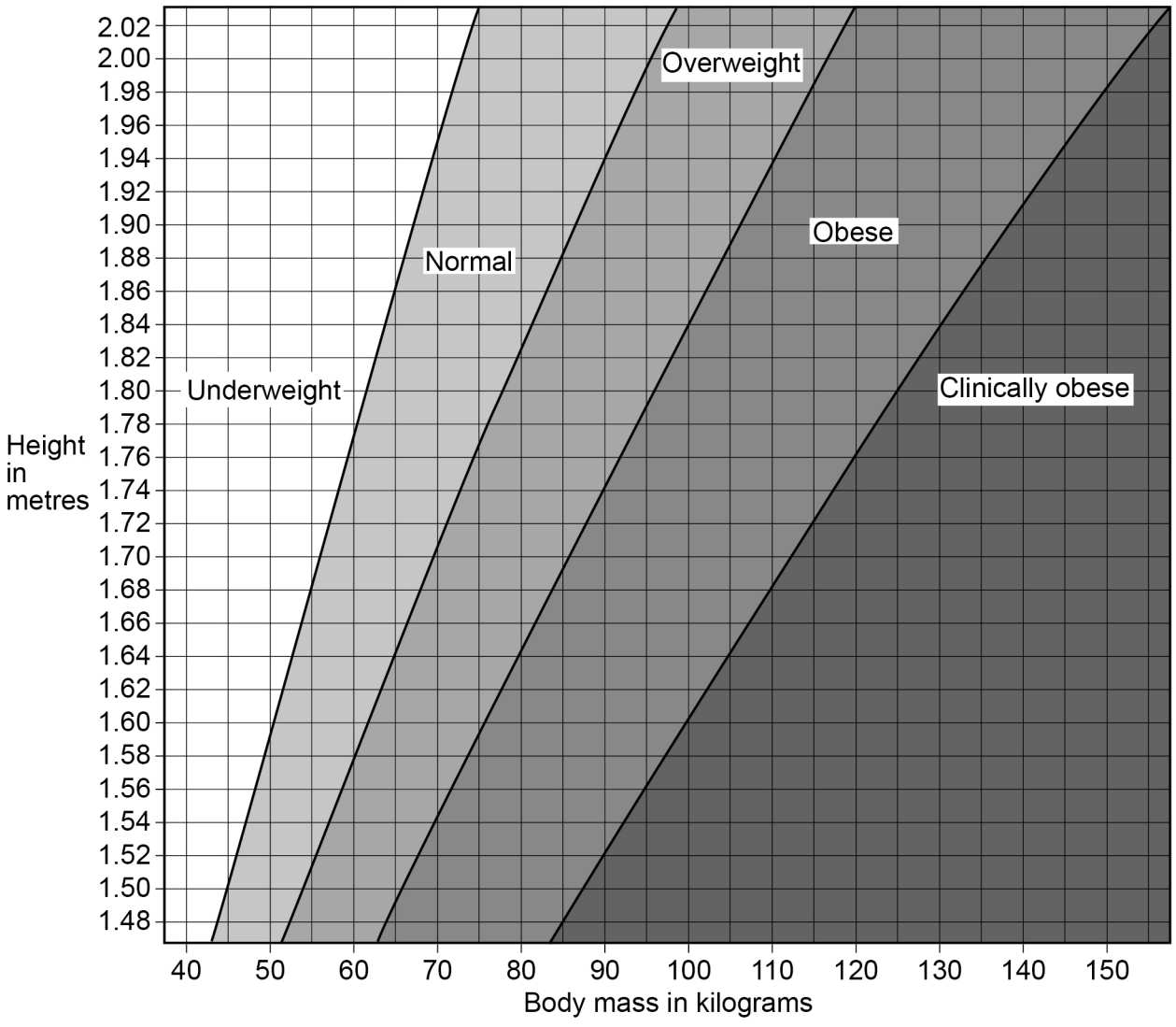
**Table 1** shows information about two people.

**Table 1**

| Person | Body mass in kg | Height in m | BMI in kg/m$^2$ |
|---|---|---|---|
| **A** | 63 | 1.65 | 23.1 |
| **B** | 92 | 1.71 | **X** |

**Figure 5** shows five BMI categories for adults.

**Figure 5**



4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 35 · continued



**0 3 . 1** Which is the BMI category of person **A** in **Table 1**?

**[1 mark]**

Tick (✓) **one** box.

- Clinically obese ☐
- Normal ☐
- Obese ☐
- Overweight ☐
- Underweight ☐

**0 3 . 2** Calculate value **X** in **Table 1**.

Use the equation:

$$\text{BMI} = \frac{\text{body mass}}{\text{height}^2}$$

Give your answer to 3 significant figures.

**[3 marks]**

**X** = _____ kg/m$^2$

**Question 3 continues on the next page**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 35 · continued



Scientists think there is a link between BMI and life expectancy.

**Table 2** shows information about predicted life expectancy of men after the age of 50.

**Table 2**

| BMI Category | Predicted number of years living in good health after the age of 50 | Predicted number of years living in bad health after the age of 50 |
|---|---|---|
| Normal | 19.06 | 4.98 |
| Overweight | 18.68 | 5.32 |
| Obese | 16.37 | 7.08 |
| Clinically obese | 13.07 | 10.10 |

**0 3 . 3** Describe **two** patterns shown in **Table 2** about the effects of BMI category.

**[2 marks]**

1 _____

_____

_____

2 _____

_____

_____

**4.2.2.6 The effect of lifestyle on some non-communicable diseases**

**Question 35 · continued**



The number of people who are obese in the UK is increasing.

**0 3 . 4** Explain the financial impact on the UK economy of an increasing number of people who are obese.

**[2 marks]**

**0 3 . 5** A person who is obese is more at risk of arthritis.

Arthritis is a condition that damages joints.

Suggest how arthritis could affect a person's lifestyle.

**[1 mark]**

**0 3 . 6** A person who eats a diet high in saturated fat might become obese.

Name **two** health conditions that might develop if a person eats a diet high in saturated fat.

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

**[2 marks]**

1

2

**11**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

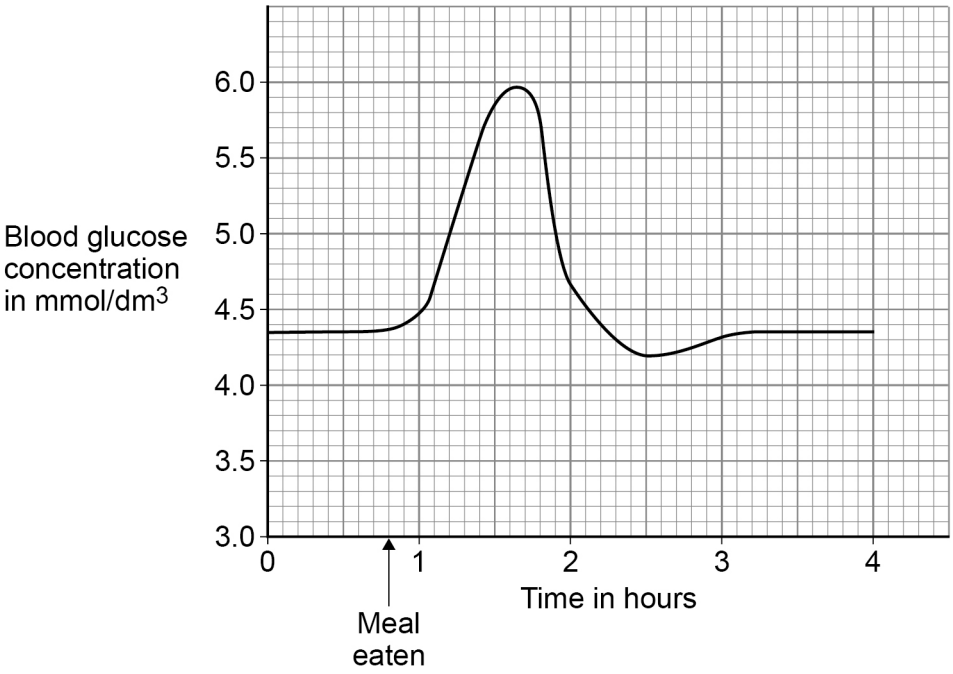
Question 36

June 2022 | 8461/2H | Original Q3

**0 3** It is important to control the concentration of glucose in the blood.

**Figure 2** shows how the concentration of glucose in the blood of a person changed over 4 hours.

**Figure 2**




**0 3 . 1** Give **one** time when the concentration of **insulin** in the person's blood would be high.

Use **Figure 2**.

**[1 mark]**

Time = _____ hours

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 36 · continued



**0 3 . 2** Explain the effect a high concentration of insulin has on blood glucose concentration.

**[3 marks]**

Effect _____

Explanation _____

_____

_____

_____

**Question 3 continues on the next page**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 36 · continued

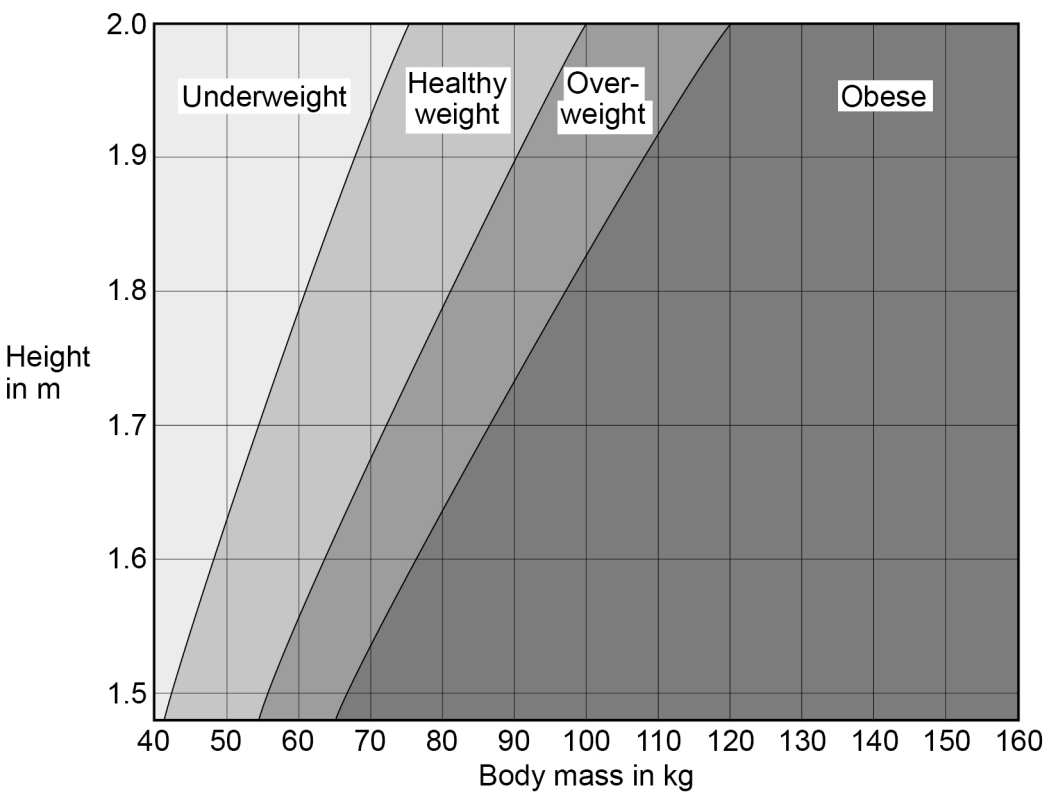


People with diabetes have difficulty controlling the concentration of glucose in their blood.

Type 2 diabetes is linked to obesity.

**Figure 3** shows how to find if an adult's body mass is healthy for their height.

**Figure 3**



4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 36 · continued



**0 3 . 3** Person **A**:

- is 1.75 m in height
- has a body mass of 52 kg.

What is person **A**'s weight category?

**[1 mark]**

Tick (✓) **one** box.

Underweight ☐

Healthy weight ☐

Overweight ☐

Obese ☐

**0 3 . 4** Person **B** is 1.9 m in height.

Give the range of body masses that would put person **B** in the healthy weight category.

**[1 mark]**

Range from _____ kg to _____ kg

**Question 3 continues on the next page**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 36 · continued



**0 3 . 5** Person **C** is obese.

A doctor thinks that person **C** has Type 2 diabetes.

The doctor tests a sample of blood from person **C**.

**Table 2** shows:

- the results of the blood test
- the mean results for people who do **not** have diabetes.

**Table 2**

| | Concentration in blood | |
|---|---|---|
| | **Person C** | **Mean for people who do not have diabetes** |
| Cholesterol in mmol/dm$^3$ | 6.21 | 5.20 |
| Glucose in mmol/dm$^3$ | 9.56 | 4.51 |
| Insulin in arbitrary units | 24.32 | 14.83 |

Type 2 diabetes occurs when body cells have a reduced response to insulin.

Give **two** ways the results of the blood test show that person **C** might have Type 2 diabetes.

**[2 marks]**

1 _____

_____

2 _____

_____

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 36 · continued



**0 3 . 6** Give **two** ways that a person can reduce the chance of developing Type 2 diabetes.

**[2 marks]**

1 _____

_____

2 _____

_____

10

**Turn over for the next question**

### 4.2.2.6 The effect of lifestyle on some non-communicable diseases

**Question 37**

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]**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 37 · 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**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 37 · 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.

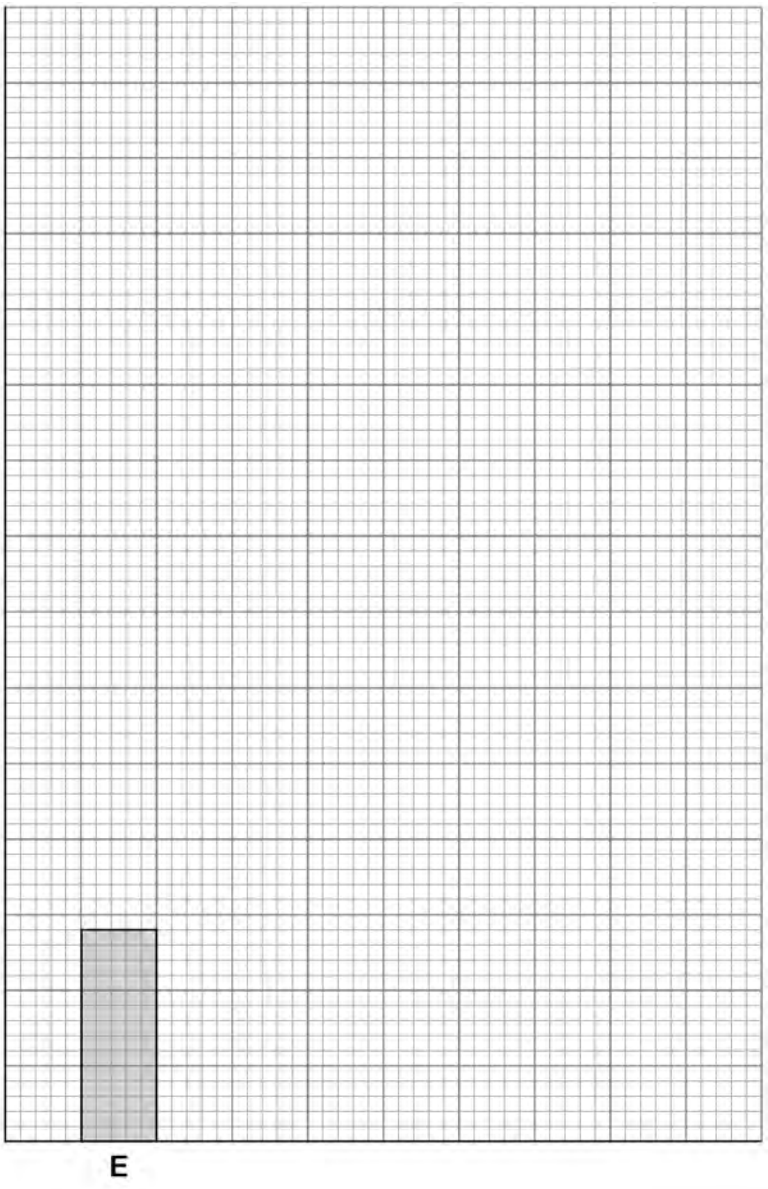
**[4 marks]**

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 37 · 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

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 38



**0 2** Eating too much carbohydrate can cause obesity.

**0 2 . 1** Name **one** disease that obesity is a risk factor for.

**[1 mark]**

**Table 1** shows information about sugar intake and obesity in different countries.

**Table 1**

| Country | Mean sugar intake per person per day in grams | Mean obesity rate in arbitrary units |
|---|---|---|
| **A** | 122 | 18 |
| **B** | 80 | 9 |
| **C** | 172 | 25 |
| **D** | 150 | 23 |
| **E** | 110 | 15 |
| **F** | 144 | 19 |
| **G** | 192 | 32 |

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 38 · continued



**0 2 . 2** Complete **Figure 2**.

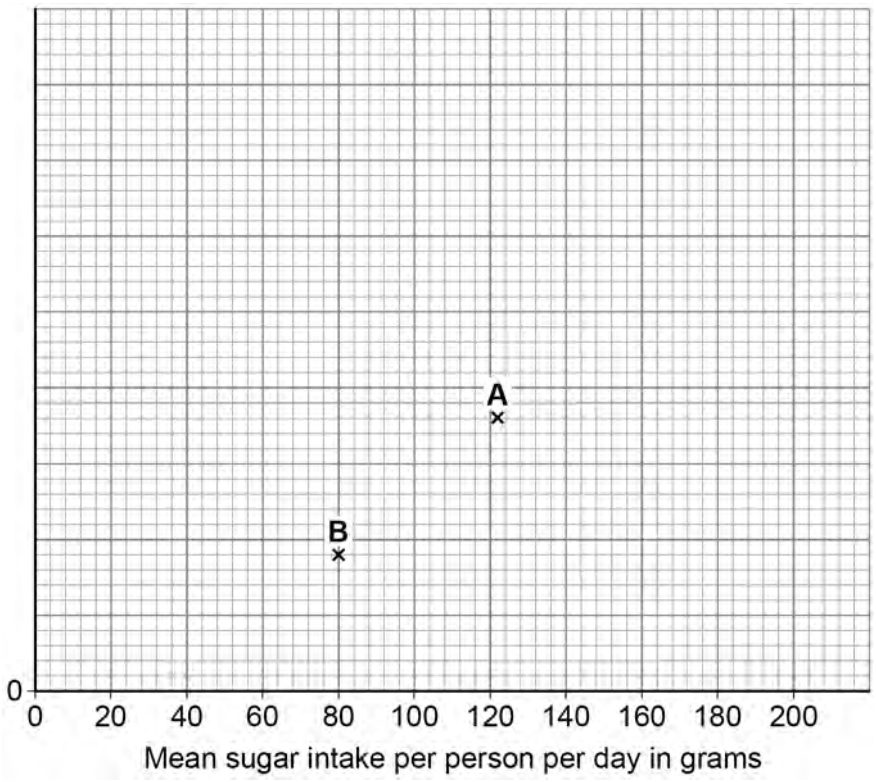
You should:

- label the *y*-axis
- add the scale for the *y*-axis
- plot the data for countries **C**, **D**, **E**, **F** and **G** from **Table 1**
- draw a line of best fit.

Countries **A** and **B** have been completed for you.

**[4 marks]**

**Figure 2**




**Question 2 continues on the next page**

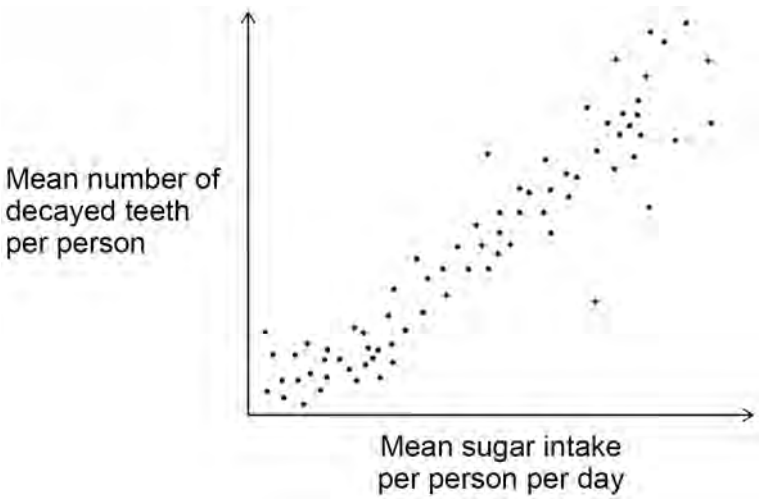
4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 38 · continued



**Figure 3** shows information about the relationship between sugar intake and tooth decay.

**Figure 3**




**0 2 . 3** Name the type of graph shown in **Figure 3**.

**[1 mark]**

**0 2 . 4** What relationship is shown between the two variables in **Figure 3**?

**[1 mark]**

Tick (✓) **one** box.

Inversely proportional ☐

No correlation ☐

Positive correlation ☐

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 38 · continued



Sugars and starch are carbohydrates.

A student investigated the effect of temperature on the activity of amylase.

For each temperature, the student:

- mixed starch and amylase together
- added iodine solution after 5 minutes.

The iodine solution was yellow-brown before it was added to the mixture.

**Table 2** shows the results.

**Table 2**

| Temperature in °C | Colour of iodine solution |
|---|---|
| 10 | blue-black |
| 30 | yellow-brown |
| 60 | blue-black |
| 90 | blue-black |

**0 2 . 5** Explain the results at 30 °C and at 90 °C.

**[4 marks]**

30 °C _____

_____

_____

_____

90 °C _____

_____

_____

_____

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 38 · continued



**0 2 . 6** How could the student change the investigation to find a more precise temperature that amylase works best at?

**[1 mark]**

Tick (✓) **one** box.

Test more temperatures between 10 °C and 30 °C. ☐

Test more temperatures between 10 °C and 60 °C. ☐

Test more temperatures between 30 °C and 60 °C. ☐

Test more temperatures between 30 °C and 90 °C. ☐

**0 2 . 7** Protease enzymes are involved in protein digestion.

Different types of protease enzyme are active in different organs of the digestive system.

Complete **Table 3** to identify the organ where each protease enzyme is active.

**[2 marks]**

**Table 3**

| Protease enzyme | Optimum pH | Organ where enzyme is active |
|---|---|---|
| Pepsin | 2 | |
| Trypsin | 8 | |

14

4.2.2.6 The effect of lifestyle on some non-communicable diseases

Question 39



**0 9** Type 2 diabetes is a condition that has become more common in recent years.

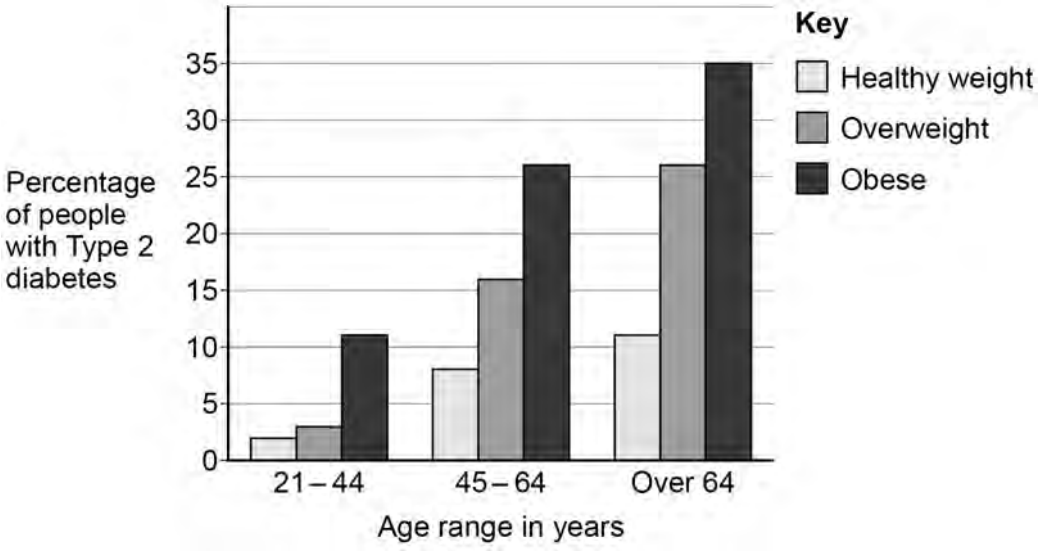
**0 9 . 1** Scientists recorded the percentage of people of different ages who had Type 2 diabetes.

The people were in different weight categories:

- healthy weight
- overweight
- obese.

**Figure 10** shows the results.

**Figure 10**




Give **two** conclusions from the results in **Figure 10**.

**[2 marks]**

1 _____

_____

2 _____

_____

**Question 9 continues on the next page**

Question 39 · continued



Two groups of scientists investigated the use of different drugs to treat Type 2 diabetes.

In both investigations, the scientists measured the percentage of haemoglobin with glucose attached (Hb-G).
This showed the long-term concentration of glucose in the blood.

**Investigation 1:**

The scientists injected drug **A** into 175 patients with Type 2 diabetes once each day for 12 weeks.

**Table 4** shows the results.

**Table 4**

| | Mean value | |
|---|---|---|
| | **At start** | **At 12 weeks** |
| Percentage (%) of haemoglobin with glucose attached (Hb-G) | 9.2 | 7.6 |

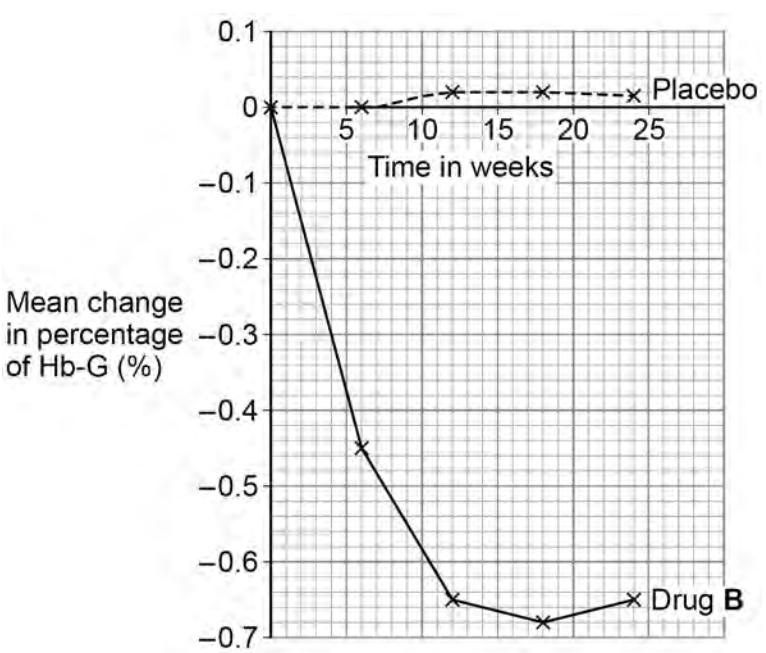
**Investigation 2:**

631 patients with Type 2 diabetes took one tablet containing drug **B** each day.
A control group of 630 patients took a placebo tablet each day.

The scientists measured the Hb-G in each patient's blood at the start of the investigation and at 6-week intervals up to 24 weeks.

**Figure 11** shows the results.

**Figure 11**



**0 9 . 2** For the patients treated with drug **B** the mean percentage of Hb-G at the start was 8.3%.

What was the mean percentage of Hb-G after 12 weeks for the patients treated with drug **B**?

**[1 mark]**

Tick (✓) **one** box.

0.65% ☐ 0.75% ☐ 7.65% ☐ 8.95% ☐

**0 9 . 3** In a person **without** diabetes, the Hb-G value is between 4.5% and 6%.

When treating patients with Type 2 diabetes, doctors think that an Hb-G value <7% is acceptable.

Evaluate:

- the methods used in the investigations
- the usefulness of drug **A** and drug **B** for controlling Type 2 diabetes.

**[6 marks]**

Extra space