AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.3.1.1

Communicable (infectious) diseases

Past-paper questions

Tier	**Foundation**
Question groups	**8**
Available paper years	**2018–2025**

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.

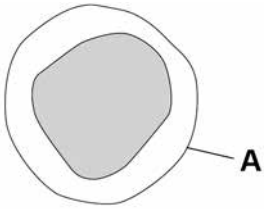
4.3.1.1 Communicable (infectious) diseases

Question 01

June 2018 | 8464/B/1F | Original Q1

0 1 **Figure 1** shows one type of white blood cell.

Figure 1



0 1 . 1 What is structure **A**?

[1 mark]

Tick **one** box.

- Cell membrane ☐
- Cell wall ☐
- Cytoplasm ☐
- Nucleus ☐

0 1 . 2 White blood cells help to defend the body against pathogens.

How do the white blood cells do this?

[3 marks]

Tick **three** boxes.

- Clone pathogens ☐
- Engulf pathogens ☐
- Produce antibiotics ☐
- Produce antibodies ☐
- Produce antitoxins ☐
- Produce toxins ☐

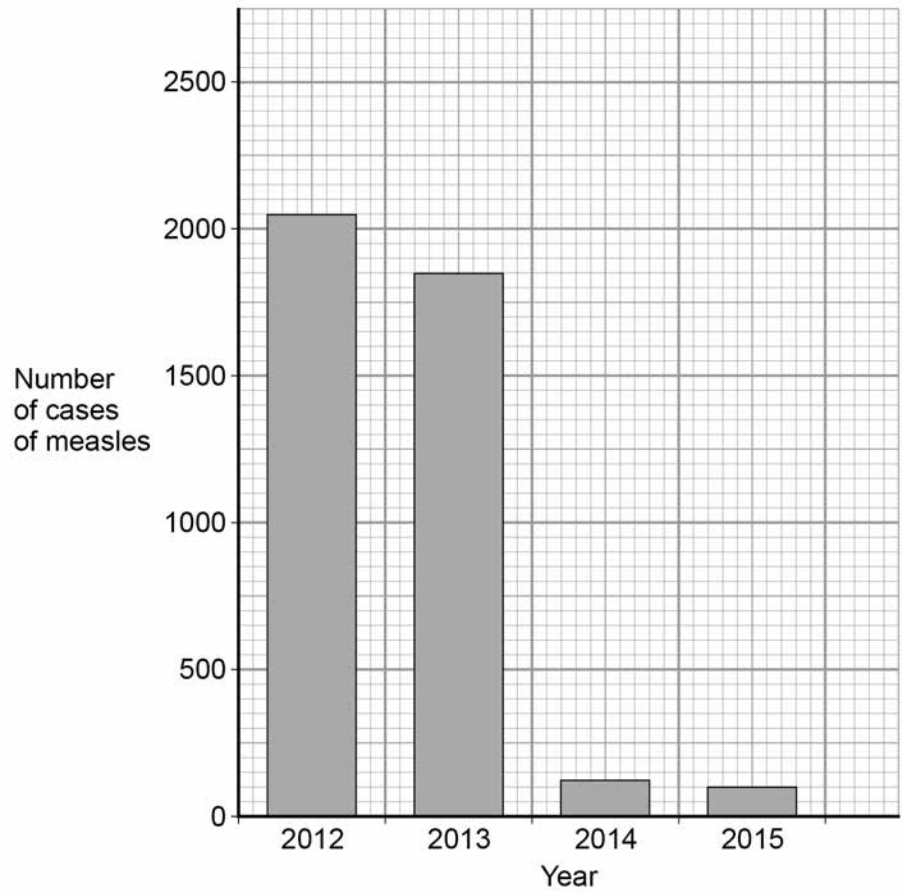
4.3.1.1 Communicable (infectious) diseases

Question 01 · continued

Measles is a serious disease. A person can die from measles.

Figure 2 shows the number of cases of measles in England and Wales between 2012 and 2015

Figure 2



0 1 . 3 Use **Figure 2** to calculate the decrease in the number of cases of measles between 2012 and 2015

[2 marks]

Answer = _____ cases

0 1 . 4 Suggest **one** reason for the decrease in the number of cases of measles between 2012 and 2015

[1 mark]

4.3.1.1 Communicable (infectious) diseases

Question 01 · continued

0 1 . 5 Antibiotics **cannot** be used to treat measles.

Suggest why.

[1 mark]

0 1 . 6 Gonorrhoea is a disease caused by a bacterium.

Gonorrhoea **can** be treated with antibiotics.

Give **one** other way to control the spread of gonorrhoea.

[1 mark]

A scientist investigated how effective different antibiotics were at killing gonorrhoea bacteria.

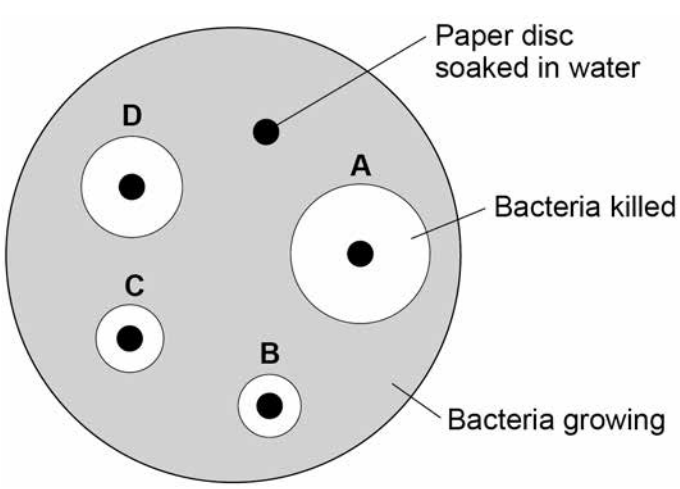
This is the method used.

1. Grow gonorrhoea bacteria on agar in a Petri dish.
2. Place one paper disc soaked in water onto the agar.
3. Place four other paper discs, each soaked in a different antibiotic, **A**, **B**, **C**, and **D**, onto the agar.
4. Use the same sized paper discs and the same concentration of each antibiotic.
5. Incubate the Petri dish for 3 days.

Figure 3 shows the scientist's results.

A clear area around the disc means the antibiotic has killed the bacteria.

Figure 3



4.3.1.1 Communicable (infectious) diseases

Question 01 · continued

0 1 . 7 Give **one** control variable the scientist used.

[1 mark]

0 1 . 8 Suggest why **one** disc was soaked in water.

[1 mark]

0 1 . 9 Which antibiotic in **Figure 3** would be the best to treat gonorrhoea?

Give a reason for your answer.

[2 marks]

Antibiotic

Reason

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4.3.1.1 Communicable (infectious) diseases

Question 02

June 2018 | 8464/B/1F | Original Q7

0 7 Coronary heart disease (CHD) is a non-communicable disease.

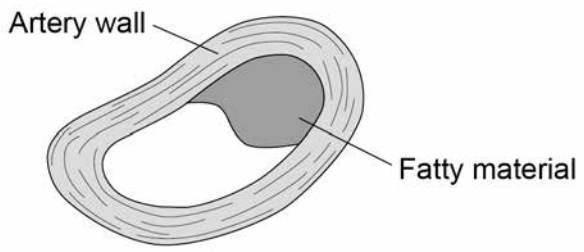
CHD is caused when fatty material builds up in the coronary arteries.

0 7 . 1 Explain what a non-communicable disease is.

[2 marks]

Figure 14 shows a coronary artery of someone with CHD.

Figure 14



0 7 . 2 Explain how CHD can cause a heart attack.

[3 marks]

Question 7 continues on the next page

4.3.1.1 Communicable (infectious) diseases

Question 02 · continued

June 2018 | 8464/B/1F | Original Q7

0 7 . 3 Explain how lifestyle and medical risk factors increase the chance of developing CHD.

[6 marks]

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4.3.1.1 Communicable (infectious) diseases

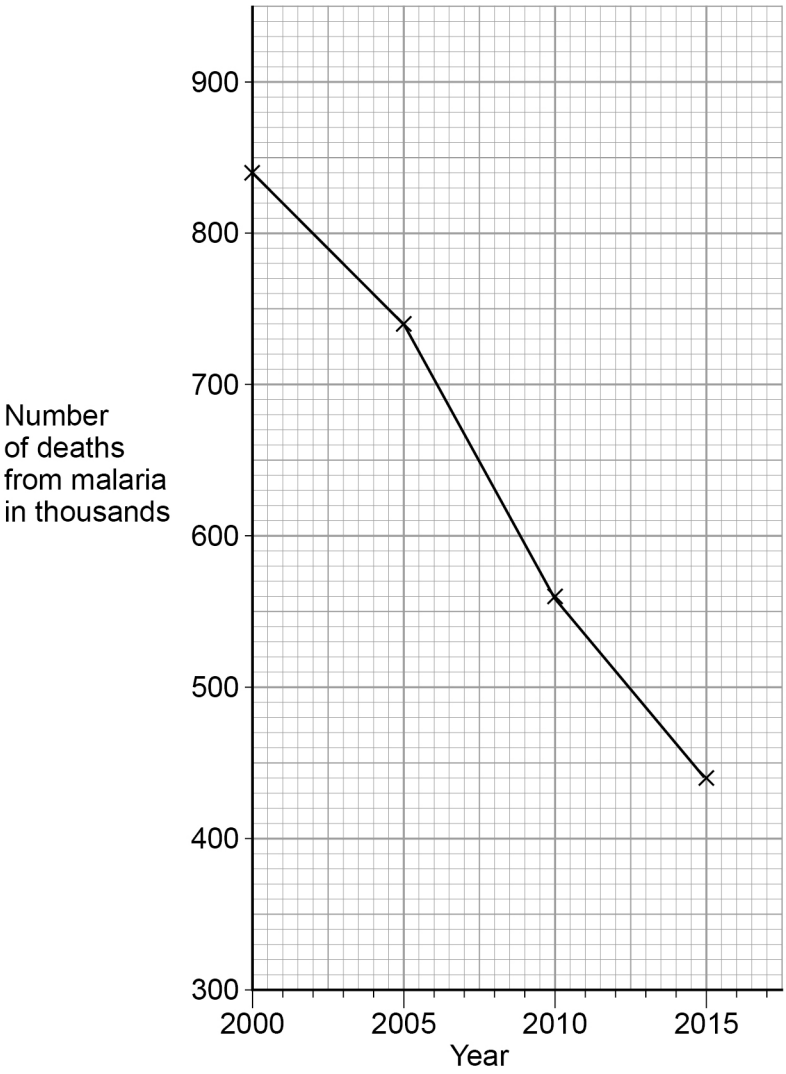
Question 03

June 2019 | 8464/B/1F | Original Q5

0 5 Malaria is a disease transmitted by mosquitos.

Figure 9 shows information about the number of deaths from malaria.

Figure 9



0 5 . 1 Calculate the decrease in the number of deaths between 2000 and 2015.

[2 marks]

Decrease in number of deaths = _____

4.3.1.1 Communicable (infectious) diseases

Question 03 · continued

0 5 . 2 Which time period shows the greatest decrease in the number of deaths?

[1 mark]

Tick (✓) **one** box.

2000 to 2005 ☐

2005 to 2010 ☐

2010 to 2015 ☐

0 5 . 3 A student looked at **Figure 9** and concluded that there were 800 000 deaths from malaria in 2002.

Suggest **one** reason why this conclusion might **not** be correct.

[1 mark]

_____

_____

0 5 . 4 What type of pathogen causes malaria?

[1 mark]

Tick (✓) **one** box.

Bacterium ☐

Fungus ☐

Protist ☐

Virus ☐

4.3.1.1 Communicable (infectious) diseases

Question 03 · continued

0 5 . 5 Scientists are developing a vaccine against malaria.

Suggest how a vaccine against malaria could reduce the spread of the disease.

[2 marks]

0 5 . 6 Give **one** way of controlling the spread of malaria.

Do **not** refer to a vaccine in your answer.

[1 mark]

8

4.3.1.1 Communicable (infectious) diseases

Question 04

0 4 Pathogens cause infectious diseases.

0 4 . 1 Draw **one** line from each disease to the type of pathogen that causes the disease.

[2 marks]

Disease	Type of pathogen
	Bacterium
Gonorrhoea	Fungus
Measles	Protist
	Virus

The body defends itself against pathogens in different ways.

0 4 . 2 Give **two** ways that the body prevents pathogens entering the body.

[2 marks]

1 _____

_____

2 _____

_____

4.3.1.1 Communicable (infectious) diseases

Question 04 · continued

0 4 . 3 If pathogens do enter the body the immune system tries to destroy the pathogens.

Describe how the immune system defends the body against disease.

[6 marks]

Question 4 continues on the next page

4.3.1.1 Communicable (infectious) diseases

Question 04 · continued

0 4 . 4 Give **one** reason why antibiotics cannot be used to treat HIV infections.

[1 mark]

0 4 . 5 Give **two** ways to prevent the spread of HIV.

[2 marks]

1

2

0 4 . 6 Some people with a HIV infection develop AIDS.

Some people with AIDS may die from a different type of infection, such as a chest infection.

Why do people with AIDS die from a different type of infection?

[1 mark]

Tick (✓) **one** box.

HIV damages the immune system. ☐

Pathogens enter the body more easily. ☐

People with AIDS are immune to HIV. ☐

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4.3.1.1 Communicable (infectious) diseases

Question 05

June 2022 | 8464/B/1F | Original Q3

0 3 This question is about disease.

Rose black spot is a disease where black spots develop on the leaves of rose plants.

0 3 . 1 What type of pathogen causes rose black spot disease?

[1 mark]

Tick (✓) **one** box.

- Bacterium ☐
- Fungus ☐
- Protist ☐
- Virus ☐

0 3 . 2 Plants with rose black spot disease often have yellow leaves.

Suggest **one** reason why the leaves are yellow instead of green.

[1 mark]

0 3 . 3 Explain why plants with yellow leaves grow slowly.

[2 marks]

4.3.1.1 Communicable (infectious) diseases

Question 05 · continued

0 3 . 4 The spread of rose black spot can be controlled using different methods.

Draw **one** line from each method of control to the explanation of how it works.

[2 marks]

Method of control	Explanation
Remove and burn infected leaves	Creates a barrier to the movement of pathogens
Water the roots of the plant only, **not** the leaves	Pathogens are killed
	Reduces the chance of pathogens being spread by water droplets
	Reduces the temperature so pathogens reproduce less

Question 3 continues on the next page

4.3.1.1 Communicable (infectious) diseases

Question 05 · continued

0 3 . 5 Tobacco plants may become infected with a pathogen called TMV.

What type of pathogen is TMV?

[1 mark]

Tick (✓) **one** box.

- Bacterium ☐
- Fungus ☐
- Protist ☐
- Virus ☐

Malaria is a disease caused by a protist.

0 3 . 6 How is the malaria pathogen transferred to humans?

[1 mark]

0 3 . 7 How can the spread of malaria pathogens be reduced?

[1 mark]

Tick (✓) **one** box.

- Avoid sexual contact ☐
- Cook food thoroughly ☐
- Drain water from swamps ☐
- Use a tissue when sneezing ☐

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4.3.1.1 Communicable (infectious) diseases

Question 06

June 2022 | 8464/B/1F | Original Q5

0 5 Bacteria can cause a variety of diseases in humans.

0 5 . 1 What are **two** similarities between a bacterial cell and an animal cell?

[2 marks]

Tick (✓) **two** boxes.

- Both have a cell membrane. ☐
- Both have a cell wall. ☐
- Both have a nucleus. ☐
- Both have cytoplasm. ☐
- Both have plasmids. ☐

0 5 . 2 Salmonella food poisoning is caused by bacteria in food.

Give **one** symptom of salmonella food poisoning.

Do **not** refer to vomiting or diarrhoea in your answer.

[1 mark]

_____

_____

Question 5 continues on the next page

4.3.1.1 Communicable (infectious) diseases

Question 06 · continued

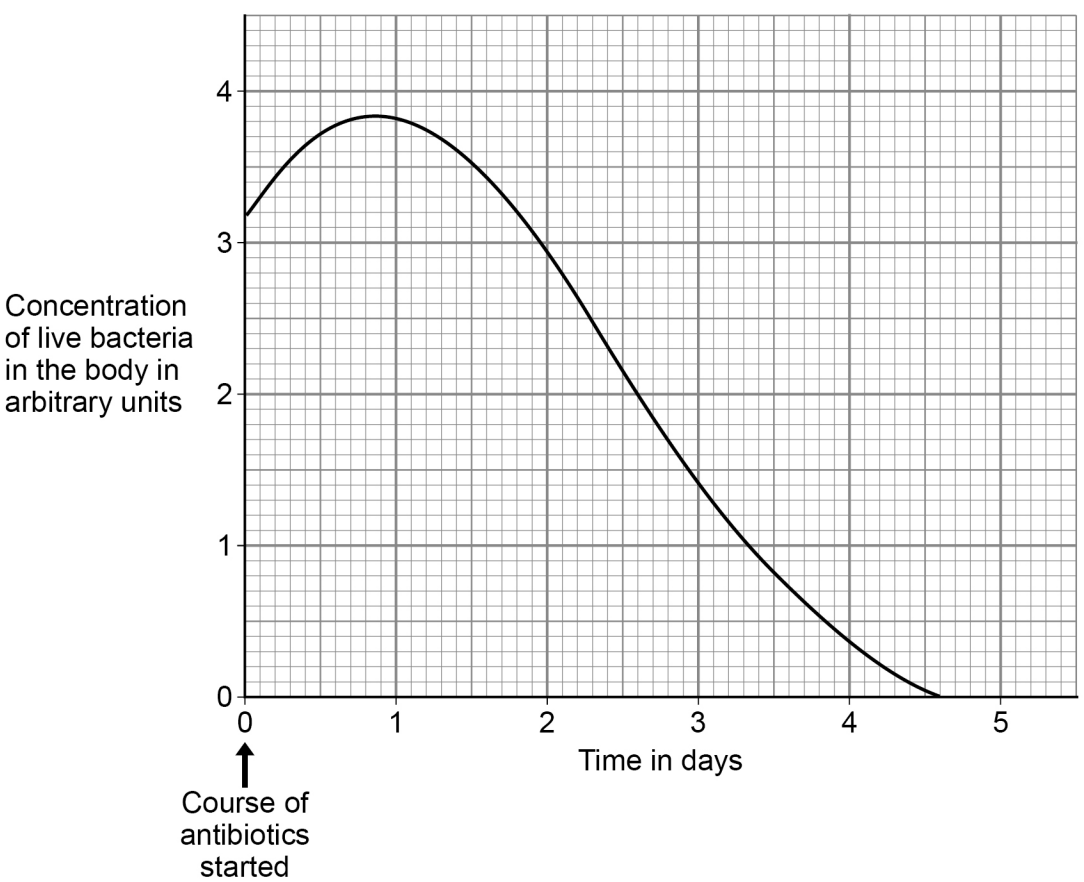
0 5 . 3 What is the name of the first antibiotic developed?

[1 mark]

A child with a severe bacterial infection was given a course of antibiotics.

Figure 7 shows how the concentration of live bacteria in the child's body changed when taking the course of antibiotics.

Figure 7



4.3.1.1 Communicable (infectious) diseases

Question 06 · continued

0 5 . 4 The concentration of live bacteria in the body continued to increase after starting the course of antibiotics.

Suggest **one** reason why.

[1 mark]

0 5 . 5 After 3 days of taking the antibiotic:

- the child felt better
- there were still bacteria in the child's body.

Why did the child feel better?

[1 mark]

Tick (✓) **one** box.

Bacteria had become immune to the antibiotic. ☐

The child had become resistant to the bacteria. ☐

There were fewer toxins in the body than at day 0 ☐

0 5 . 6 Suggest why doctors do **not** give antibiotics to patients with minor infections.

[1 mark]

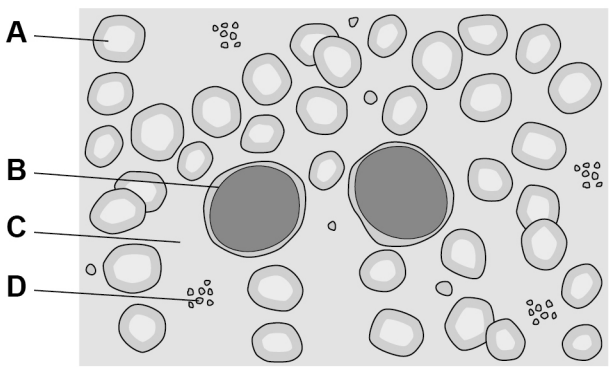
Question 5 continues on the next page

4.3.1.1 Communicable (infectious) diseases

Question 06 · continued

Figure 8 shows blood viewed using a microscope.

Figure 8



0 5 . 7 A vaccine will stimulate the production of antibodies.

Which part of the blood in **Figure 8** produces antibodies?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

0 5 . 8 Which part of the blood in **Figure 8** starts the clotting process?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

9

4.3.1.1 Communicable (infectious) diseases

Question 07

June 2023 | 8464/B/1F | Original Q6

0 6 Communicable and non-communicable diseases are major causes of ill health.

0 6 . 1 Which disease is a **non-communicable** disease?

[1 mark]

Tick (✓) **one** box.

- AIDS ☐
- Cancer ☐
- Gonorrhoea ☐
- Malaria ☐

Obesity is a risk factor for many non-communicable diseases.

0 6 . 2 Give **one** non-communicable disease that obesity is a risk factor for.

Do **not** refer to the diseases given in Question **06.1** in your answer.

[1 mark]

0 6 . 3 National policies are used to help people who are obese to lose weight.

One national policy is to reduce the amount of sugar added to food and drinks.

Suggest **one other** national policy that could help people to lose weight.

[1 mark]

4.3.1.1 Communicable (infectious) diseases

Question 07 · continued

0 6 . 4 Body mass index (BMI) is one measure of obesity.

BMI is calculated using the equation:

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

Table 4 shows how BMI is used to describe an adult's BMI category.

Table 4

BMI	BMI category
<18.5	Underweight
18.5 to 24.9	Healthy weight
25.0 to 29.9	Overweight
>29.9	Obese

A person is 1.64 m tall and has a mass of 69 kg.

Determine the **BMI category** for this person.

Use the BMI equation and **Table 4**.

[3 marks]

The person's BMI category is _____

Question 6 continues on the next page

Question 07 · continued

Scientists investigated the effect of smoking and of BMI on the birth mass of babies.

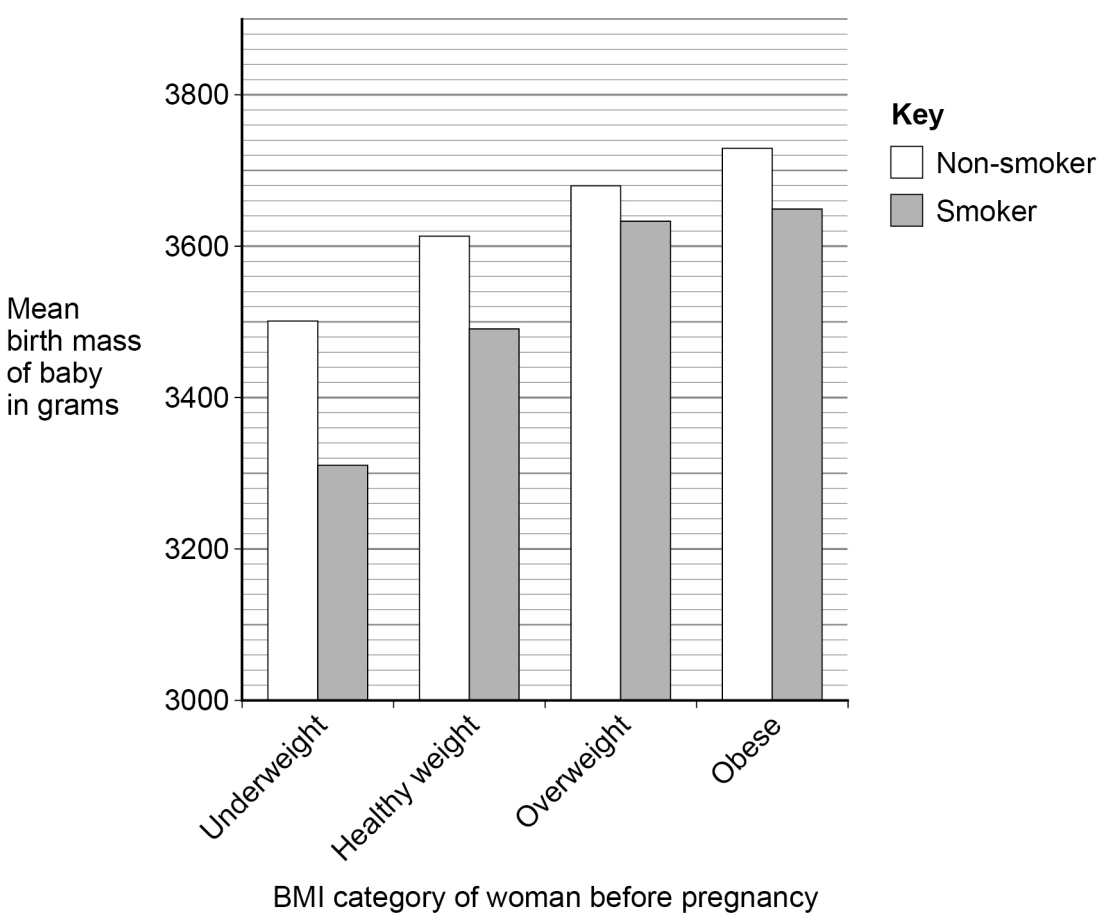
Women's BMI categories were determined before the women became pregnant.

0 6 . 5 Suggest why BMI categories were determined **before** the women became pregnant.

[1 mark]

Figure 9 shows the results.

Figure 9



4.3.1.1 Communicable (infectious) diseases

Question 07 · continued

0 6 . 6 Give **two** conclusions that can be made from **Figure 9**.

[2 marks]

1 _____

_____

2 _____

_____

0 6 . 7 Measles is a communicable disease.

A virus causes measles.

Describe how the measles virus is transferred from person to person.

[2 marks]

_____

_____

_____

_____

Question 6 continues on the next page

4.3.1.1 Communicable (infectious) diseases

Question 07 · continued

Athlete's foot is a communicable disease.

A fungus causes athlete's foot.

The athlete's foot fungus infects the skin on feet.

0 6 . 8 Scientists estimate that 17% of the UK population have athlete's foot.

The estimated UK population is 67 961 900

Calculate how many people are estimated to have athlete's foot.

[2 marks]

Estimated number of people with athlete's foot = _____

0 6 . 9 Athlete's foot fungus grows in moist conditions.

Suggest **one** way a person could reduce their chance of catching athlete's foot.

[1 mark]

14

4.3.1.1 Communicable (infectious) diseases

Question 08

0 6 Chickenpox is an infectious disease that affects young children.

0 6 . 1 One symptom of chickenpox is small blisters on the skin.

Suggest **one** way chickenpox spreads from an infected person to other people.

[1 mark]

0 6 . 2 Chickenpox is caused by a type of pathogen that **cannot** be treated with antibiotics.

Give the reason why chickenpox **cannot** be treated with antibiotics.

[1 mark]

A vaccine that could be used to protect against chickenpox has been produced.

0 6 . 3 What does a vaccine contain that causes a person to become immune to a disease?

[1 mark]

0 6 . 4 Give **three** reasons why a new vaccine must be tested.

[3 marks]

1

2

3

4.3.1.1 Communicable (infectious) diseases

Question 08 · continued

0 6 . 5 Explain how a vaccine for chickenpox gives immunity against the disease.

You should refer to how the body responds to:

- the vaccine
- chickenpox pathogens that enter the body after vaccination.

[6 marks]

Extra Space

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