AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.3.1.3

Bacterial diseases

Past-paper questions

Tier	**Higher**
Question groups	**3**
Available paper years	**2020–2022**

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.

4.3.1.3 Bacterial diseases

Question 01

November 2020 | 8464/B/1H | Original Q4

0 4 Cells are the basic units of all forms of life.

0 4 . 1 Describe **four** differences between a bacterial cell and a plant cell.

[4 marks]

1 _____

_____

2 _____

_____

3 _____

_____

4 _____

_____

0 4 . 2 Gonorrhoea is a bacterial disease.

A new vaccine is being developed against gonorrhoea.

Describe how a vaccine would work to prevent gonorrhoea.

[4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

4.3.1.3 Bacterial diseases

Question 01 · continued

Another disease caused by bacteria is salmonella food poisoning.

In the UK, chickens are vaccinated against *Salmonella* bacteria to reduce the number of cases of food poisoning in humans.

0 4 . 3 Explain how vaccinating chickens reduces the number of cases of salmonella food poisoning.

[2 marks]

0 4 . 4 Give **one** way that the spread of salmonella food poisoning from one human to another is controlled.

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

[1 mark]

0 4 . 5 The number of cases of salmonella food poisoning is usually higher in summer than in winter.

Suggest **one** reason why.

[1 mark]

12

4.3.1.3 Bacterial diseases

Question 02

November 2021 | 8464/B/1H | Original Q4

0 4 Pathogens are microorganisms that cause diseases.

Gonorrhoea, malaria and measles are three diseases in humans.

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

[3 marks]

Disease	Pathogen
	Bacterium
Gonorrhoea	
	Fungus
Malaria	
	Protist
Measles	
	Virus

Question 4 continues on the next page

Question 02 · continued

0 4 . 2 Malaria is transmitted by mosquitos.

Male mosquitos can be sterilised so they are infertile.

The spread of malaria is reduced by releasing sterile mosquitos into the environment.

Explain how releasing sterile mosquitos reduces the spread of malaria.

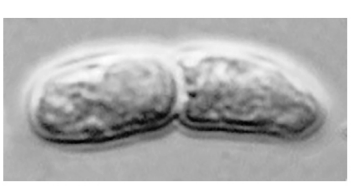
[2 marks]

Pathogens also cause diseases in plants.

Figure 4 shows a rose black spot fungal spore and a tobacco mosaic virus.

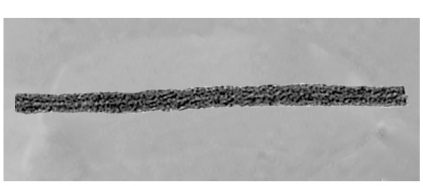
Figure 4

Rose black spot fungal spore



16 µm

Tobacco mosaic virus



2.5×10^{-7} m

Images are **not** to the same scale

0 4 . 3 Name the piece of equipment used to view the virus.

[1 mark]

4.3.1.3 Bacterial diseases

Question 02 · continued

0 4 . 4 How many times longer is the fungal spore than the virus?

Use **Figure 4**.

[3 marks]

Number of times longer = _____

0 4 . 5 Explain why plants infected with tobacco mosaic virus grow slowly.

[3 marks]

12

4.3.1.3 Bacterial diseases

Question 03

June 2022 | 8464/B/1H | Original Q1

0 1 Bacteria can cause a variety of diseases in humans.

0 1 . 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 1 . 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 1 continues on the next page

4.3.1.3 Bacterial diseases

Question 03 · continued

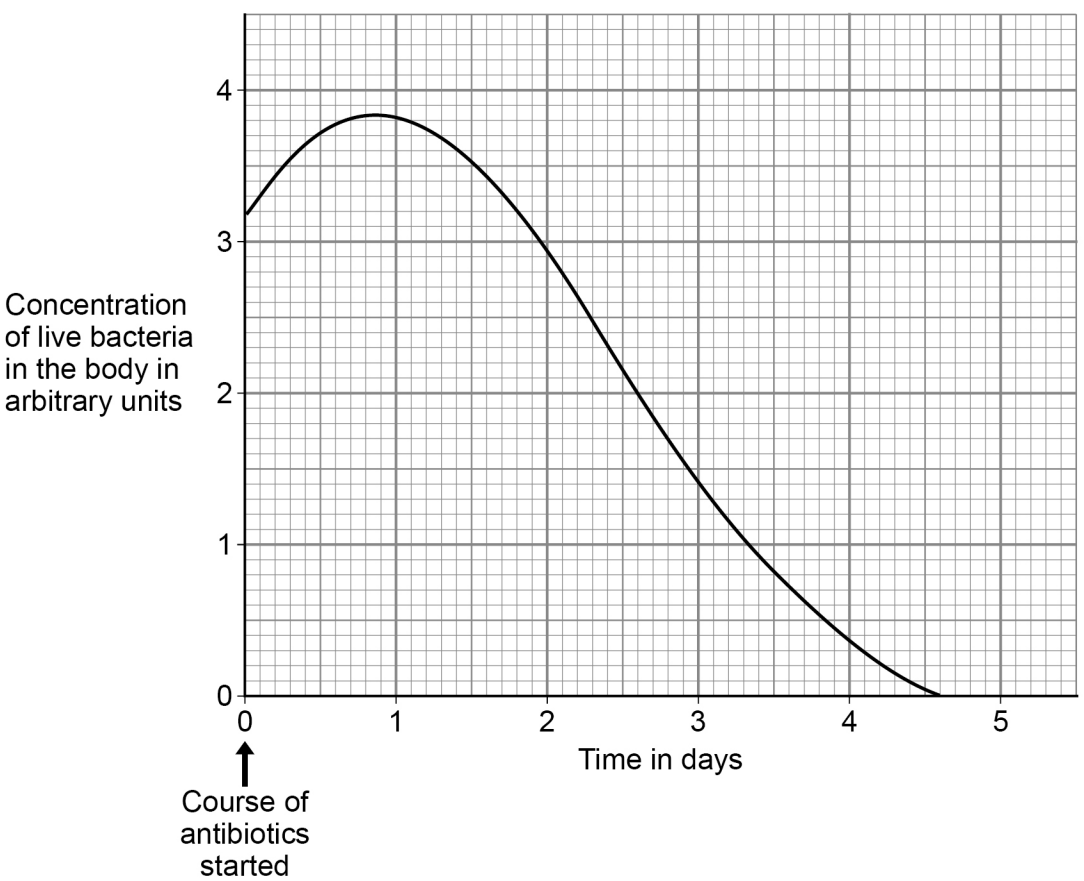
0 1 . 3 What is the name of the first antibiotic developed?

[1 mark]

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

Figure 1 shows how the concentration of live bacteria in the child's body changed when taking the course of antibiotics.

Figure 1



4.3.1.3 Bacterial diseases

Question 03 · continued

0 1 . 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 1 . 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 1 . 6 Suggest why doctors do **not** give antibiotics to patients with minor infections.

[1 mark]

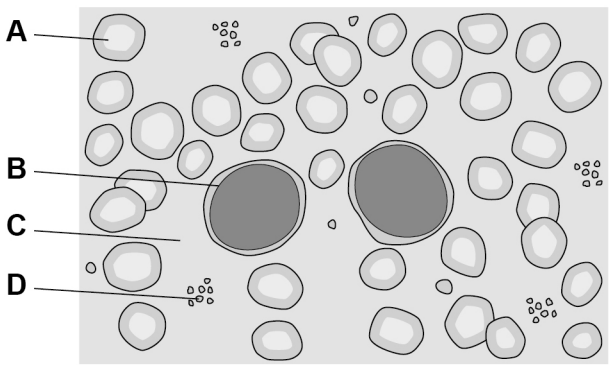
Question 1 continues on the next page

4.3.1.3 Bacterial diseases

Question 03 · continued

Figure 2 shows blood viewed using a microscope.

Figure 2



0 1 . 7 A vaccine will stimulate the production of antibodies.

Which part of the blood in **Figure 2** produces antibodies?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

0 1 . 8 Which part of the blood in **Figure 2** starts the clotting process?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

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