AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.1.1.2

Animal and plant cells

Past-paper questions

Tier	**Higher**
Question groups	**4**
Available paper years	**2018–2023**

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.

4.1.1.2 Animal and plant cells

Question 01

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

0 1 This question is about cell structures.

0 1 . 1 Draw **one** line from each cell structure to the type of cell where the structure is found.

[2 marks]

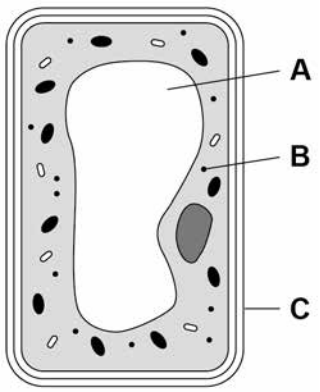
Cell Structure	Type of cell where the structure is found
Nucleus	Prokaryotic cells
Permanent vacuole	Plant cells only
Plasmid	Eukaryotic cells

4.1.1.2 Animal and plant cells

Question 01 · continued

0 1 . 2 **Figure 1** shows a plant cell.

Figure 1



What are the names of structures **A**, **B** and **C**?

[1 mark]

Tick **one** box.

Structure A	Structure B	Structure C	
Chloroplast	Vacuole	Cell wall	☐
Nucleus	Chloroplast	Cell membrane	☐
Vacuole	Mitochondrion	Cell membrane	☐
Vacuole	Ribosome	Cell wall	☐

Question 1 continues on the next page

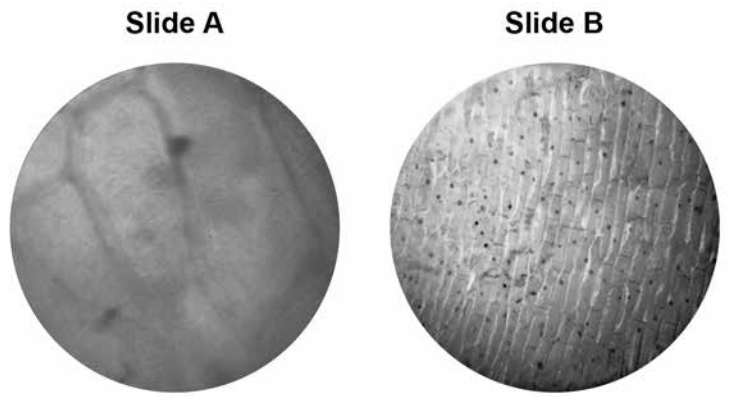
4.1.1.2 Animal and plant cells

Question 01 · continued

A student observed slides of onion cells using a microscope.

Figure 2 shows two of the slides the student observed.

Figure 2



The cells on the slides are **not** clear to see.

0 1 . 3 Describe how the student should adjust the microscope to see the cells on **Slide A** more clearly.

[1 mark]

0 1 . 4 Describe how the student should adjust the microscope to see the cells on **Slide B** more clearly.

[2 marks]

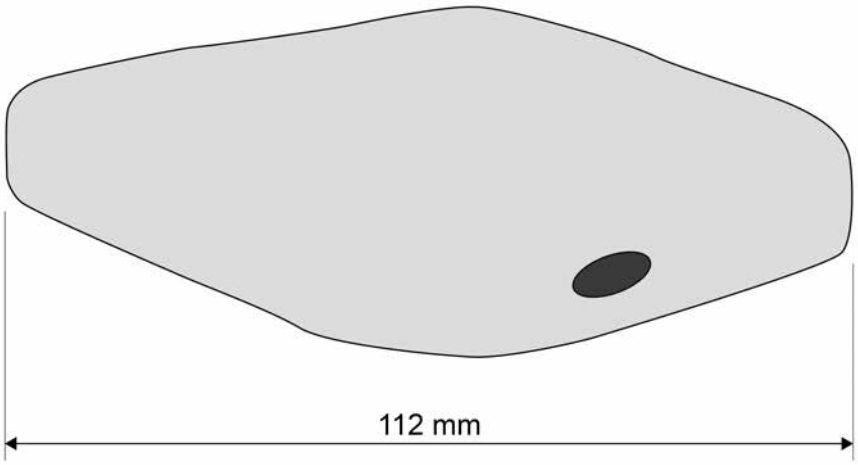
4.1.1.2 Animal and plant cells

Question 01 · continued

0 1 . 5 The student made the necessary adjustments to get a clear image.

Figure 3 shows the student's drawing of one of the cells.

Figure 3



The real length of the cell was 280 micrometres (µm).

Calculate the magnification of the drawing.

[3 marks]

Magnification = × _____

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4.1.1.2 Animal and plant cells

Question 02

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]

_____

_____

_____

_____

_____

_____

_____

_____

4.1.1.2 Animal and plant cells

Question 02 · 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]

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4.1.1.2 Animal and plant cells

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

4.1.1.2 Animal and plant cells

Question 03 · continued

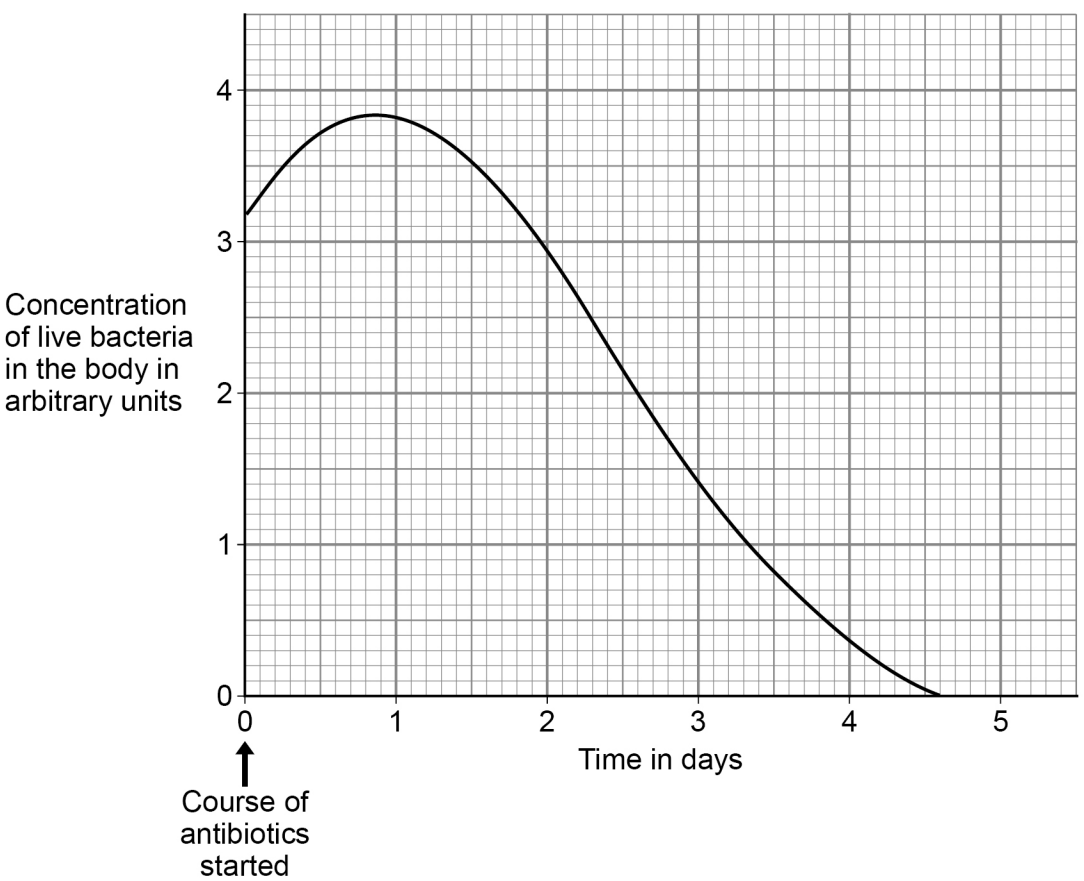
0 1 . 3 What is the name of the first antibiotic developed?

[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



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 ☐

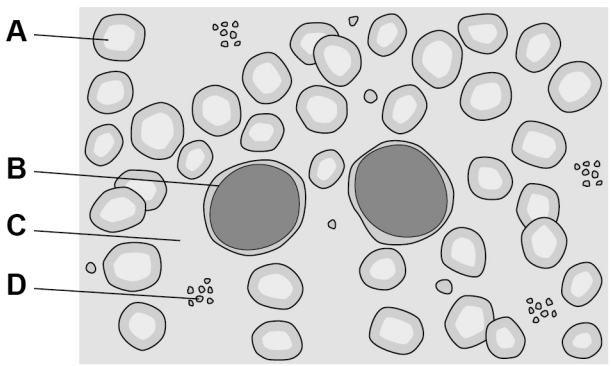
0 1 . 6 Suggest why doctors do **not** give antibiotics to patients with minor infections.

[1 mark]

Question 1 continues on the next page

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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4.1.1.2 Animal and plant cells

Question 04

June 2023 | 8464/B/1H | Original Q2

0 2 **Figure 2** shows onion cells viewed using a light microscope.

Figure 2

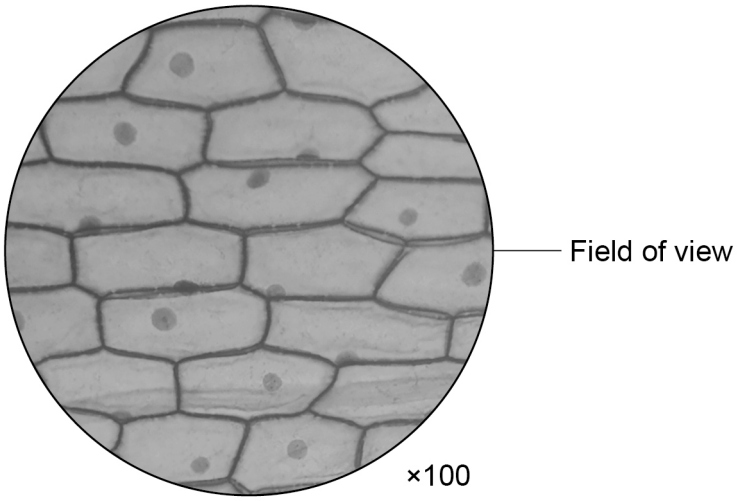
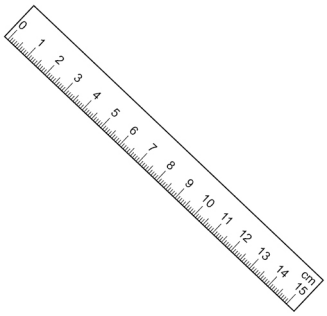


Figure 3 shows the apparatus given to a student.

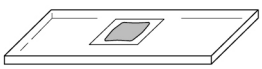
Figure 3



Microscope



15 cm transparent ruler



Prepared slide of onion cells

4.1.1.2 Animal and plant cells

Question 04 · continued

Describe how the student could use the apparatus to estimate the **mean** length of onion cells on the slide.

[6 marks]

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