AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.7.1.4

Adaptations

Past-paper questions

Tier	**Foundation**
Question groups	**12**
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.

4.7.1.4 Adaptations

Question 01

June 2018 | 8464/B/1F | Original Q3

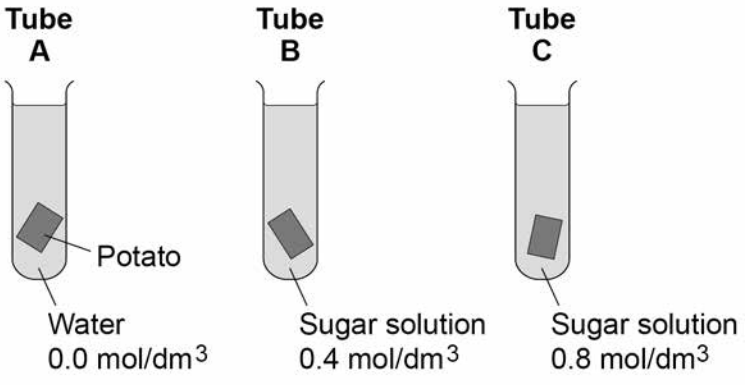
0 3 A student investigated the effect of different concentrations of sugar solution on pieces of potato.

This is the method used.

1. Cut three pieces of potato to the same length.
2. Dry each piece on a paper towel.
3. Weigh each piece.
4. Place each piece in a different concentration of sugar solution.
5. Leave all three pieces for 2 hours.
6. Remove the three pieces of potato from the solutions.
7. Dry each piece on a paper towel.
8. Measure the length and mass of each piece of potato.

Figure 6 shows how the investigation was set up.

Figure 6



0 3 . 1 Why did the student dry each piece of potato before weighing it?

[1 mark]

4.7.1.4 Adaptations

Question 01 · continued

0 3 . 2 What **two** changes would you expect in the potato in **tube A** after 2 hours?

[2 marks]

Tick **two** boxes.

- Breaks into pieces ☐
- Decrease in hardness ☐
- Decrease in size ☐
- Increase in mass ☐
- Increase in length ☐

0 3 . 3 Complete the sentences.

[3 marks]

Water moves into and out of cells by a process called _____ .

Water would move _____ the potato cells in **tube A**.

The solution outside the potato in **tube A** is at a _____ concentration than the solution inside the potato cells.

0 3 . 4 The potato in **tube B** did **not** change.

Give **one** conclusion that can be made from this observation.

[1 mark]

_____

_____

Question 3 continues on the next page

4.7.1.4 Adaptations

Question 01 · continued

0 3 . 5 **Figure 7** shows the root of a germinating seed.

Figure 7



Describe **two** ways the root is adapted to absorb water efficiently.

[2 marks]

1 _____

_____

2 _____

_____

9

4.7.1.4 Adaptations

Question 02

June 2019 | 8464/B/1F | Original Q2

0 2 A single-celled organism has a large surface area to volume ratio.

0 2 . 1 How does oxygen enter a single-celled organism?

[1 mark]

Tick (✓) **one** box.

- Active transport ☐
- Diffusion ☐
- Osmosis ☐

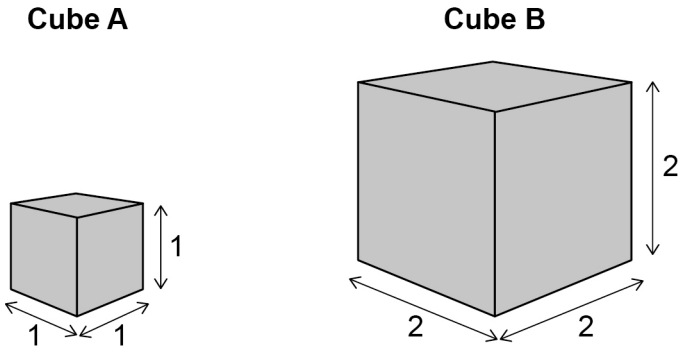
4.7.1.4 Adaptations

Question 02 · continued

Figure 3 shows two cubes.

The surface area to volume ratio for cube **A** is 6:1

Figure 3



0 2 . 2 Calculate the surface area to volume ratio of cube **B**.

[4 marks]

Surface area of one face of cube **B** _____

_____

Surface area of one face = _____

Total surface area of cube **B** _____

_____

Total surface area = _____

Volume of cube **B** _____

_____

Volume = _____

Surface area to volume ratio = _____ : _____

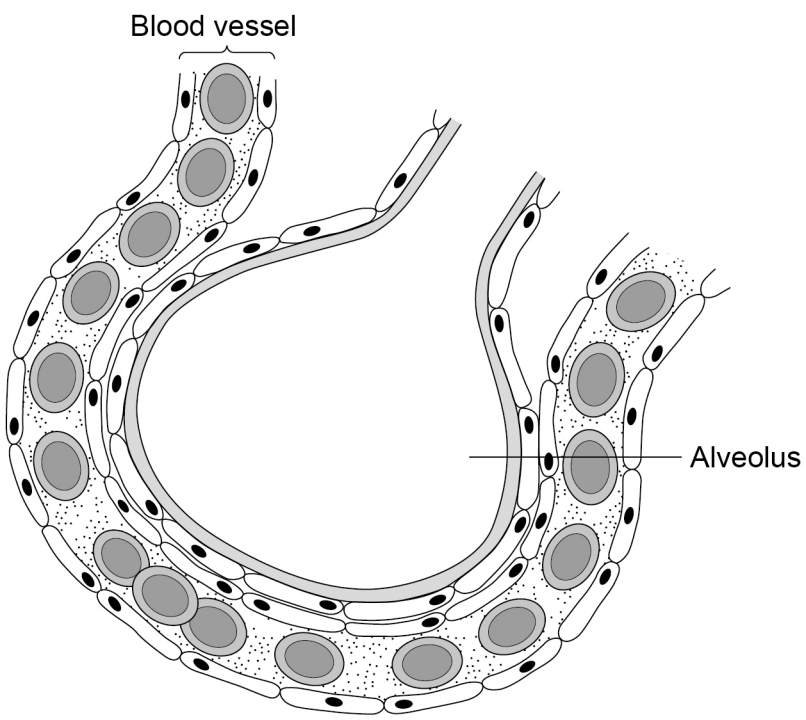
4.7.1.4 Adaptations

Question 02 · continued

Multicellular organisms have exchange surfaces to absorb substances.

Figure 4 shows part of the exchange surface in the lungs.

Figure 4



0 2 . 3 Oxygen passes from the alveolus into the blood.

Name the part of the blood that carries the most oxygen.

[1 mark]

0 2 . 4 Name the gas that passes out of the blood into the alveolus.

[1 mark]

4.7.1.4 Adaptations

Question 02 · continued

0 2 . 5 Alveoli provide a large surface area for gas exchange.

Give **two** other ways the lungs are adapted for efficient gas exchange.

[2 marks]

1 _____

_____

2 _____

_____

9

Turn over for the next question

4.7.1.4 Adaptations

Question 03

June 2019 | 8464/B/2F | Original Q3

0 3 Animals have adaptations to survive in their environment.

These adaptations may be structural, behavioural or functional.

0 3 . 1 Draw **one** line from each animal adaptation to the type of adaptation it is.

[2 marks]

Animal adaptation	Type of adaptation
 Male palm cockatoos use sticks to beat on hollow branches to attract females.	Structural
 The harmless hornet moth has black and yellow stripes to look like a bee or wasp.	Behavioural
 Sea spiders have automatic muscle contractions that move oxygen around their bodies.	Functional

4.7.1.4 Adaptations

Question 03 · continued

Plants also have adaptations.

Orchid plants have adaptations which make them one of the most successful plant groups.

Orchids rely on insects for pollination.

Figure 2 shows an orchid.

Figure 2



0 3 . 2 Which **two** features help orchids survive?

[2 marks]

Tick (✓) **two** boxes.

- Brightly coloured flowers ☐
- Large quantities of pollen ☐
- No scent ☐
- Oval shaped leaves ☐
- Small leaves ☐

4.7.1.4 Adaptations

Question 03 · continued

Many orchid species grow in tropical rainforest ecosystems.

0 3 . 3 What name describes the variety of all the different species found in an ecosystem?

[1 mark]

Tick (✓) **one** box.

- Biodiversity ☐
- Evolution ☐
- Feeding relationship ☐
- Habitat ☐

0 3 . 4 Some species of orchid may become extinct because of deforestation.

Give **one** reason why tropical rainforests are being cut down.

[1 mark]

0 3 . 5 Give **one** factor that might cause a species of orchid to become extinct.

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

[1 mark]

Scientists have analysed the entire genetic material of one species of orchid.

0 3 . 6 What chemical is the genetic material made from?

[1 mark]

0 3 . 7 What is the name for the entire genetic material of an organism?

[1 mark]

9

4.7.1.4 Adaptations

Question 04

November 2020 | 8464/B/1F | Original Q6

0 6 Starch is digested to form sugar molecules in the digestive system.

0 6 . 1 What is the name of the enzyme that digests starch?

[1 mark]

0 6 . 2 Where are most food molecules absorbed?

[1 mark]

Tick (✓) **one** box.

- Large intestine ☐
- Liver ☐
- Small intestine ☐
- Stomach ☐

Question 6 continues on the next page

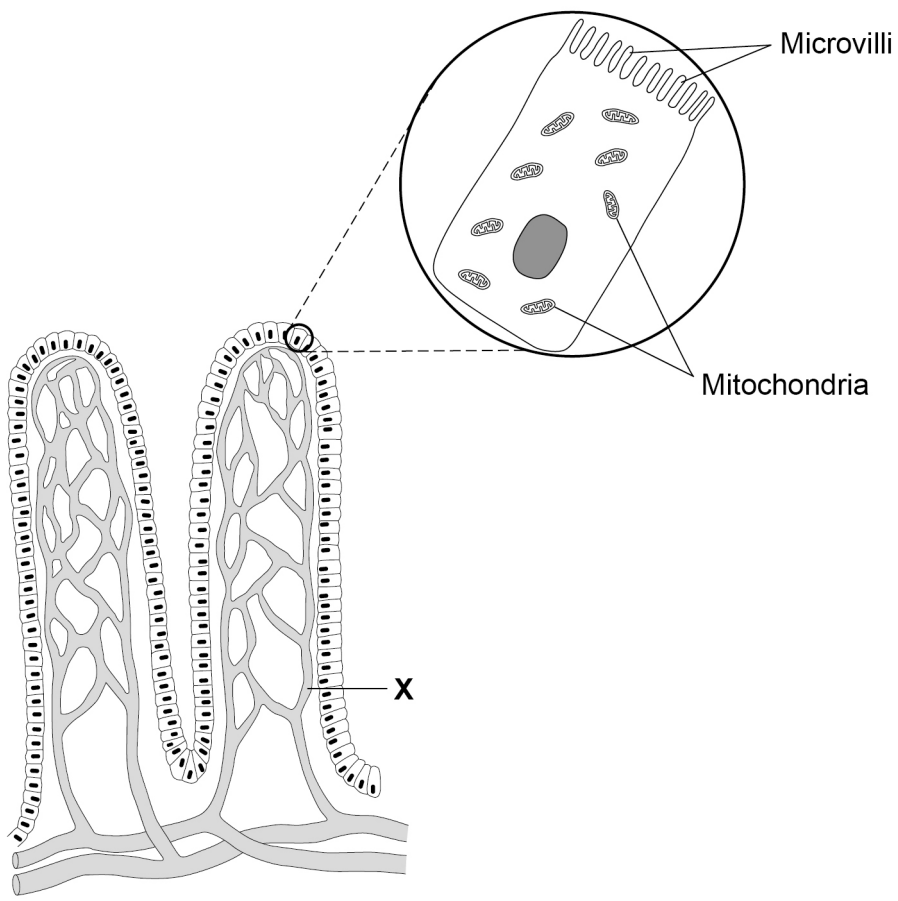
4.7.1.4 Adaptations

Question 04 · continued

Figure 6 shows two villi.

Figure 6 also shows one cell on the surface of a villus as seen using an electron microscope.

Figure 6



0 6 . 3 Give **one** advantage of using an electron microscope compared with using a light microscope.

[1 mark]

4.7.1.4 Adaptations

Question 04 · continued

0 6 . 4 What type of blood vessel is labelled **X**?

[1 mark]

Tick (✓) **one** box.

Artery ☐

Capillary ☐

Vein ☐

0 6 . 5 The real length of one villus is 0.8 mm

Calculate the image length if the villus is viewed at a magnification of ×20

Use the equation:

$$\text{magnification} = \frac{\text{size of image}}{\text{size of real object}}$$

[3 marks]

Image length = _____ mm

Question 6 continues on the next page

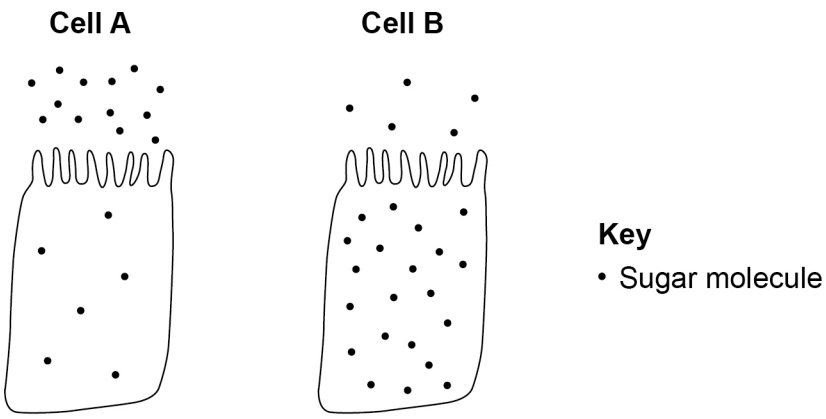
4.7.1.4 Adaptations

Question 04 · continued

Figure 7 shows two cells from the surface of a villus.

There are sugar molecules inside and next to each cell.

Figure 7



0 6 . 6 Name the process by which sugar moves into cell **A**.

[1 mark]

0 6 . 7 Name the process by which sugar moves into cell **B**.

[1 mark]

0 6 . 8 Give **one** use of sugar in the body.

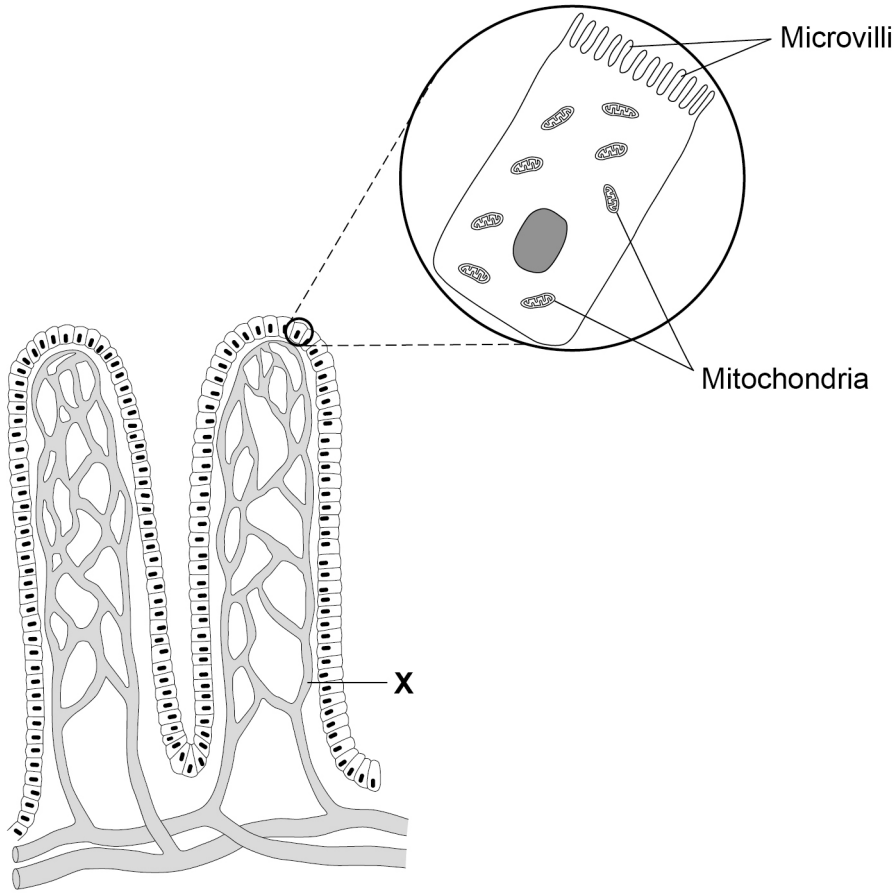
[1 mark]

4.7.1.4 Adaptations

Question 04 · continued

0 6 . 9 **Figure 6** is repeated below.

Figure 6



Explain how villi are adapted for efficient absorption of sugar molecules.

[4 marks]

14

4.7.1.4 Adaptations

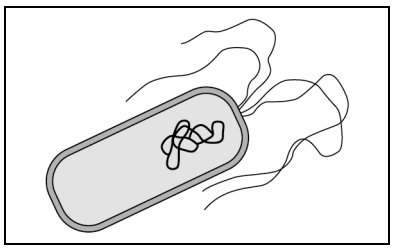
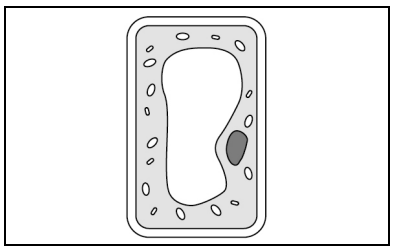
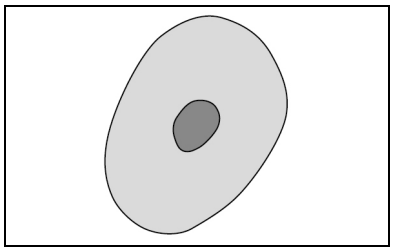
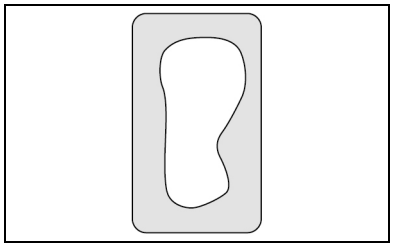
Question 05

November 2021 | 8464/B/1F | Original Q1

0 1 Cells are the building blocks of life.

0 1 . 1 Draw **one** line from each type of organism to the diagram of one of its cells.

[3 marks]

Type of organism	Diagram of one cell
Animal	
Bacterium	
Plant	
	

4.7.1.4 Adaptations

Question 05 · continued

0 1 . 2 Cells contain structures. These structures have different functions.

Draw **one** line from each function to the correct structure.

[3 marks]

Function	Structure
Contains genetic information	Cell membrane
Controls what enters and leaves a cell	Cell wall
Where photosynthesis happens	Chloroplast
	Nucleus

Question 1 continues on the next page

4.7.1.4 Adaptations

0 1 . 3 Chemicals are produced in cells.

Complete the sentences.

Choose answers from the box.

[4 marks]

cellulose	**DNA**	**glycogen**	**starch**	**urea**

A chemical excreted by animals is _____ .

A chemical stored in animal cells is _____ .

A chemical stored in plant cells is _____ .

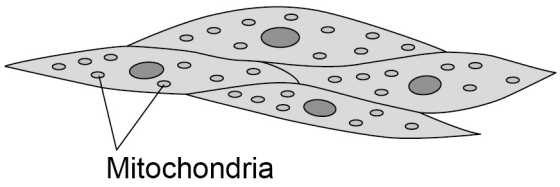
A chemical that strengthens plant cell walls is _____ .

4.7.1.4 Adaptations

Question 05 · continued

Figure 1 shows a diagram of muscle cells.

Figure 1



0 1 . 4 Give **one** function of muscle cells.

[1 mark]

0 1 . 5 Explain how muscle cells are adapted for their function.

Use **Figure 1**.

[2 marks]

Question 1 continues on the next page

4.7.1.4 Adaptations

Question 05 · continued

0 1 . 6 One muscle cell was 0.05 mm wide.

When viewed using a microscope the image of the muscle cell was 2 mm wide.

Calculate the magnification used to view the cell.

Use the equation:

$$\text{magnification} = \frac{\text{width of image}}{\text{width of real cell}}$$

[2 marks]

Magnification = ×

15

4.7.1.4 Adaptations

Question 06

November 2021 | 8464/B/2F | Original Q3

0 3 **Figure 2** shows one species of bird on a bird feeder.

Figure 2



The birds use their beaks to reach nuts inside the bird feeder.

Cats sometimes eat the birds.

0 3 . 1 Give the food chain for the birds, cats and nuts.

[2 marks]

0 3 . 2 Which organism in the food chain you gave in Question **03.1** is the primary consumer?

[1 mark]

4.7.1.4 Adaptations

Question 06 · continued

0 3 . 3 Cats are one biotic factor that affects the size of the bird population.

Which **two** of the following are **biotic** factors?

[2 marks]

Tick (✓) **two** boxes.

- Food ☐
- Pathogens ☐
- Sunlight ☐
- Temperature ☐
- Water ☐

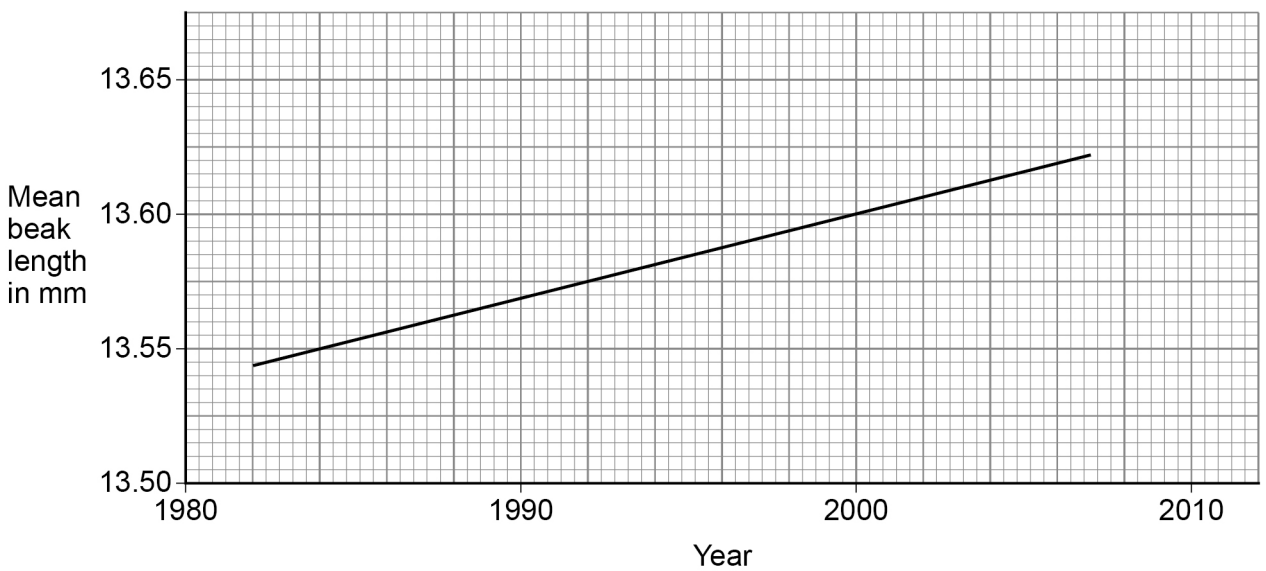
Question 3 continues on the next page

4.7.1.4 Adaptations

Question 06 · continued

Figure 3 shows the mean beak length of this species of bird from 1982 to 2007.

Figure 3



0 3 . 4 What was the mean beak length in 2000?

[1 mark]

Mean beak length = _____ mm

0 3 . 5 What type of adaptation is beak length?

[1 mark]

Tick (✓) **one** box.

Behavioural ☐

Chemical ☐

Structural ☐

4.7.1.4 Adaptations

Question 06 · continued

Figure 3 shows evidence of evolution in this species of bird.

0 3 . 6 Scientists have concluded that beak length in this species of bird is increasing.

Complete the sentences about the evolution of this species of bird.

Choose answers from the box.

[4 marks]

excretion	**generation**	**mutation**
reproduction	**respiration**	**variation**

The difference in beak length in the bird population

is called _____ .

A change in a gene affects the beak length.

Change in a gene is called _____ .

The birds with the longest beaks get more food.

Getting more food improves a bird's chances of

survival and _____ .

This process of evolution takes place over more

than one _____ .

Question 3 continues on the next page

4.7.1.4 Adaptations

Question 06 · continued

0 3 . 7 Birds of this species:

- live for about 3 years
- produce up to 24 eggs every year.

Why is evolution easier to study in birds than in humans?

[1 mark]

Tick (✓) **one** box.

Birds breed less frequently than humans. ☐

Birds have a shorter life cycle than humans. ☐

Birds have fewer offspring than humans. ☐

0 3 . 8 Bacteria also provide evidence for evolution.

Which statement describes evidence for evolution?

[1 mark]

Tick (✓) **one** box.

Bacteria can become resistant to antibiotics. ☐

Decomposition can be caused by bacteria. ☐

Some bacteria are pathogens. ☐

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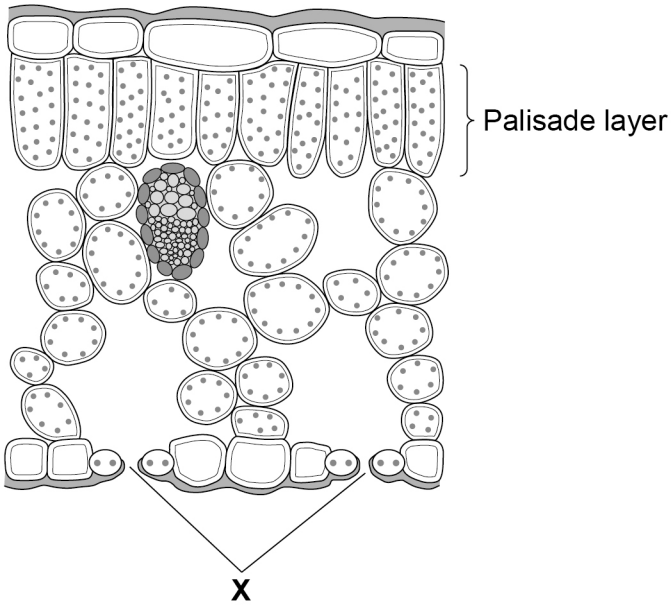
4.7.1.4 Adaptations

Question 07

June 2022 | 8464/B/1F | Original Q2

0 2 **Figure 2** shows a section through a leaf.

Figure 2



0 2 . 1 Give **one** way that the palisade layer is adapted for photosynthesis.

[1 mark]

0 2 . 2 Gases pass into and out of the leaf through small pores in the surface of the leaf.

What are the small pores labelled **X** called?

[1 mark]

Tick (✓) **one** box.

Guard cells ☐

Stomata ☐

Xylem vessels ☐

4.7.1.4 Adaptations

Question 07 · continued

0 2 . 3 A student viewed a section of a leaf using a microscope.

The student measured the length of one of the palisade cells.

The cell image measured 28 mm in length when viewed at a magnification of ×400

Calculate the real length of the palisade cell in millimetres (mm).

Use the equation:

$$\text{real length} = \frac{\text{image length}}{\text{magnification}}$$

[3 marks]

Real length = _____ mm

Convert the real length of the cell from millimetres to micrometres (μm).

1 mm = 1000 μm

Real length = _____ μm

0 2 . 4 Carbon dioxide can move into and out of cells.

What is the process by which carbon dioxide can move into and out of cells?

[1 mark]

Tick (✓) **one** box.

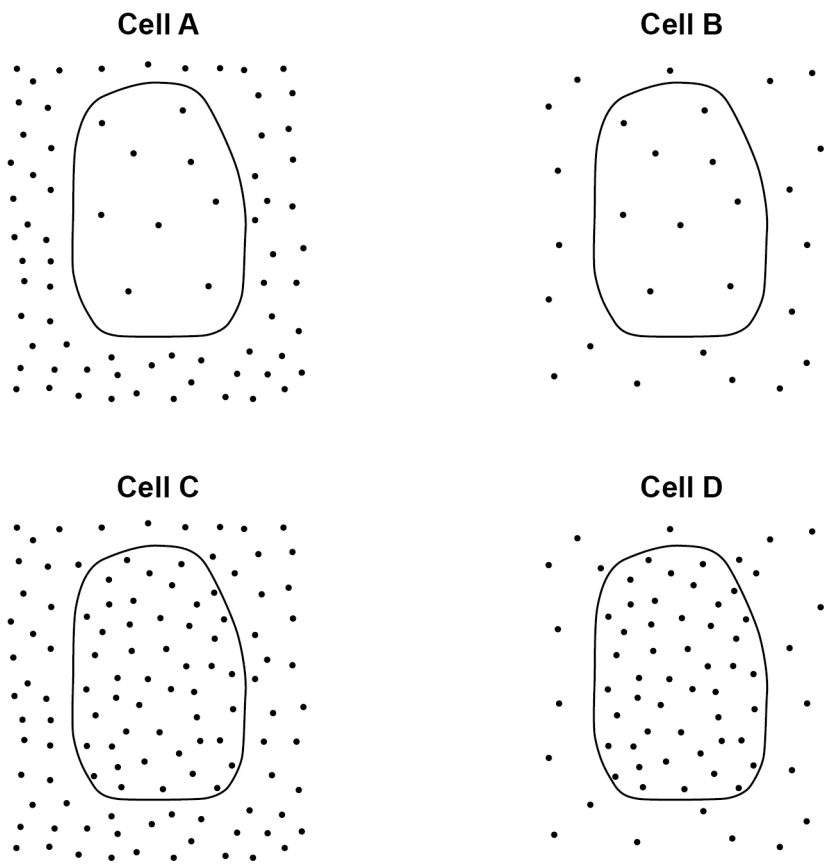
- Active transport ☐
- Diffusion ☐
- Osmosis ☐

Question 07 · continued

Figure 3 shows a diagram of four cells.

Each cell is surrounded by carbon dioxide molecules.

Figure 3



0 2 . 5 Which cell will carbon dioxide move into at the fastest rate?

Give a reason for your answer.

[2 marks]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

Reason _____

_____

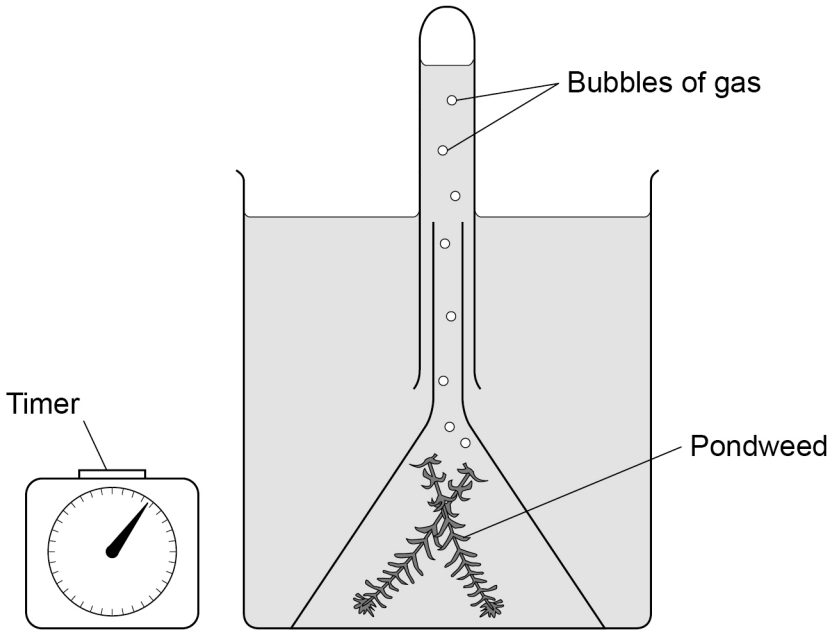
4.7.1.4 Adaptations

Question 07 · continued

A student investigated the effect of different colours of light on the rate of photosynthesis.

Figure 4 shows some of the apparatus the student used.

Figure 4



The student placed the apparatus in blue light, then in green light and then in red light.

The student measured the rate of photosynthesis in each colour of light.

0 2 . 6 What **two** measurements should the student make to calculate the **rate** of photosynthesis?

[2 marks]

1 _____

2 _____

Question 2 continues on the next page

4.7.1.4 Adaptations

Question 07 · continued

0 2 . 7 Give **two** variables the student should keep the same in this investigation.

[2 marks]

1 _____

_____

2 _____

_____

Table 2 shows the results.

Table 2

Colour of light	Rate of photosynthesis in arbitrary units
Blue	9
Green	1
Red	8

4.7.1.4 Adaptations

Question 07 · continued

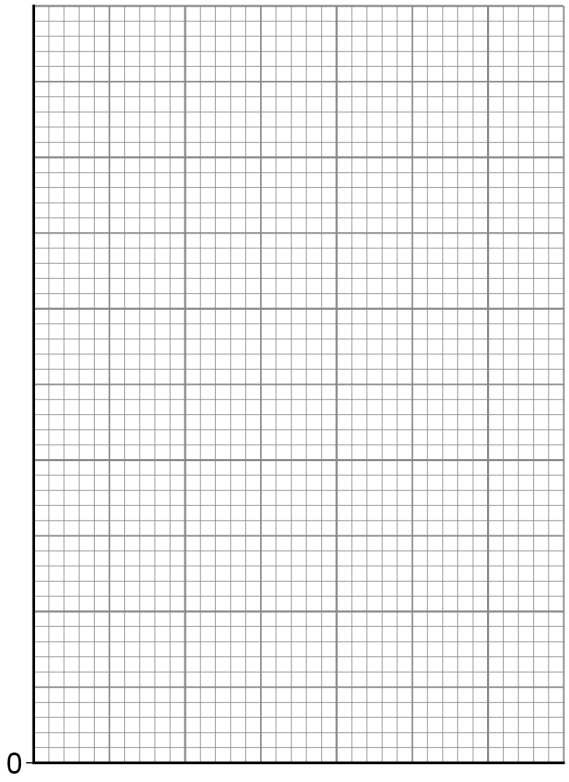
0 2 . 8 Complete **Figure 5**.

You should:

- label the y-axis
- use a suitable scale
- plot the data from **Table 2** as a bar chart
- label each bar.

[4 marks]

Figure 5



0 2 . 9 Look at **Table 2**.

What colour of light should be used to grow plants in a greenhouse?

[1 mark]

Tick (✓) **one** box.

Blue ☐ Green ☐ Red ☐

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4.7.1.4 Adaptations

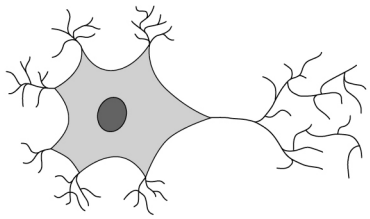
Question 08

June 2023 | 8464/B/1F | Original Q1

0 1 The human body is made of different types of cell.

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

[3 marks]

Type of cell	Organ system
 Brain cell	Circulatory system
 Red blood cell	Nervous system
	Reproductive system
 Sperm cell	Respiratory system

4.7.1.4 Adaptations

Question 08 · continued

0 1 . 2 Explain **one** way a sperm cell is adapted for its function.

[2 marks]

Question 1 continues on the next page

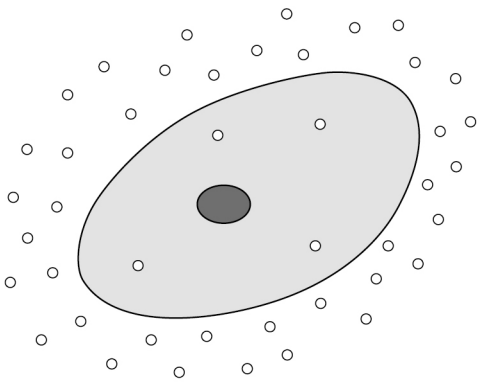
4.7.1.4 Adaptations

Question 08 · continued

Figure 1 shows a cell.

Oxygen molecules are shown inside and outside the cell.

Figure 1



Key

○ Oxygen molecule

0 1 . 3 Give **one** way you can tell that the cell in **Figure 1** is **not** a plant cell.

[1 mark]

0 1 . 4 Which part of a cell controls the movement of substances into and out of the cell?

[1 mark]

Tick (✓) **one** box.

Cell membrane ☐

Cytoplasm ☐

Nucleus ☐

4.7.1.4 Adaptations

Question 08 · continued

0 1 . 5 What is the name of the process that moves oxygen molecules into the cell in **Figure 1**?

Give the reason for your answer.

[2 marks]

Tick (✓) **one** box.

Active transport ☐

Diffusion ☐

Osmosis ☐

Reason _____

_____

0 1 . 6 Name **two** substances that move **into** most cells in the body from the blood.

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

[2 marks]

1 _____

2 _____

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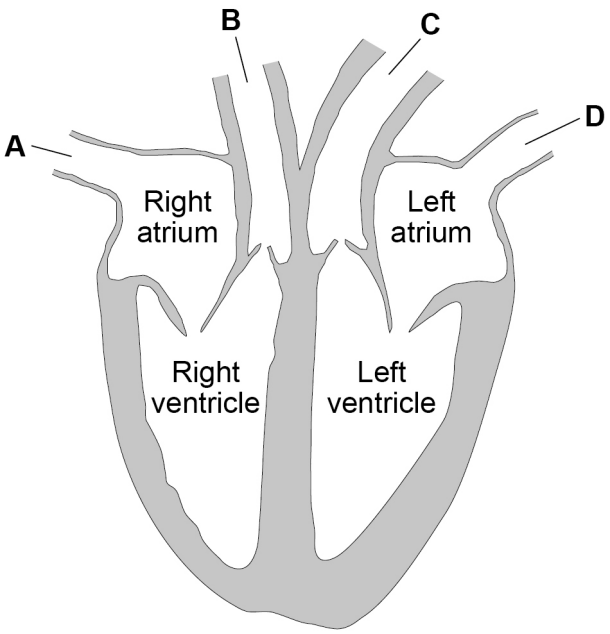
4.7.1.4 Adaptations

Question 09

June 2023 | 8464/B/1F | Original Q4

0 4 **Figure 6** shows a human heart.

Figure 6



0 4 . 1 The vena cava carries blood into the heart from the body.

Which blood vessel in **Figure 6** is the vena cava?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

4.7.1.4 Adaptations

Question 09 · continued

0 4 . 2 Which chamber of the heart pumps blood to the body?

[1 mark]

Tick (✓) **one** box.

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

0 4 . 3 What is the name of the blood vessel that carries blood to the heart muscle?

[1 mark]

Tick (✓) **one** box.

- Aorta ☐
- Coronary artery ☐
- Pulmonary artery ☐

Question 4 continues on the next page

4.7.1.4 Adaptations

Question 09 · continued

The heart and some blood vessels contain valves.

0 4 . 4 Which type of blood vessel has valves?

[1 mark]

Tick (✓) **one** box.

Artery ☐

Capillary ☐

Vein ☐

0 4 . 5 What is the function of valves?

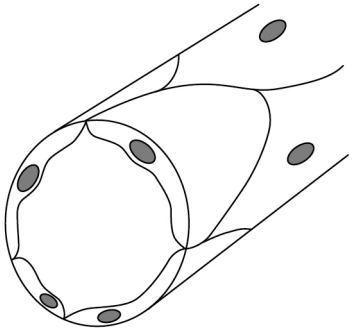
[1 mark]

4.7.1.4 Adaptations

Question 09 · continued

Figure 7 shows a blood capillary.

Figure 7



0 4 . 6 Explain **one** way the capillary is adapted for its function.

[2 marks]

Question 4 continues on the next page

4.7.1.4 Adaptations

Table 2 shows information about the blood of four people.

Table 2

Person	Concentration of blood component in number/mm^3		
	Red blood cells	White blood cells	Platelets
W	5 000 000	15 000	200 000
X	4 700 000	5 500	20 000
Y	8 000 000	7 200	250 000
Z	4 900 000	6 400	225 000

0 4 . 7 Person **W** has 5 000 000 red blood cells in 1 mm^3 of blood.

What is 5 000 000 written in standard form?

[1 mark]

Tick (✓) **one** box.

5 × 1 000 000 ☐

5 × 10^6 ☐

5 × 10^7 ☐

50 × 10^5 ☐

4.7.1.4 Adaptations

Question 09 · continued

0 4 . 8 Draw **one** line from each description to the person in **Table 2** it describes.

[2 marks]

Description	Person in Table 2
	Person **W**
Person most likely to have an infection	Person **X**
Person whose blood will **not** clot properly	Person **Y**
	Person **Z**

Question 4 continues on the next page

4.7.1.4 Adaptations

Question 09 · continued

0 4 . 9 The greater the height above sea level, the less oxygen there is in the air.

People who live high above sea level have more red blood cells than people who live at sea level.

Some athletes train in mountains high above sea level.

Explain why having more red blood cells will improve an athlete's performance.

[3 marks]

13

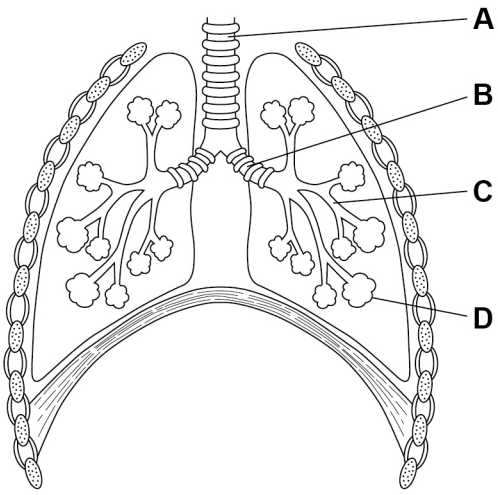
4.7.1.4 Adaptations

Question 10

June 2023 | 8464/B/1F | Original Q5

0 5 **Figure 8** shows the human breathing system.

Figure 8



0 5 . 1 Name parts **A** and **B**.

Choose answers from the box.

[2 marks]

alveolus	**bronchus**	**capillary**	**trachea**

A _____

B _____

0 5 . 2 Where does gas exchange happen in the breathing system?

[1 mark]

Tick (✓) **one** box.

A ☐ **B** ☐ **C** ☐ **D** ☐

4.7.1.4 Adaptations

Question 10 · continued

0 5 . 3 Give **two** ways that the lungs are adapted for efficient gas exchange.

[2 marks]

1 _____

_____

2 _____

_____

Table 3 shows the percentage of gases in air breathed into the lungs and air breathed out of the lungs.

Table 3

Gas	Percentage (%) in air breathed in	Percentage (%) in air breathed out
Oxygen	21	16
Carbon dioxide	0.04	4
Nitrogen	78	78

4.7.1.4 Adaptations

Question 10 · continued

0 5 . 4 Explain the **differences** in the air breathed into the lungs and the air breathed out of the lungs.

[4 marks]

0 5 . 5 The percentages given in each column of **Table 3** do **not** add up to 100%.

Suggest **one** reason why.

[1 mark]

10

4.7.1.4 Adaptations

Question 11

June 2024 | 8464/B/2F | Original Q3

0 3 Students used a reaction test card in an investigation.

The reaction test card can be used to test the reactions of car drivers.

Figure 4 shows the reaction test card.

Figure 4

Reaction score	How fast are your reactions?
5	Too slow
4	A bit slow
3	OK
2	Good
1	Super

0 3 . 1 Suggest why fast reactions are important for car drivers.

[1 mark]

4.7.1.4 Adaptations

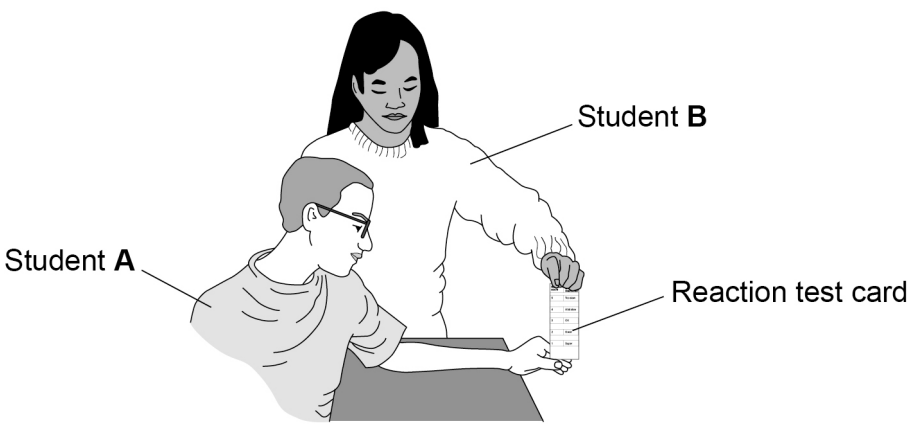
Question 11 · continued

Students investigated the effect of number of hours of sleep on reaction time.

The students used the reaction test card shown in **Figure 4** on page 11.

Figure 5 shows the method used.

Figure 5



This is the method used.

1. Record the number of hours of sleep student **A** had the night before the test.
2. Student **B** holds the lower edge of the card level with the top of student **A**'s thumb.
3. Student **A** holds their thumb and forefinger slightly apart, with space for the card to drop.
4. Student **B** drops the card.
5. Student **A** catches the card as quickly as possible.
6. Record the number shown at the top of student **A**'s thumb.
7. Repeat steps 1 to 6 with seven other students.

4.7.1.4 Adaptations

Question 11 · continued

0 3 . 2 Draw **one** line from each type of variable to the example of that variable in the investigation.

[3 marks]

Type of variable	Example
Control variable	Number nearest top of thumb when student catches card
Dependent variable	Number of hours of sleep
Independent variable	Number of students tested
	Start with lower edge of card level with top of thumb

Question 3 continues on the next page

4.7.1.4 Adaptations

Question 11 · continued

Figure 4 is repeated below.

Figure 4

Reaction score	How fast are your reactions?
5	Too slow
4	A bit slow
3	OK
2	Good
1	Super

0 3 . 3 A student said:

'It would be better to use a ruler showing millimetres instead of the card in **Figure 4**.'

Why is the student correct?

[1 mark]

Tick (✓) **one** box.

Students are familiar with a ruler but the card is new. ☐

Students have very fast reactions. ☐

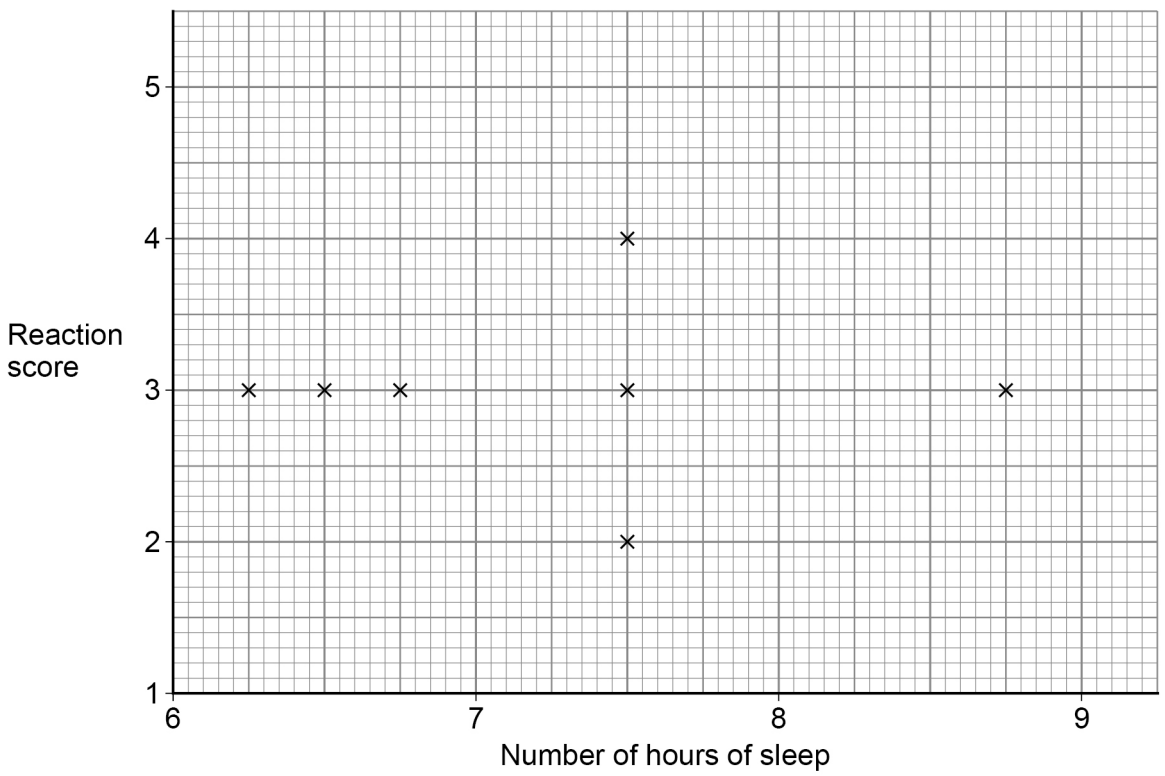
Students may catch the card between scores. ☐

4.7.1.4 Adaptations

Question 11 · continued

Figure 6 shows the results for the seven other students.

Figure 6



0 3 . 4 Student **A** had 8 hours and 30 minutes of sleep and a reaction score of 3

Plot the result for student **A** on **Figure 6**.

[1 mark]

0 3 . 5 The mean number of hours of sleep for all students was 7.4

What was the **mode** for the number of hours of sleep?

[1 mark]

Mode = _____ hours

4.7.1.4 Adaptations

Question 11 · continued

0 3 . 6 A lower reaction score means a faster reaction.

What was the effect of increasing the number of hours of sleep on reaction time?

Use **Figure 6**.

[1 mark]

Tick (✓) **one** box.

Reaction time decreased ☐

Reaction time stayed the same ☐

Reaction time increased ☐

0 3 . 7 Suggest **two** ways the students could improve the investigation.

Do **not** refer to using a ruler in your answer.

[2 marks]

1 _____

_____

2 _____

_____

Question 3 continues on the next page

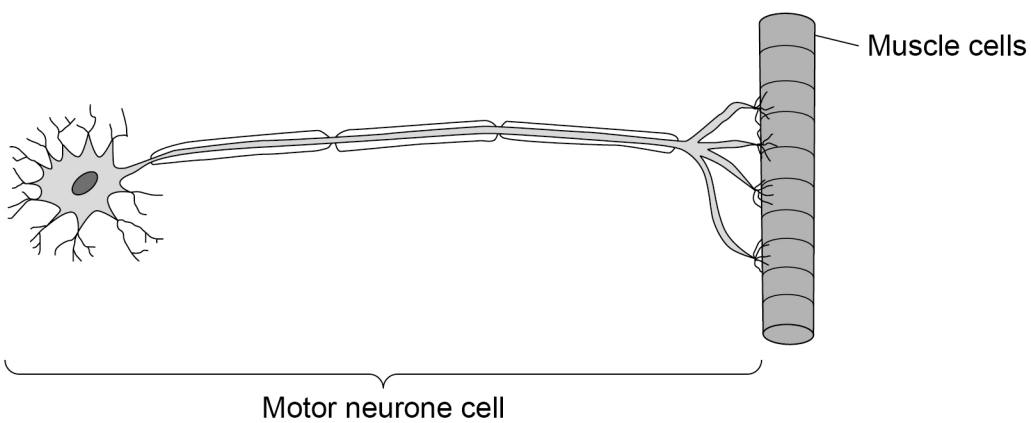
4.7.1.4 Adaptations

Question 11 · continued

0 3 . 8 Motor neurones are involved in reactions.

Figure 7 shows a motor neurone.

Figure 7



Explain **one** way the motor neurone cell is adapted for its function.

[3 marks]

13

4.7.1.4 Adaptations

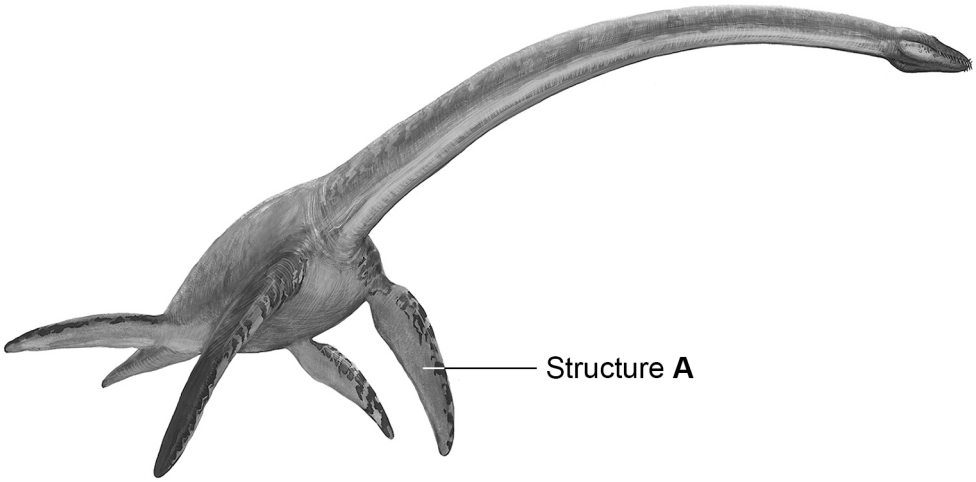
Question 12

June 2025 | 8464/B/2F | Original Q4

0 4 Plesiosaurs are extinct animals that lived in the ocean.

Figure 5 shows what scientists think a living plesiosaur may have looked like.

Figure 5



0 4 . 1 Scientists think that the plesiosaur had smooth skin.

Suggest why the scientists **cannot** be certain what the skin of the plesiosaur was like.

[1 mark]

0 4 . 2 Explain how structure **A** in **Figure 5** helped the plesiosaur survive in the ocean.

[2 marks]

4.7.1.4 Adaptations

Question 12 · continued

0 4 . 3 Plesiosaurs may have moved rapidly upwards to hold their heads above the water surface to search for prey.

What type of adaptation was the rapid upwards movement?

[1 mark]

Tick (✓) **one** box.

Behavioural ☐

Chemical ☐

Structural ☐

Question 4 continues on the next page

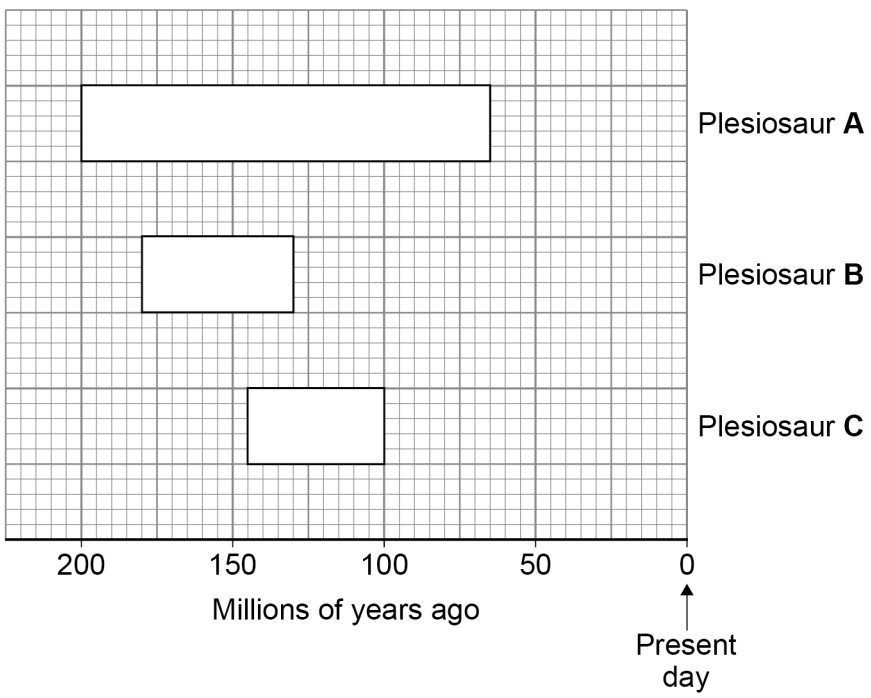
4.7.1.4 Adaptations

Question 12 · continued

Scientists use fossils to estimate when different types of plesiosaur existed.

Figure 6 shows when three types of plesiosaur existed.

Figure 6



0 4 . 4 When did plesiosaur **A** first evolve?

Use **Figure 6**.

[1 mark]

_____ million years ago

0 4 . 5 Determine how many million years plesiosaur **B** existed for.

Use **Figure 6**.

[2 marks]

_____

_____

_____

Time = _____ million years

4.7.1.4 Adaptations

Question 12 · continued

0 4 . 6 The exact year of extinction of all plesiosaur species can only be estimated.

Which are **two** reasons why?

[2 marks]

Tick (✓) **two** boxes.

- All plesiosaurs will have formed fossils. ☐
- Not all plesiosaur fossils have been discovered. ☐
- Plesiosaur bones do not decay. ☐
- Plesiosaurs had many predators. ☐
- Some plesiosaur fossils will have been destroyed. ☐

0 4 . 7 What evidence from **Figure 6** shows that plesiosaur **C** might have evolved from plesiosaur **B**?

[1 mark]

Tick (✓) **one** box.

- Plesiosaur **B** and plesiosaur **C** did not exist at the same time. ☐
- Plesiosaur **B** existed before plesiosaur **C**. ☐
- Plesiosaur **B** became extinct more recently than plesiosaur **C**. ☐

Question 4 continues on the next page

4.7.1.4 Adaptations

Question 12 · continued

0 4 . 8 Evolution can be studied using evidence from:

- fossils
- antibiotic-resistant bacteria.

Suggest **two** reasons why it is easier to study evolution in bacteria than to study evolution using fossils.

[2 marks]

1 _____

_____

2 _____

_____

0 4 . 9 Give **one** reason why doctors are concerned about antibiotic-resistant bacteria.

[1 mark]

_____

_____

13