Photosynthesis

Total mark – 14

Q1.

All living organisms respire.

(a) What is the chemical equation for aerobic respiration?

Tick (✓) **one** box.

$6\ O_2 + 6\ CO_2 \rightarrow 6\ H_2O + C_6H_{12}O_6$ ☐

$6\ H_2O + C_6H_{12}O_6 \rightarrow 6\ H_2O + 6\ CO_2$ ☐

$6\ H_2O + 6\ CO_2 \rightarrow 6\ O_2 + C_6H_{12}O_6$ ☐

$6\ O_2 + C_6H_{12}O_6 \rightarrow 6\ H_2O + 6\ CO_2$ ☐

(1)

(b) Name the sub-cellular structures where aerobic respiration takes place.

_____

(1)

(c) Energy is released in respiration.

Give **two** uses of the energy released in respiration.

1 _____

_____

2 _____

_____

(2)

(d) Describe **two** differences between aerobic and anaerobic respiration in humans.

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

1 _____

_____

2 _____

_____

(2)

(e) What are the **two** products of anaerobic respiration in plant cells?

Tick (✓) **two** boxes.

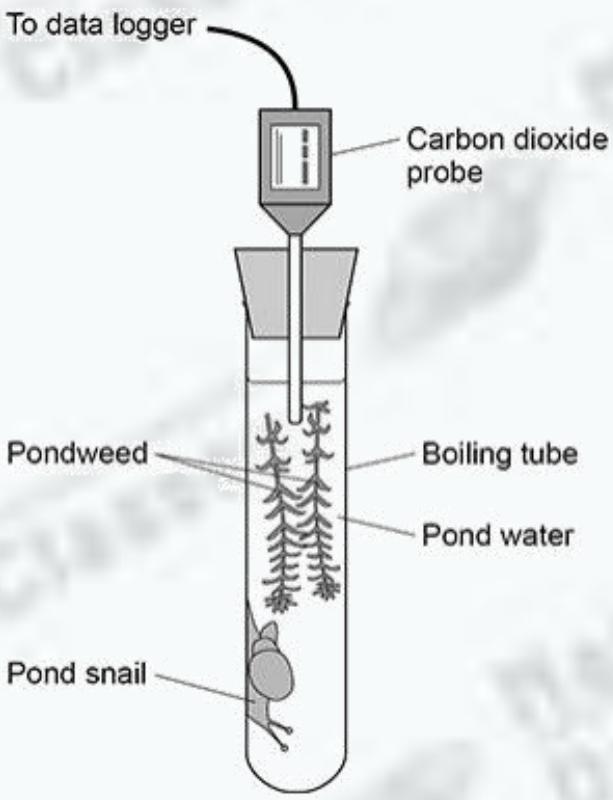
- Carbon dioxide ☐
- Ethanol ☐
- Glucose ☐
- Lactic acid ☐
- Water ☐

(2)

A scientist investigated respiration and photosynthesis using some pondweed and a pond snail.

Figure 1 shows the apparatus used.

Figure 1



The apparatus was left in a well-lit room for 5 days.

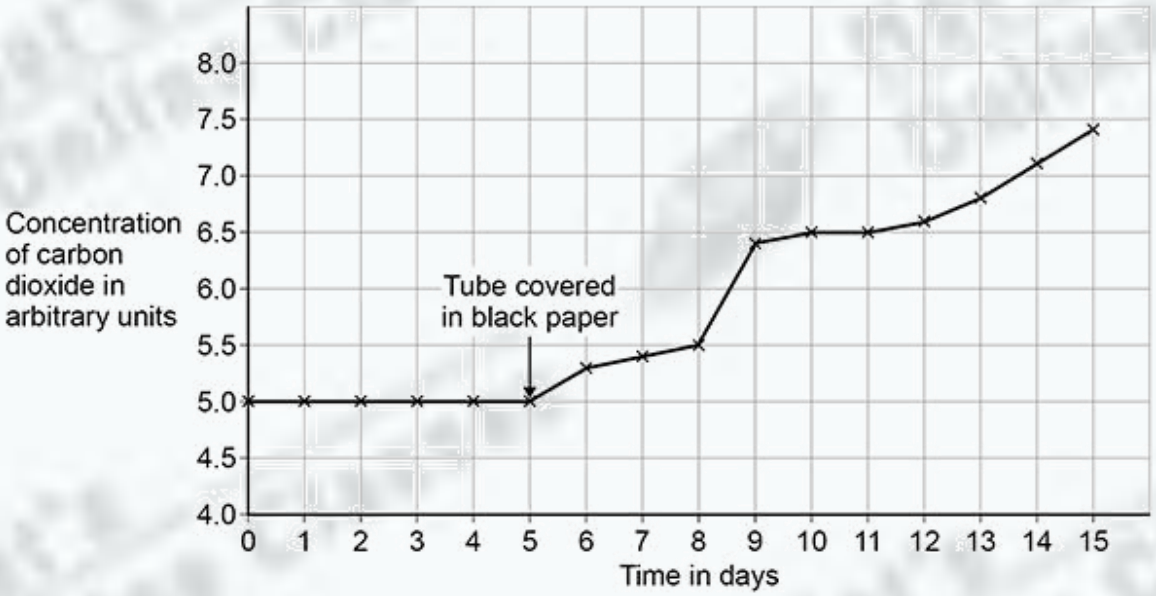
The data logger recorded the concentration of carbon dioxide continuously.

After 5 days, the scientist completely covered the boiling tube with black paper.

The data logger continued to record the concentration of carbon dioxide.

Figure 2 shows the concentration of carbon dioxide inside the boiling tube over 15 days.

Figure 2



(f) Explain why the concentration of carbon dioxide in the tube stayed the same between day 0 and day 5.

(2)

(g) Suggest why the concentration of carbon dioxide increased between day 5 and day 10.

_____

_____

(1)

(h) On day 10, the pond snail died.

Explain why the death of the pond snail caused the concentration of carbon dioxide to increase after day 10.

(3)