Photosynthesis Required Practical Exam Questions

Q1.

This question is about photosynthesis.

(a) What are the **two** products of photosynthesis?

Tick **two** boxes.

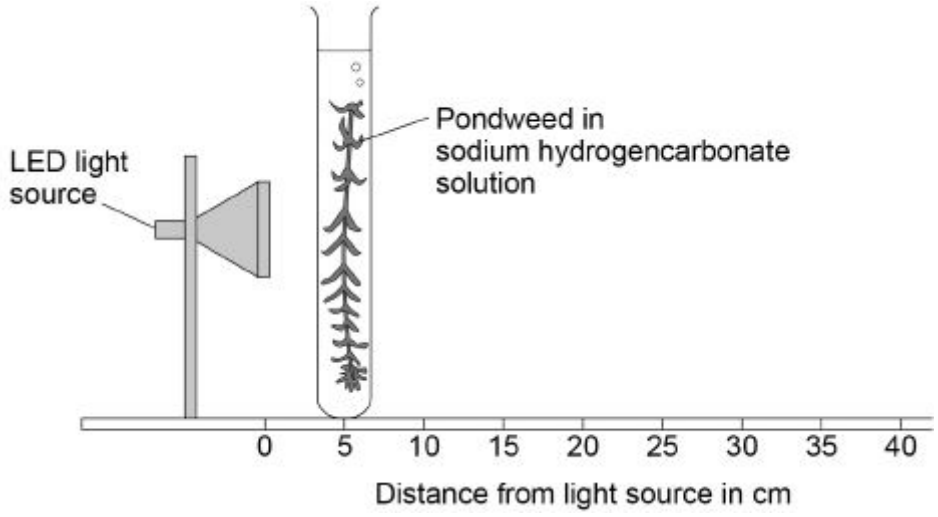
Carbon dioxide	☐
Chlorophyll	☐
Glucose	☐
Oxygen	☐
Water	☐

(2)

A student investigated the effect of light intensity on the rate of photosynthesis.

Figure 1 shows the apparatus.

Figure 1



This is the method used.

1. Place the pondweed at 5 cm from the light source.
2. Measure the rate of photosynthesis by counting the number of bubbles produced in 30 seconds.

3. Repeat the investigation with the pondweed at different distances from the light source.

(b) How could the student measure the rate of photosynthesis more accurately?

Tick **two** boxes.

Count the number of bubbles produced in 1 minute	☐
Measure the change in mass of the pondweed in 30 seconds	☐
Measure the volume of gas produced in 30 seconds	☐
Place the pondweed further from the light source	☐
Use water instead of sodium hydrogencarbonate solution	☐

(2)

(c) The LED light source does **not** get hot.

Why is this important?

_____

_____

_____

(1)

The table below shows the student's results.

Distance of light source from pondweed in cm	**Number of bubbles produced in 30 seconds**
5	40
10	13
15	5
20	2
25	1
30	0

(d) Calculate the number of bubbles produced in 2 minutes when the light source was 10 cm from the pondweed.

_____

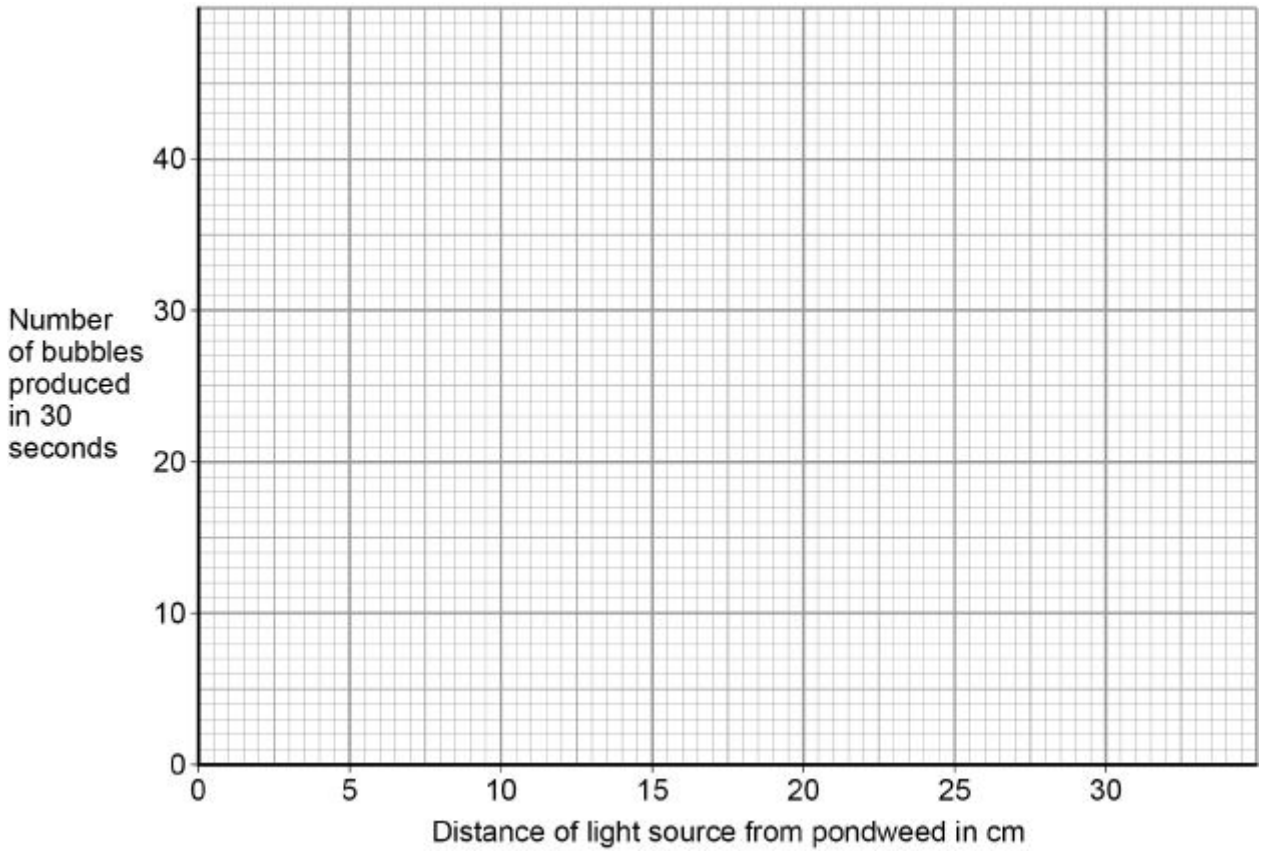
Number of bubbles produced in 2 minutes = _____

(1)

(e) Plot the data from the table above on **Figure 2**

Draw a line of best fit.

Figure 2



(3)

(f) Give **one** conclusion that can be made from these results.

_____

_____

(1)

(Total 10 marks)

Q2.

Plants absorb light to photosynthesise.

(a) What is the correct word equation for photosynthesis?

Tick **one** box.

carbon dioxide + glucose → oxygen + water ☐

glucose + oxygen → carbon dioxide + water ☐

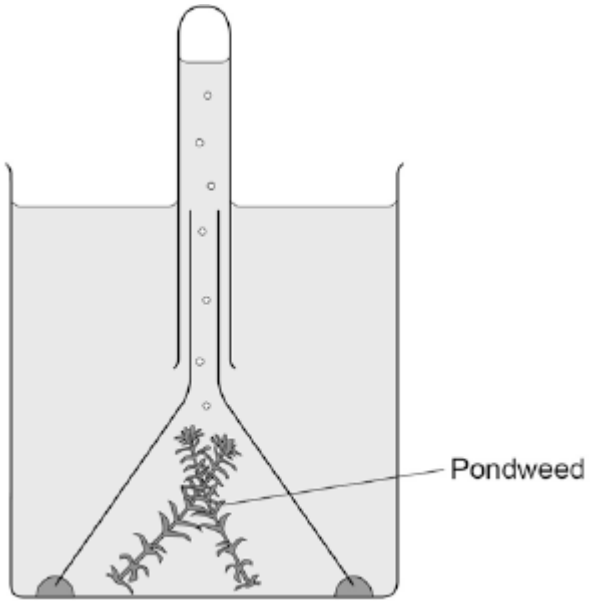
oxygen + water → carbon dioxide + glucose ☐

water + carbon dioxide → oxygen + glucose ☐

(1)

(b) **Figure 1** shows some of the apparatus that can be used to measure the rate of photosynthesis.

Figure 1



The rate of photosynthesis in the pondweed is affected by different colours of light.

Describe a method you could use to investigate this.

You should include:

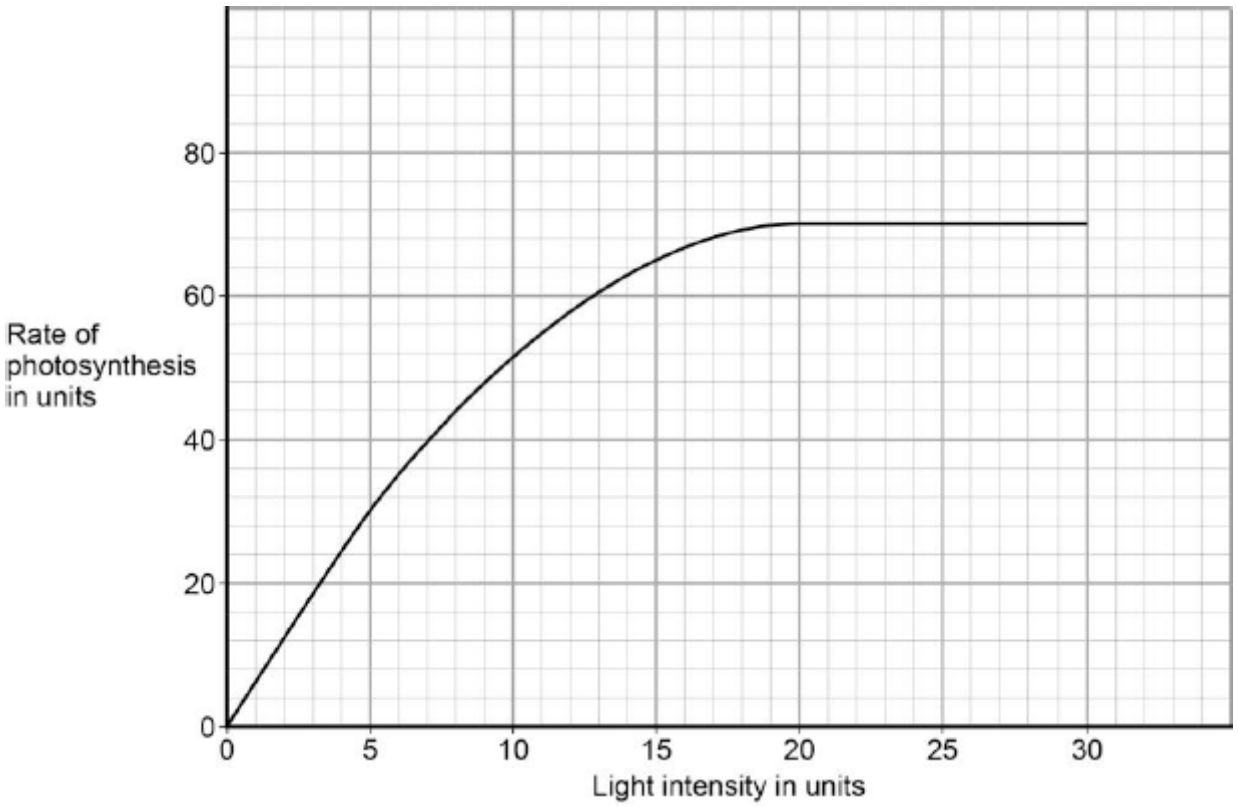
- what you would measure
- variables you would control.

(6)

(c) A scientist carried out a similar investigation.

Her results are shown in **Figure 2**.

Figure 2



The scientist said:

'Light stops being a limiting factor at a light intensity of 20 units.'

Give evidence from **Figure 2** to support this statement.

(1)

(d) What could be limiting the rate of photosynthesis at a light intensity of 25 units?

Give **one** factor.

(1)
(Total 9 marks)

[9]