

Name of the Student: _____

Max. Marks : 19 Marks

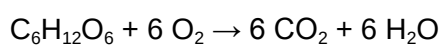
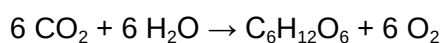
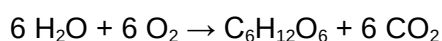
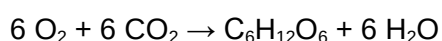
Time : 19 Minutes

Q1.

Plants absorb light for photosynthesis.

(a) Which is the equation for photosynthesis?

Tick (✓) **one** box.

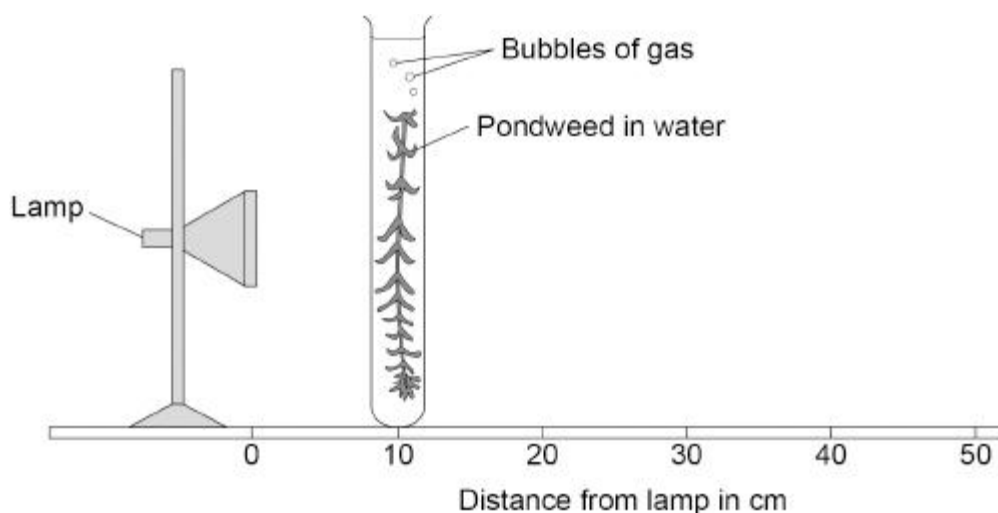
☐☐☐☐

(1)

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. Set up the apparatus as shown in **Figure 1**.

2. Place the pondweed 10 cm away from the lamp.
3. Switch on the lamp.
4. Record the number of bubbles of gas produced in 5 minutes.
5. Repeat steps 2 to 4 with the pondweed at different distances from the lamp.

(b) What was the independent variable in this investigation?

Tick (✓) **one** box.

Distance of the pondweed from the lamp

☐

Length of the piece of pondweed

☐

Number of bubbles of gas produced

☐

Time taken to collect the gas

☐

(1)

The lamp gets warm when it is on. This causes the temperature of the water to increase.

(c) Explain how an increase in temperature would affect the results of this investigation.

(2)

(d) Suggest **one** way the investigation could be improved so the temperature of the water does **not** increase.

(1)

(e) Suggest **two** improvements to the investigation so the results would be more valid.

Do **not** refer to controlling the temperature of the water.

1

2

(2)

The table below shows the results.

Distance of pondweed from the lamp in cm	Number of bubbles of gas produced in 5 minutes
10	120
20	56
30	31
40	16
50	10

(f) Calculate the rate of photosynthesis when the pondweed was 40 cm from the lamp.

Give the rate of photosynthesis as the number of bubbles of gas produced per minute.

Rate = _____ bubbles of gas produced per minute

(1)

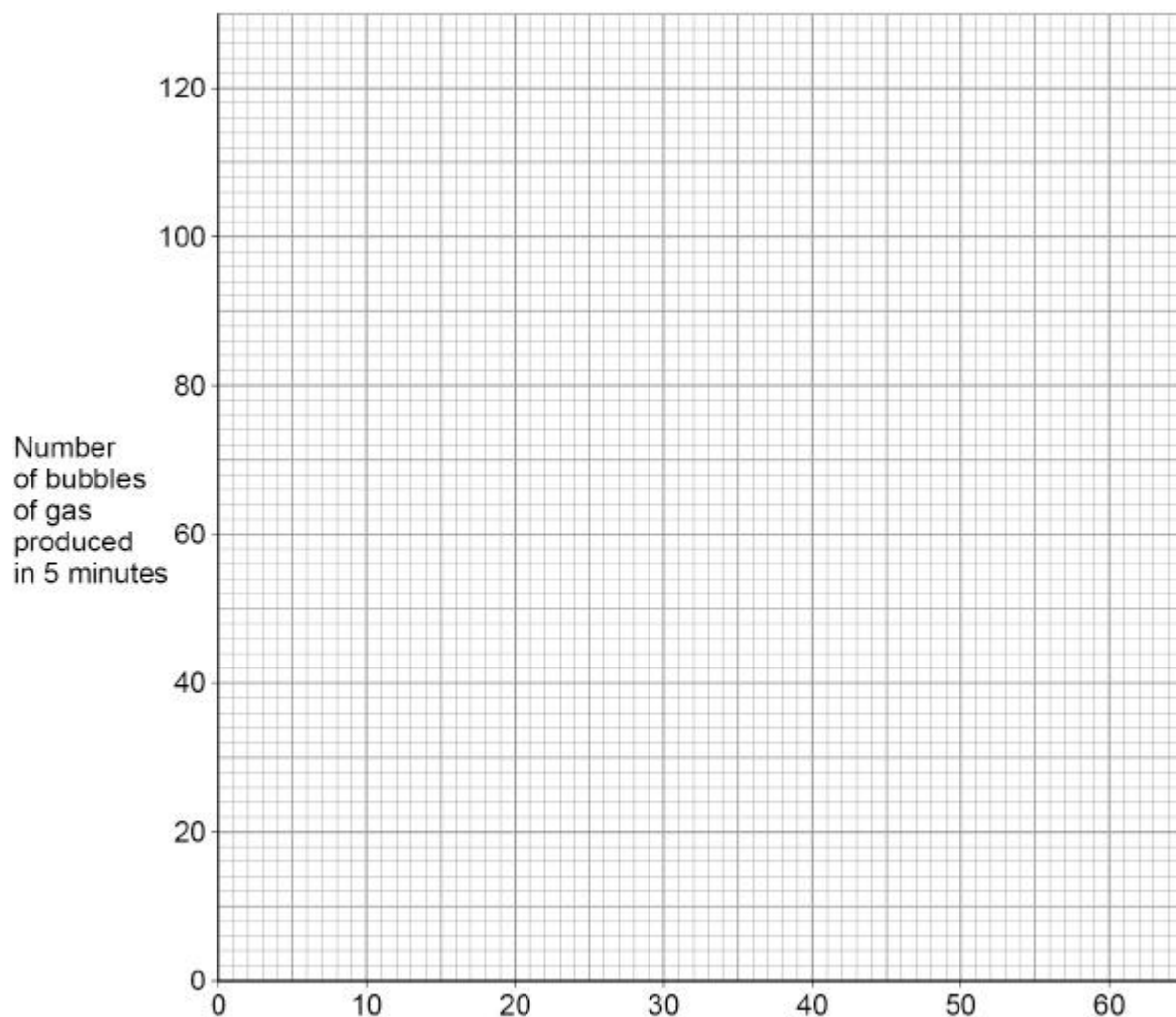
(g) Give **one** conclusion that can be made from the table above.

(1)

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

Draw a line of best fit.

Figure 2



(3)

- (i) Predict the number of bubbles that would be produced in 5 minutes if the pondweed was 60 cm from the lamp.

Use **Figure 2**.

Number of bubbles produced in 5 minutes = _____

(1)

(Total 13 marks)

Q2.

Describe how to test a sample of food for protein, starch and sugar.

Give the colours that would be seen if the food sample contained protein, starch and sugar.

(Total 6 marks)