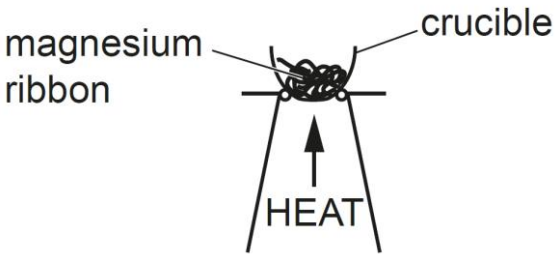
GCSE Chemistry B (Twenty First Century Science)

J258/02 Depth in chemistry (Foundation Tier)

Question Set 28

1 Eve heats magnesium ribbon in a crucible.



(a) Complete the word equation and balance the symbol equation for the reaction that happens in the crucible.

magnesium + ... → magnesium oxide

.....Mg + O_2 → ..... MgO **[2]**

(b) Eve writes down the mass of the empty crucible, and the mass of the crucible and magnesium oxide at the end of the experiment.

She also works out how much magnesium oxide she expects to make (her **theoretical yield**).

Mass of empty crucible (g)	17.9
Mass of crucible and magnesium oxide at the end of the experiment (g)	21.6
Mass of magnesium oxide formed (g)	.....
Theoretical yield of magnesium oxide (g)	4.0

Table 6.1

(i) Complete **Table 6.1** by calculating the mass of magnesium oxide formed in Eve's experiment. **[1]**

(ii) Eve works out her percentage yield, using the equation:

$$\textbf{percentage yield} = \frac{\textbf{mass of magnesium oxide formed}}{\textbf{theoretical yield of magnesium oxide}} \times 100\ \%$$

Calculate the percentage yield in Eve's experiment.

Use the data in **Table 6.1**, and the equation provided.

Give your answer to **2** significant figures.

Percentage yield = ... % **[3]**

(c) Eve does some more experiments.

She measures the mass of magnesium oxide formed when different masses of magnesium are heated.

Experiment	Mass of magnesium heated (g)	Mass of magnesium oxide formed(g)
1	0.5	0.8
2	1.0	1.3
3	1.5	2.4
4	2.0	3.2
5	2.5	4.0

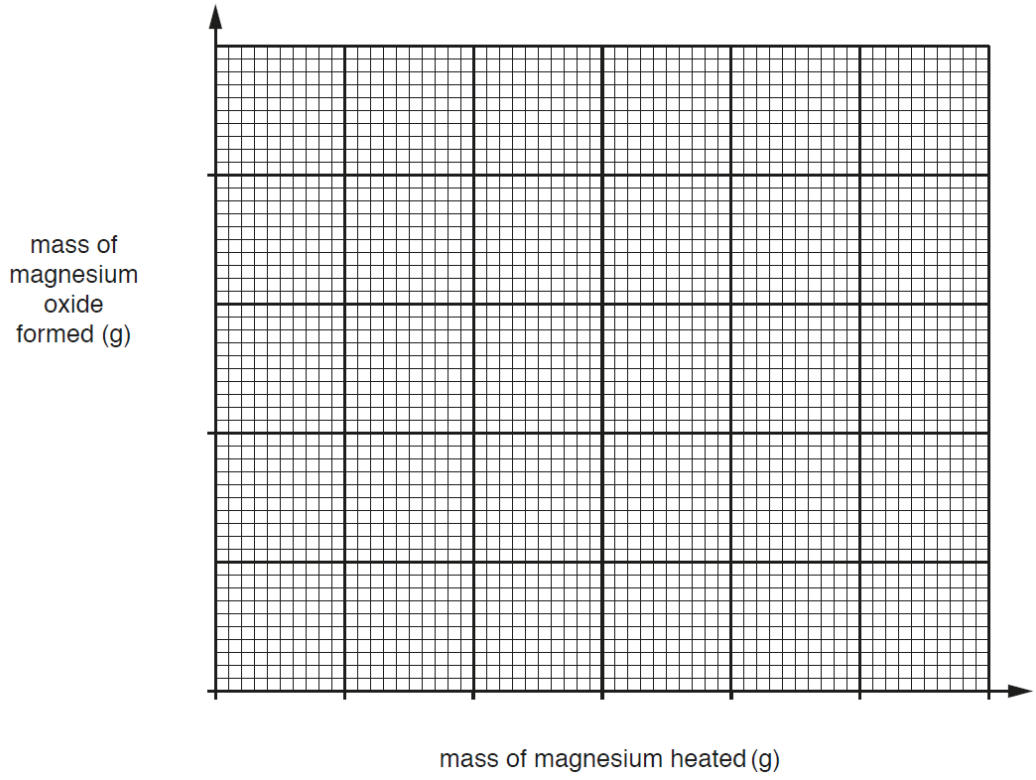
Table 6.2

(i) Plot a graph of magnesium oxide formed against mass of magnesium heated. Use the data in **Table 6.2**.

You should include on your graph:

• an appropriate scale for your axes

• a line of best fit.



[4]

(ii) Eve thinks that she wrote down the results for one of her experiments before the reaction had fully finished.

Suggest which reaction had not fully finished.

Use your graph to explain your answer. **[2]**

Total Marks for Question Set 28: 12