

( Conservation of mass and balanced equations )

Q1. ( 2019 )

**Figure 10** is repeated here.

**Figure 10**

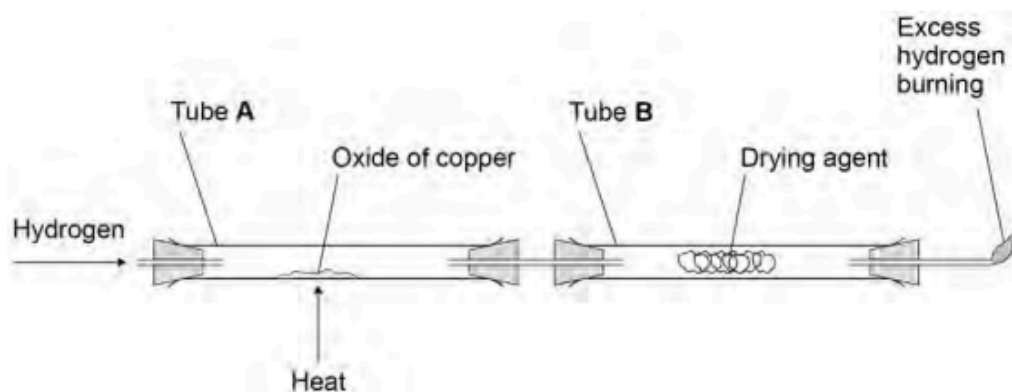
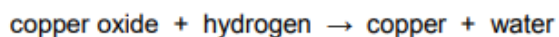


**Table 5** shows the teacher's results.

**Table 5**

|                                           | Mass in g |
|-------------------------------------------|-----------|
| Tube A empty                              | 105.72    |
| Tube A and oxide of copper before heating | 115.47    |
| Tube A and contents after 2 minutes       | 114.62    |
| Tube A and contents after 4 minutes       | 114.38    |
| Tube A and contents after 6 minutes       | 114.38    |
| Tube B and contents at start              | 120.93    |
| Tube B and contents at end                | 123.38    |

When an oxide of copper is heated in a stream of hydrogen, the word equation for the reaction is:



Determine the mass of copper and the mass of water produced in this experiment.

Use **Table 5**.

[2 marks]

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Mass of copper = \_\_\_\_\_ g

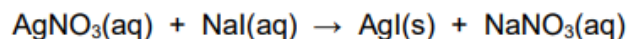
Mass of water = \_\_\_\_\_ g

Q2. a). ( 2020 )

This question is about silver iodide.

Silver iodide is produced in the reaction between silver nitrate solution and sodium iodide solution.

The equation for the reaction is:



A student investigated the law of conservation of mass.

This is the method used.

1. Pour silver nitrate solution into a beaker labelled **A**.
2. Pour sodium iodide solution into a beaker labelled **B**.
3. Measure the masses of both beakers and their contents.
4. Pour the solution from beaker **B** into beaker **A**.
5. Measure the masses of both beakers and their contents again.

**Table 3** shows the student's results.

**Table 3**

|                              | Mass before mixing in g | Mass after mixing in g |
|------------------------------|-------------------------|------------------------|
| Beaker <b>A</b> and contents | 78.26                   | 108.22                 |
| Beaker <b>B</b> and contents | 78.50                   | 48.54                  |

Explain how the results demonstrate the law of conservation of mass.

You should use data from **Table 3** in your answer.

**[2 marks]**

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Q2. b). ( 2020 )

Suggest how the student could separate the insoluble silver iodide from the mixture at the end of the reaction.

**[1 mark]**

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Q2. c). ( 2020 )

The student purified the separated silver iodide.

This is the method used.

1. Rinse the silver iodide with distilled water.
2. Warm the silver iodide.

Suggest **one** impurity that was removed by rinsing with water.

**[1 mark]**

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Q2. d). ( 2020 )

Suggest **why** the student warmed the silver iodide.

**[1 mark]**

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