

**Paper Reference(s) 4CH1/1C 4SD0/1C  
Pearson Edexcel International GCSE (9–1)**

**Chemistry  
Science (Double Award) 4SD0  
PAPER: 1C**

**Time: 2 hours plus your additional time allowance**

## **Diagram Booklet**

**In the boxes below, write your name, centre number and candidate number.**

<b>Surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

## INSTRUCTIONS

There may be spare copies of some diagrams in case you need them.

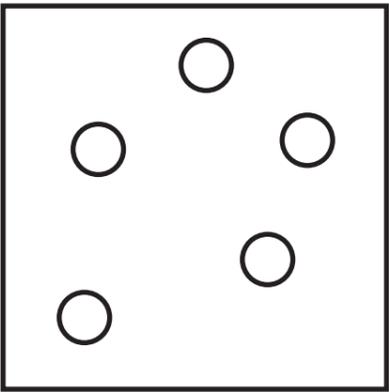
**THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.**

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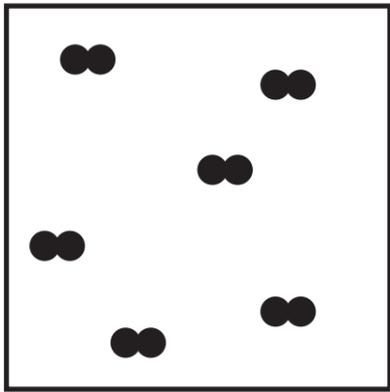
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## Question 1(a)

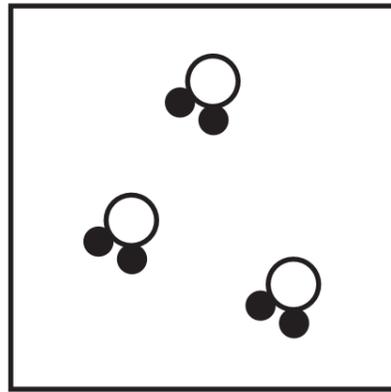
A



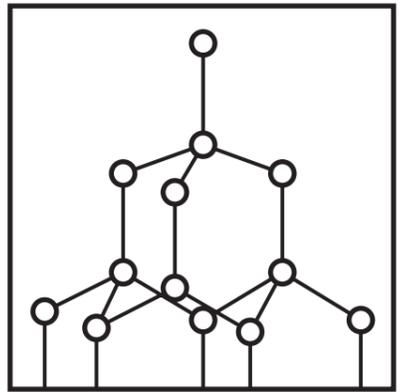
B



C



D



## Question 2(b)(i)

<b>Element</b>	<b>Description of reaction with iron wool</b>
<b>fluorine</b>	
<b>chlorine</b>	<b>does not need heating</b> <b>reacts quickly</b>
<b>bromine</b>	<b>needs heating</b> <b>reacts slowly</b>
<b>iodine</b>	<b>needs heating</b> <b>reacts very slowly</b>

## Question 2(b)(i)

<b>Element</b>	<b>Description of reaction with iron wool</b>
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<b>chlorine</b>	<b>does not need heating</b> <b>reacts quickly</b>
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Question 3(b)

Method A



Method B



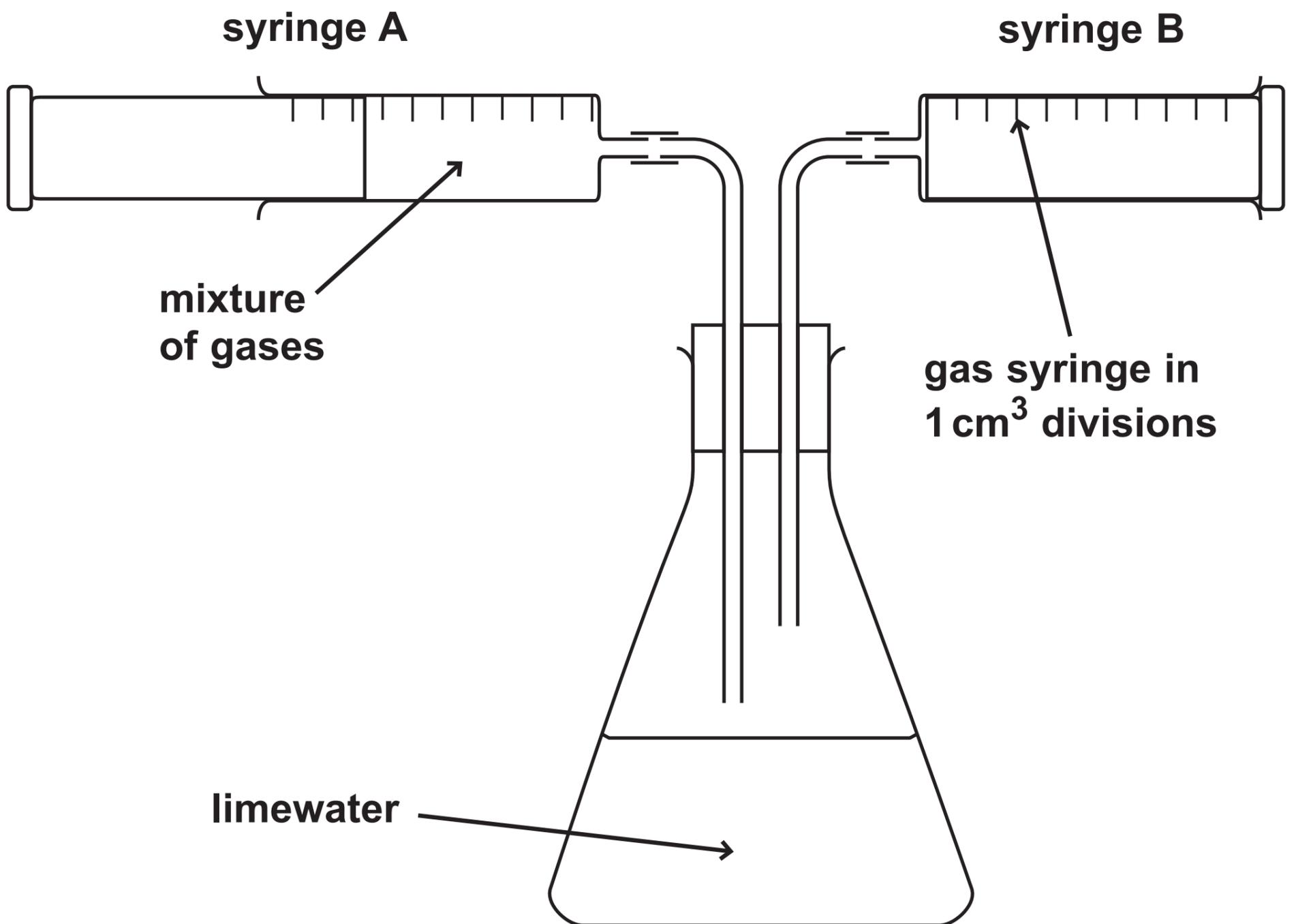
## Question 4(a)

	<b>Species F</b>	<b>Species G</b>	<b>Species H</b>
<b>number of protons</b>	7	7	7
<b>number of neutrons</b>	7	8	7
<b>number of electrons</b>	7	7	10

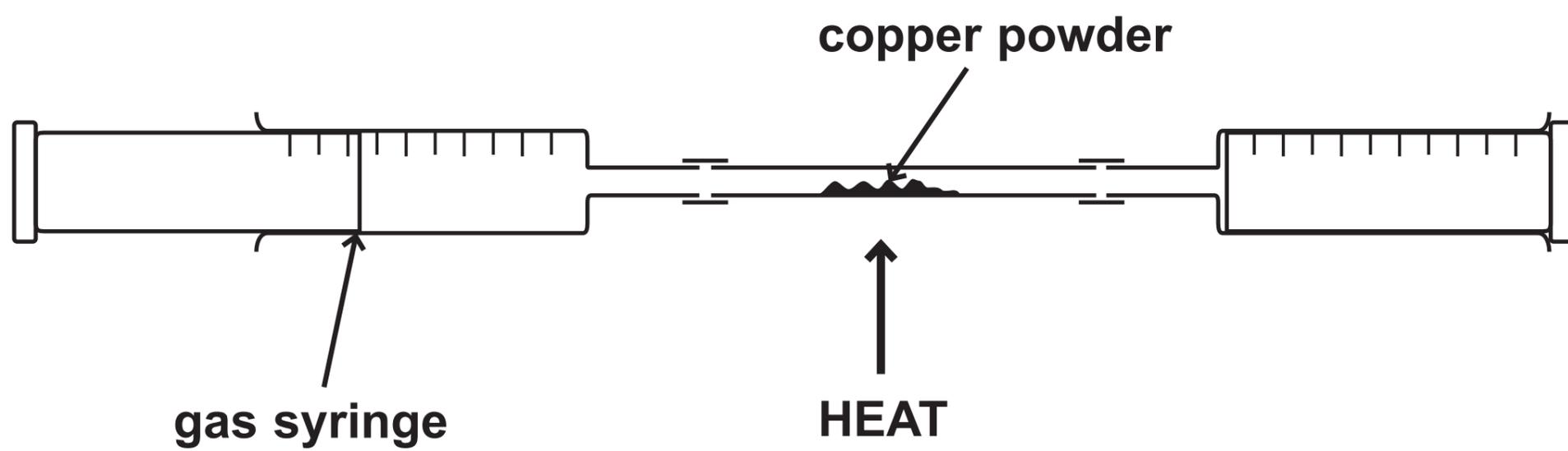
**Question 4(b)**

<b>Mass number</b>	<b>Percentage (%)</b>
<b>12</b>	<b>98.930</b>
<b>13</b>	<b>1.070</b>

## Question 5

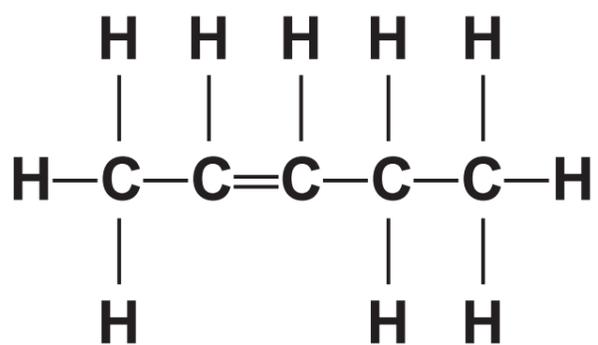


## Question 5(c)

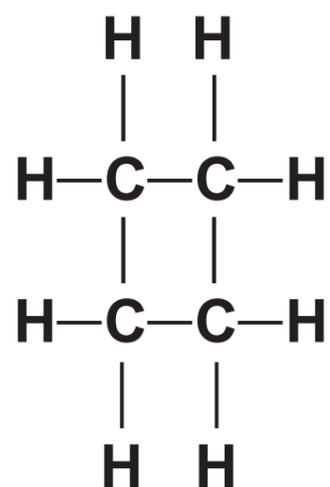


## Question 6(a)

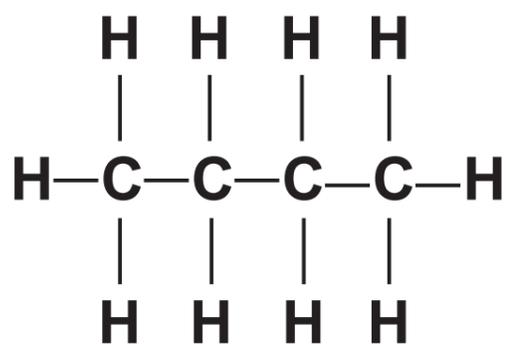
Compound U



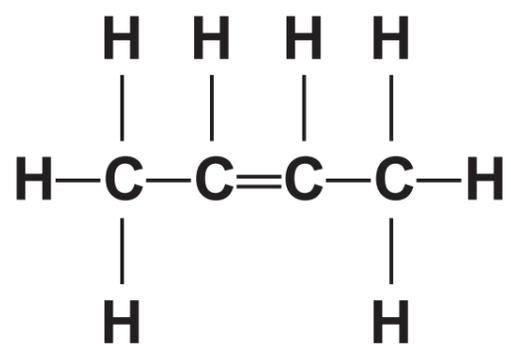
Compound V



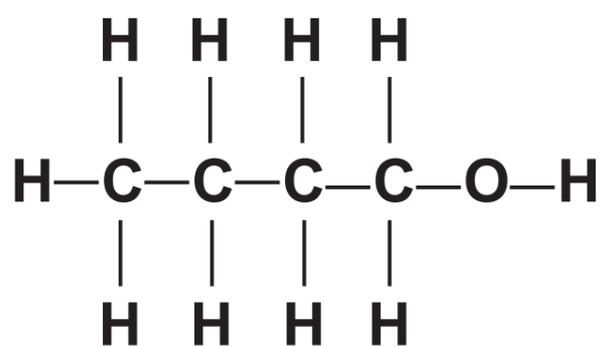
Compound W



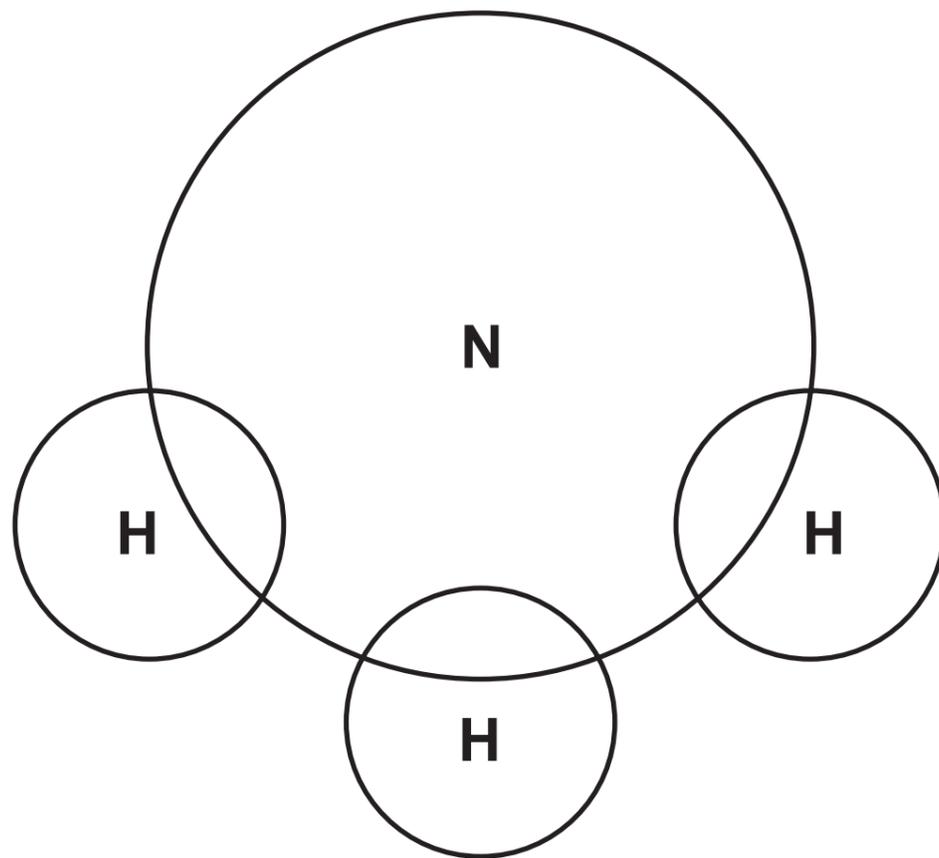
Compound X



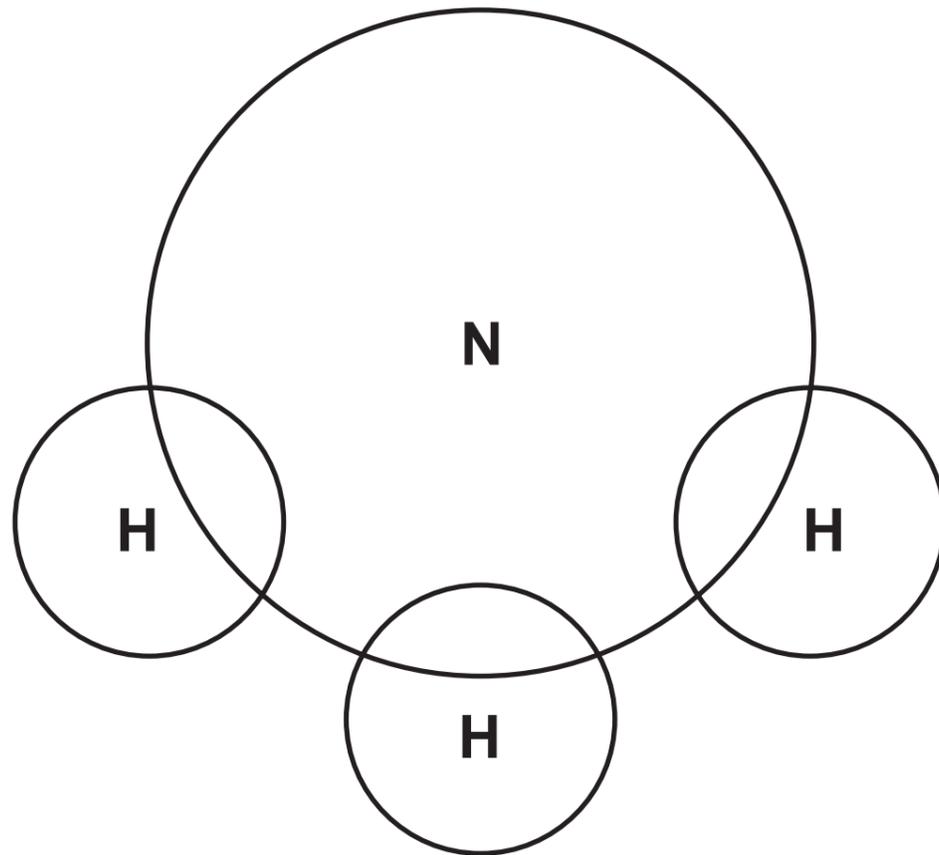
Compound Y



## Question 7(c)(i)



## Question 7(c)(i)

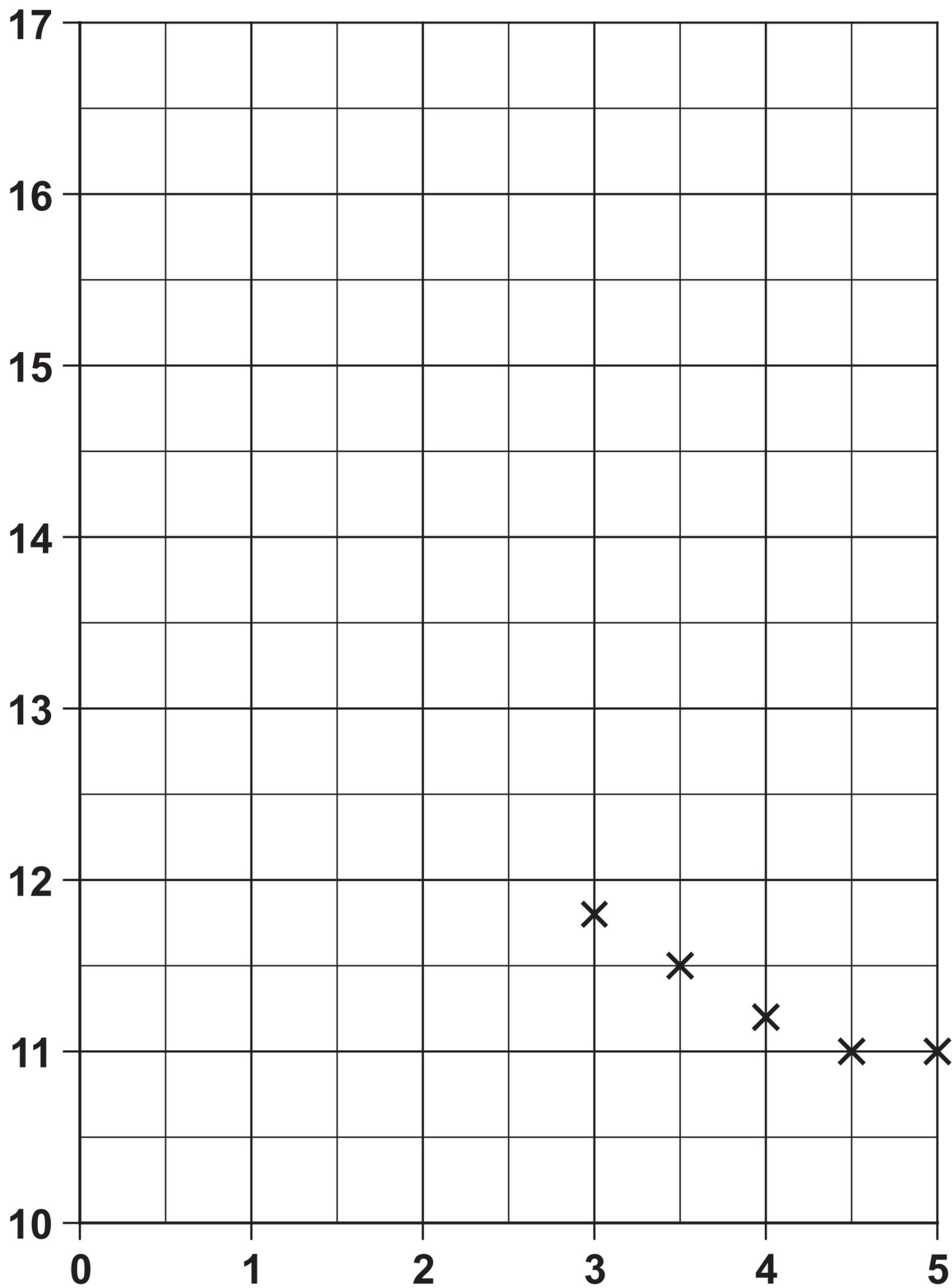


## Question 9(a)

<b>Mass of sodium carbonate added in g</b>	<b>Temperature in °C</b>
0·0	17·0
0·5	15·6
1·0	14·1
1·5	13·0
2·0	12·9
2·5	12·2
3·0	11·8
3·5	11·5
4·0	11·2
4·5	11·0
5·0	11·0

## Question 9(a)

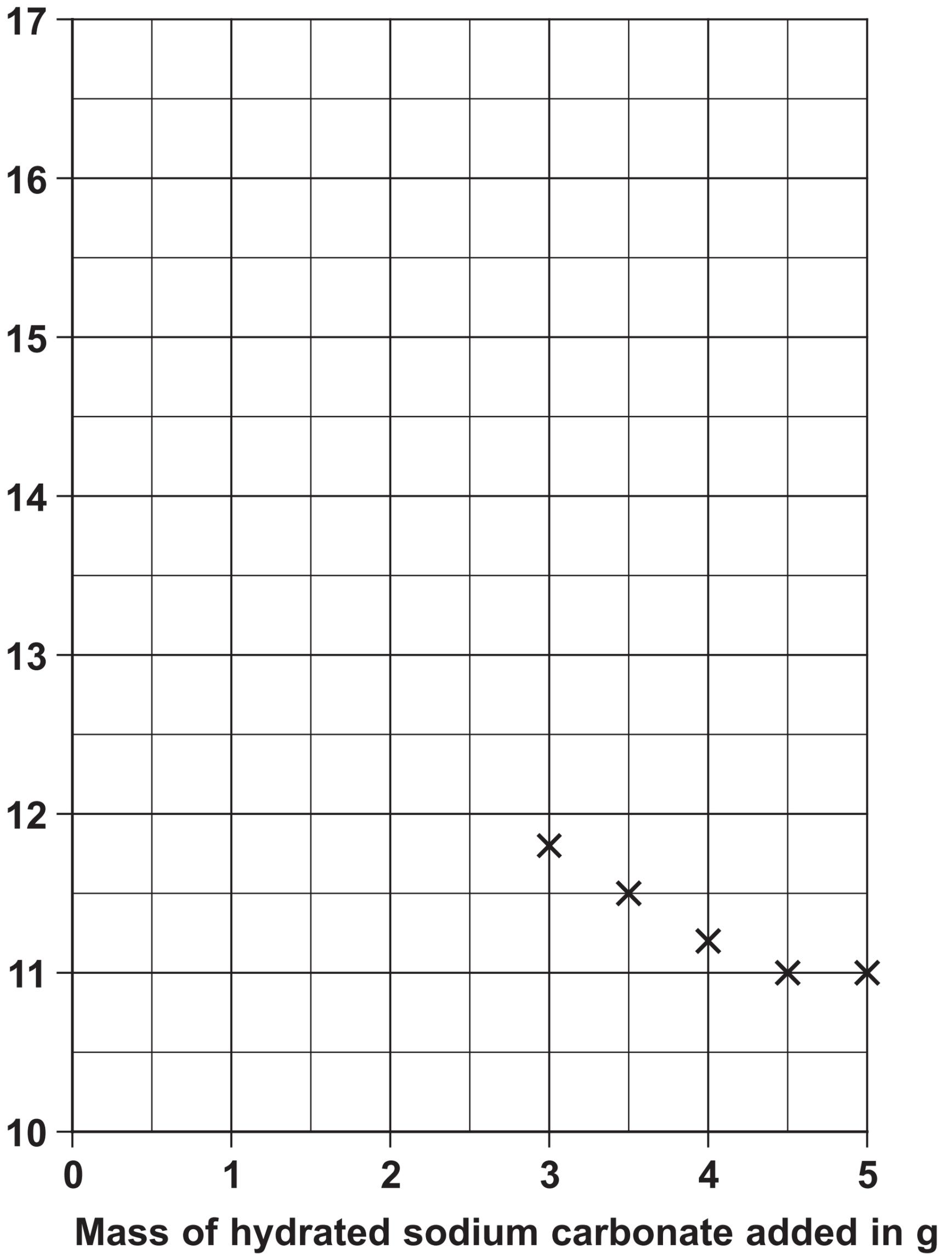
Temperature in °C



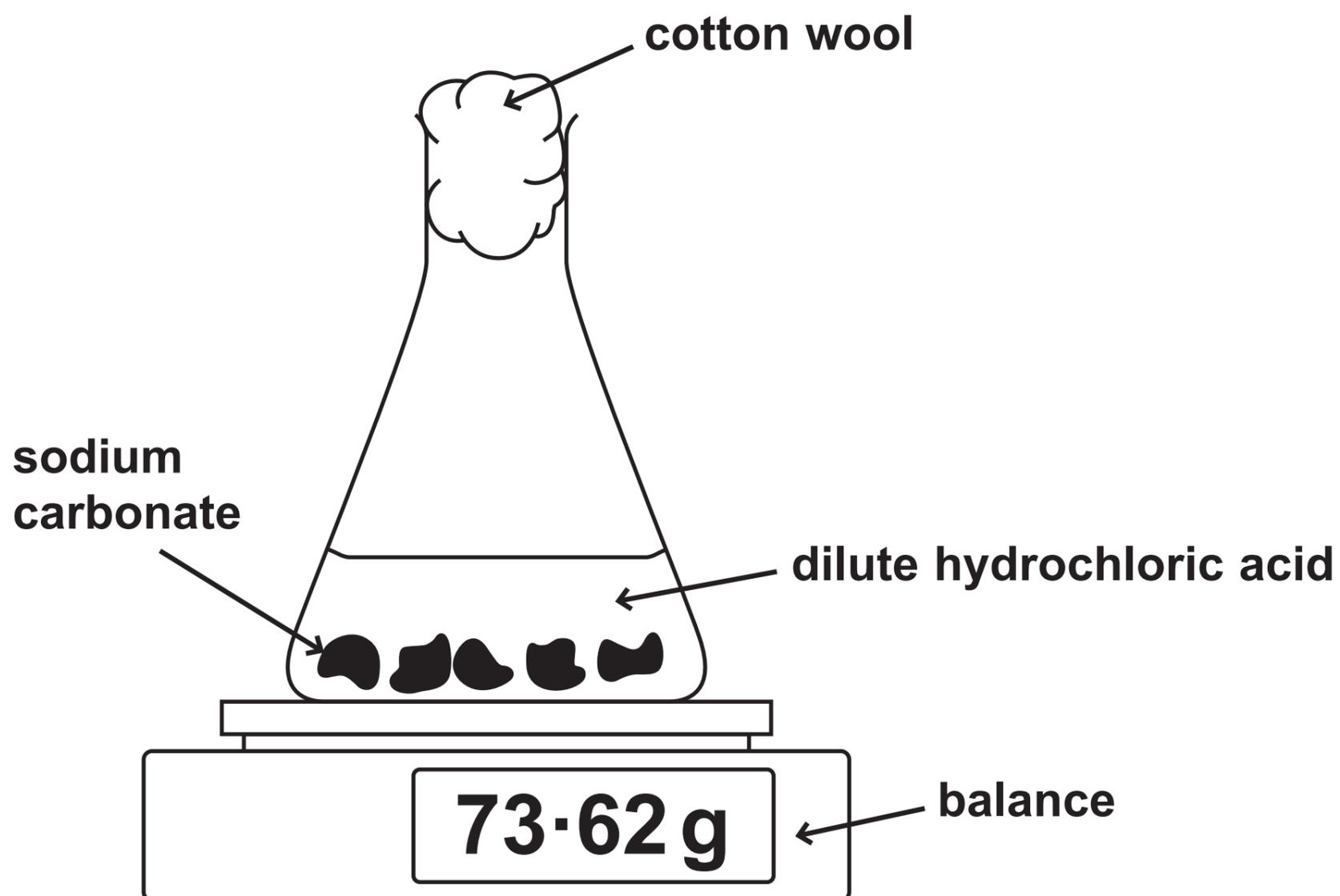
Mass of hydrated sodium carbonate added in g

## Question 9(a)

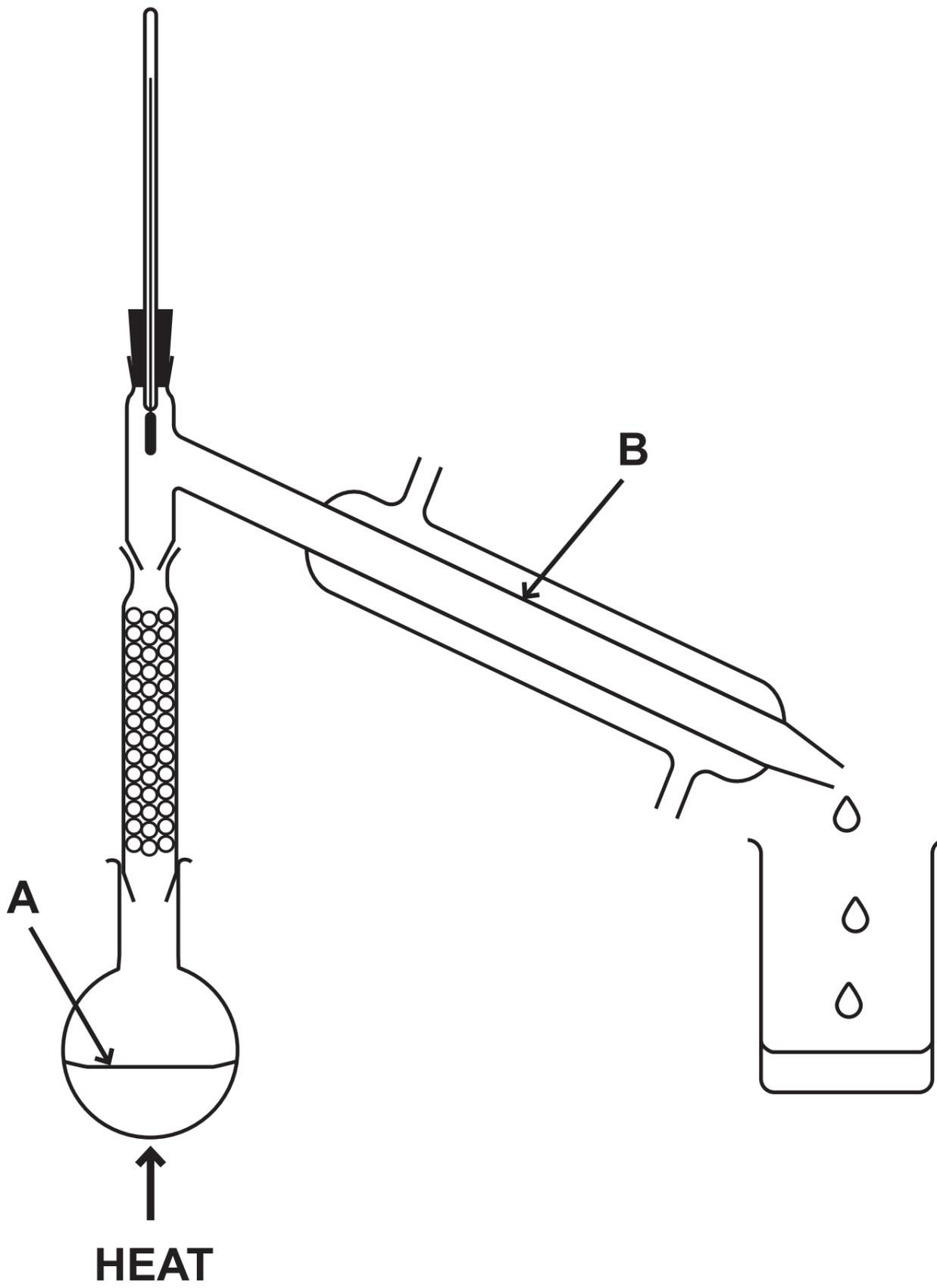
Temperature in °C



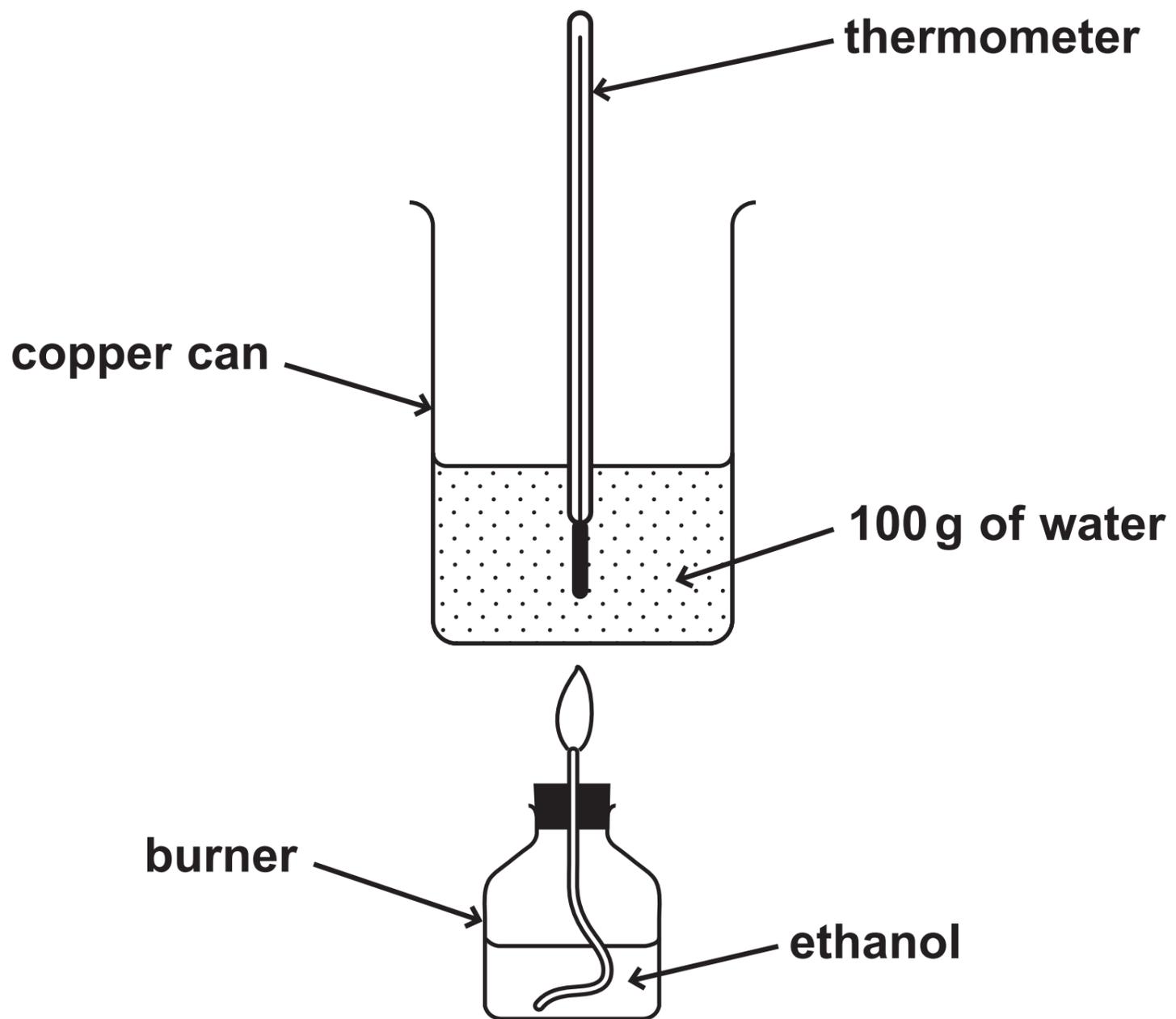
## Question 9(b)



## Question 10



## Question 10(d)



## Question 11(a) and 11(a)(ii)

Table 1

<b>Metal</b>	<b>Metal sulfate</b>	<b>Does a reaction occur?</b>
manganese	chromium sulfate	yes
tin	cadmium sulfate	no
chromium	cadmium sulfate	yes

most reactive



least reactive

manganese

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## Question 11(a) and 11(a)(ii)

Table 1

<b>Metal</b>	<b>Metal sulfate</b>	<b>Does a reaction occur?</b>
manganese	chromium sulfate	yes
tin	cadmium sulfate	no
chromium	cadmium sulfate	yes

most reactive



least reactive

manganese

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## Question 11(b)

Table 2

<b>Metal</b>	<b>Colour of metal</b>	<b>Colour of metal sulfate solution</b>
<b>copper</b>	<b>brown</b>	<b>blue</b>
<b>iron</b>	<b>dark grey</b>	<b>green</b>
<b>magnesium</b>	<b>silvery</b>	<b>colourless</b>
<b>zinc</b>	<b>light grey</b>	<b>colourless</b>