

Chemistry  
UNIT: 4CH1  
Science (Double Award) 4SD0  
PAPER: 1C

Diagram Booklet

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

Surname					
Other names					
Centre Number					
Candidate Number					

## INSTRUCTIONS

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

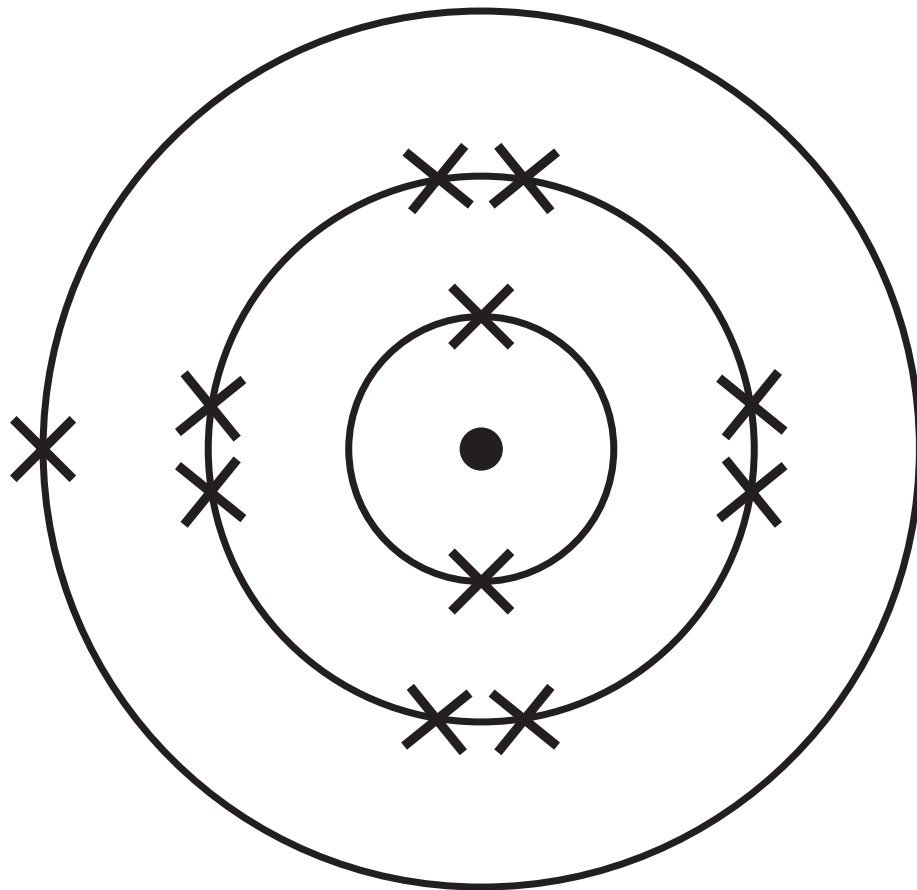
**THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.**

## Contents

### Page

4	Question 1
5	Question 2(a)
6	Question 2(a) (Spare copy)
7	Question 3(a)
8	Question 4(a)
9	Question 4(b)
10	Question 4(b) (Spare copy)
11	Question 4(c)
12	Question 5(a)(iv)
13	Question 5(a)(iv) (Spare copy)
14	Question 6
15	Question 6(b) and 6(c)
16	Question 6(b) and 6(c) (Spare copy)
17	Question 7(c)
18	Question 8(a)
19	Question 8(b)
20	Question 10(b)
21	Question 10(b) (Spare copy)
22	Question 10(c)

## Question 1



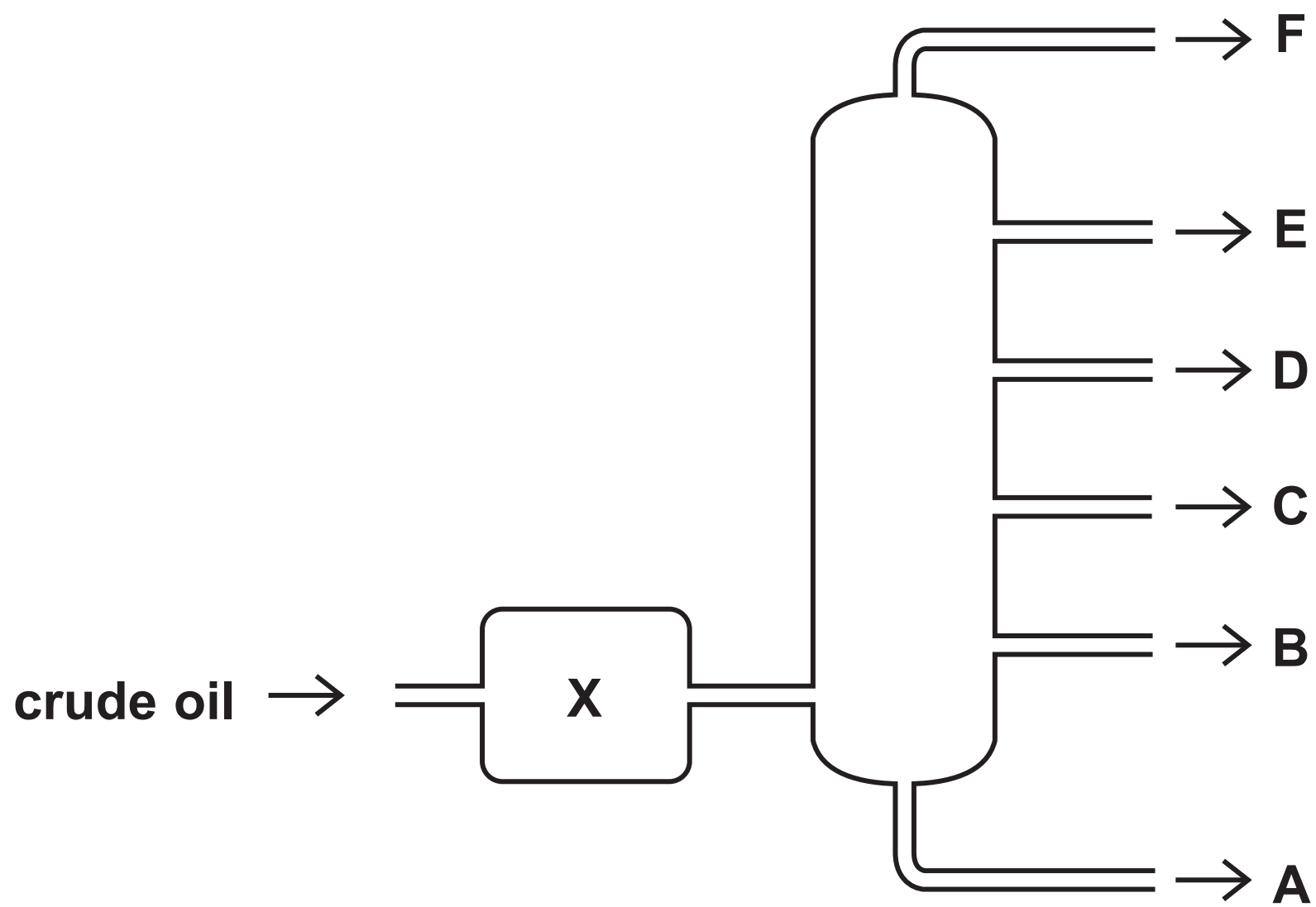
**Question 2(a)**

<b>Physical change</b>	<b>Change of state</b>
<b>water to ice</b>	
<b>steam to water</b>	
<b>solid wax to liquid wax</b>	
<b>iodine crystals to iodine vapour</b>	

**Question 2(a)**

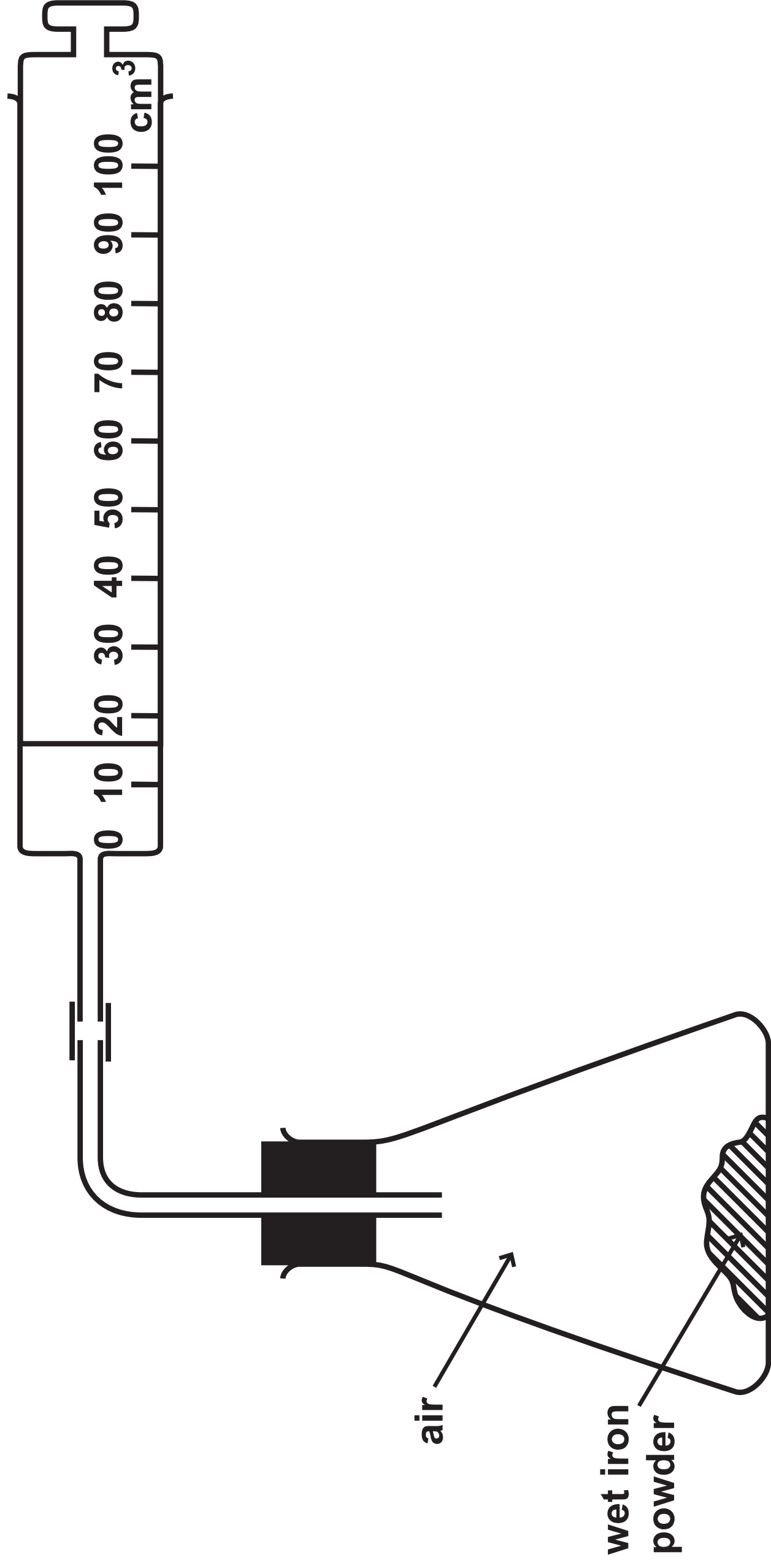
<b>Physical change</b>	<b>Change of state</b>
<b>water to ice</b>	
<b>steam to water</b>	
<b>solid wax to liquid wax</b>	
<b>iodine crystals to iodine vapour</b>	

## Question 3(a)



Question 4(a)

8





## Question 4(b)

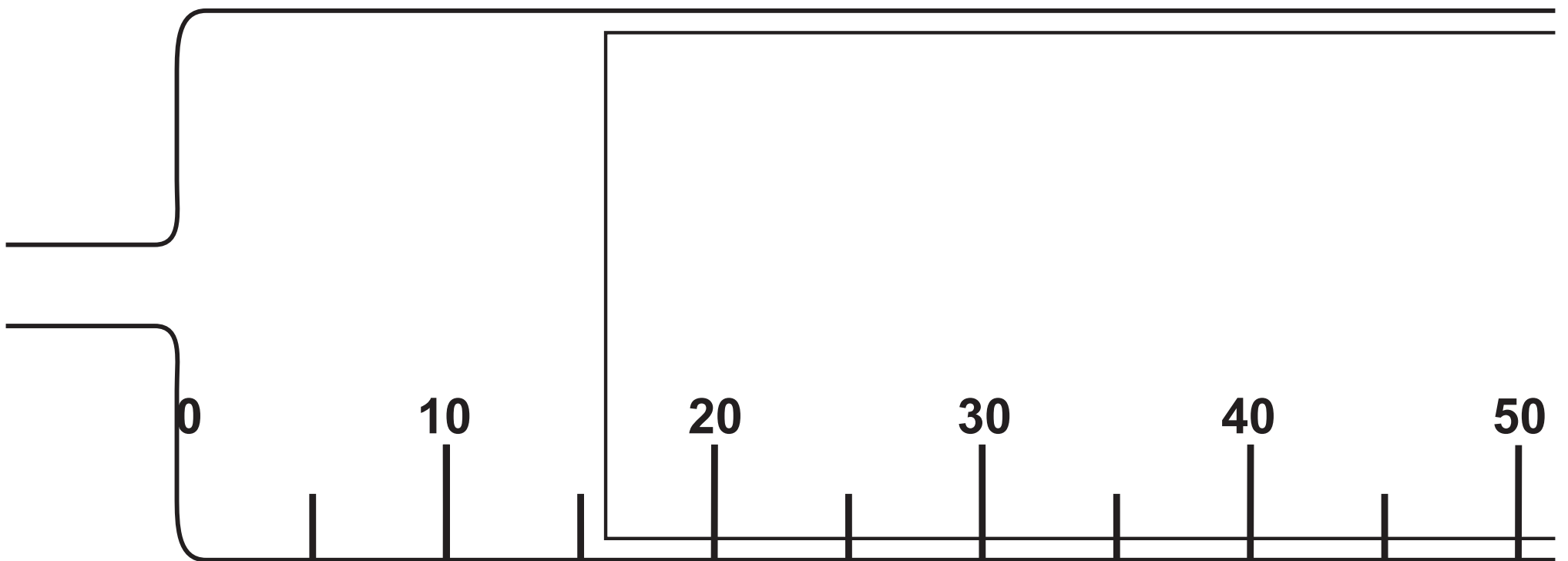


TABLE 1

<b>syringe reading at start</b>	
<b>syringe reading at end</b>	
<b>change in volume in cm<sup>3</sup></b>	<b>65</b>

Question 4(b)

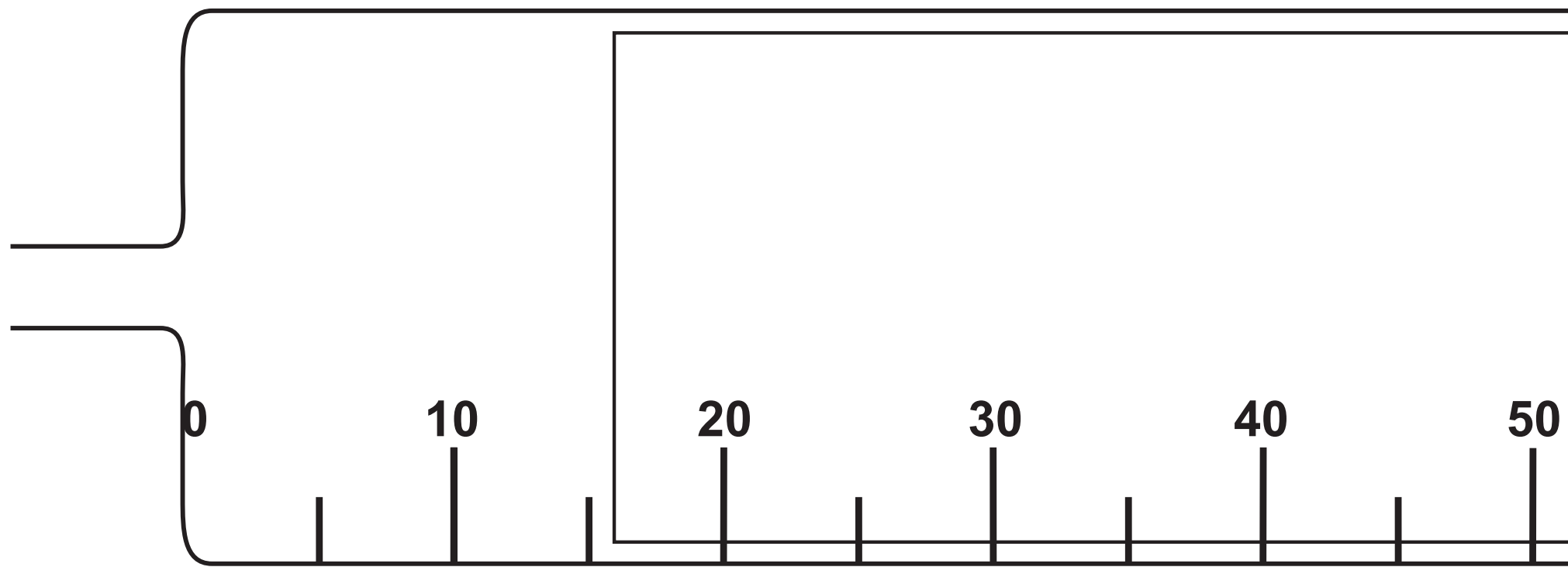


TABLE 1

syringe reading at start	
syringe reading at end	
change in volume in cm <sup>3</sup>	65

Question 4(c)

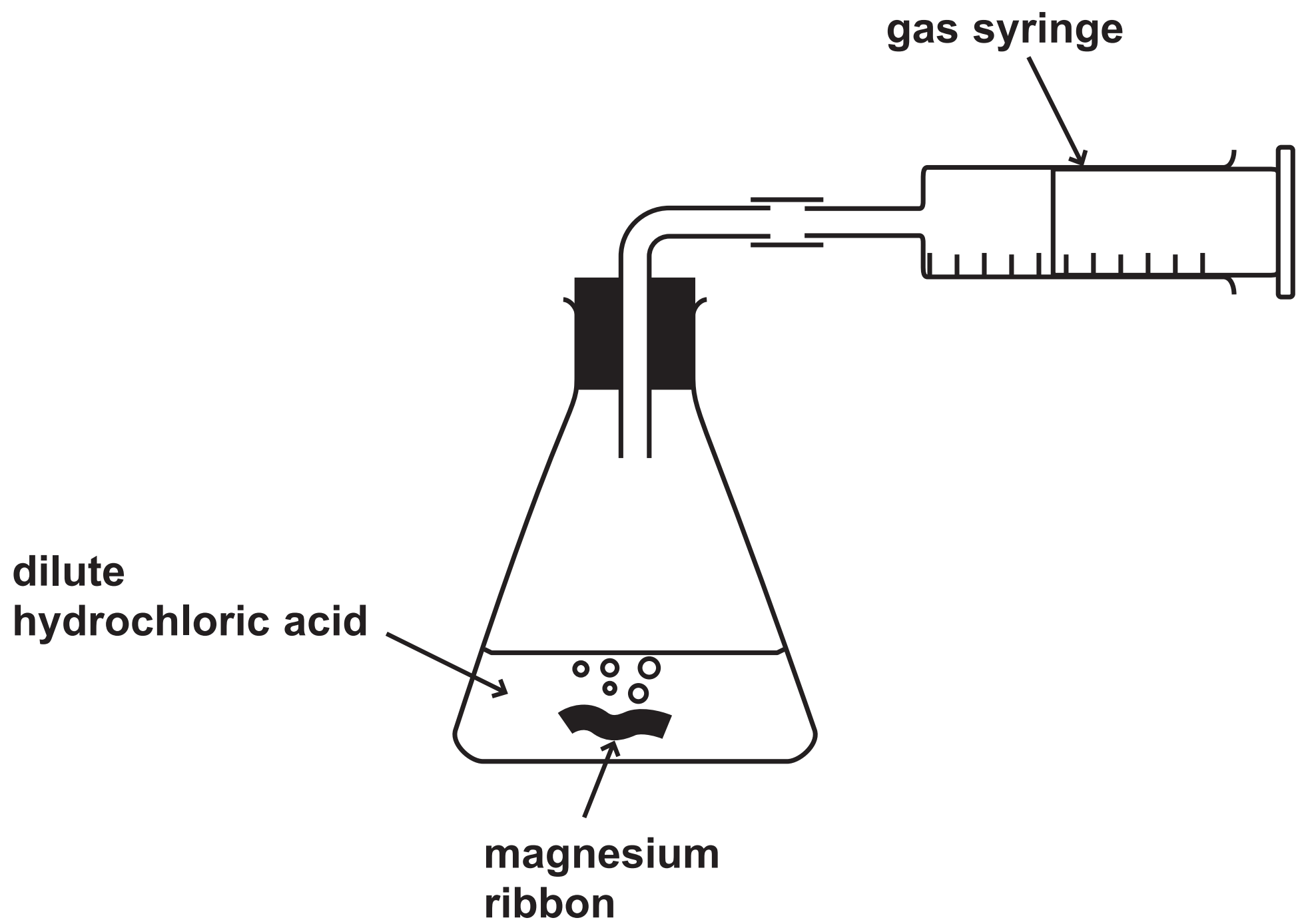
TABLE 2

volume of air in conical flask and glass tube in cm <sup>3</sup>	260
syringe reading at start	90
syringe reading at end	22

**Question 5(a)(iv)****Isomer 1****Isomer 2**

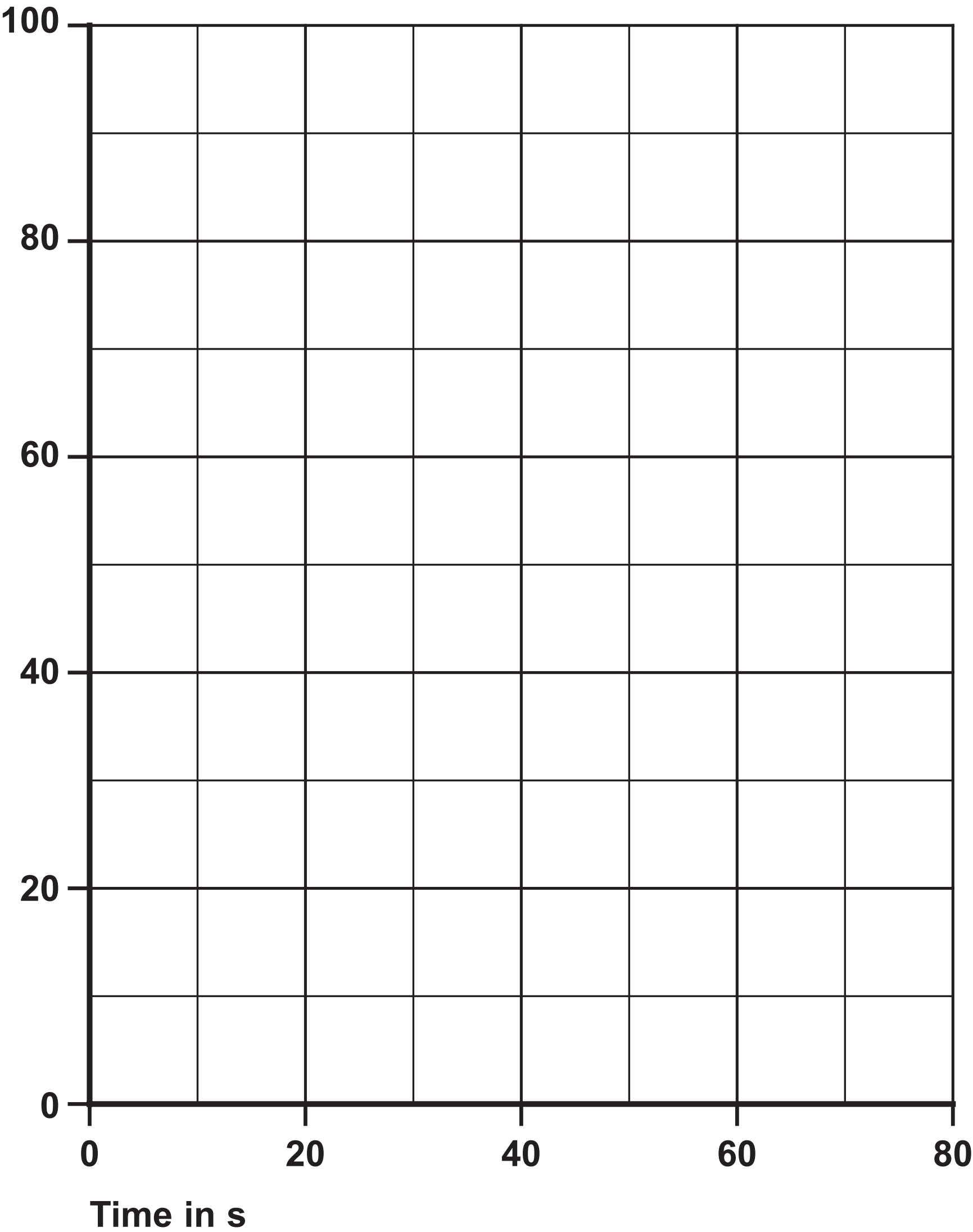
**Question 5(a)(iv)****Isomer 1****Isomer 2**

## Question 6



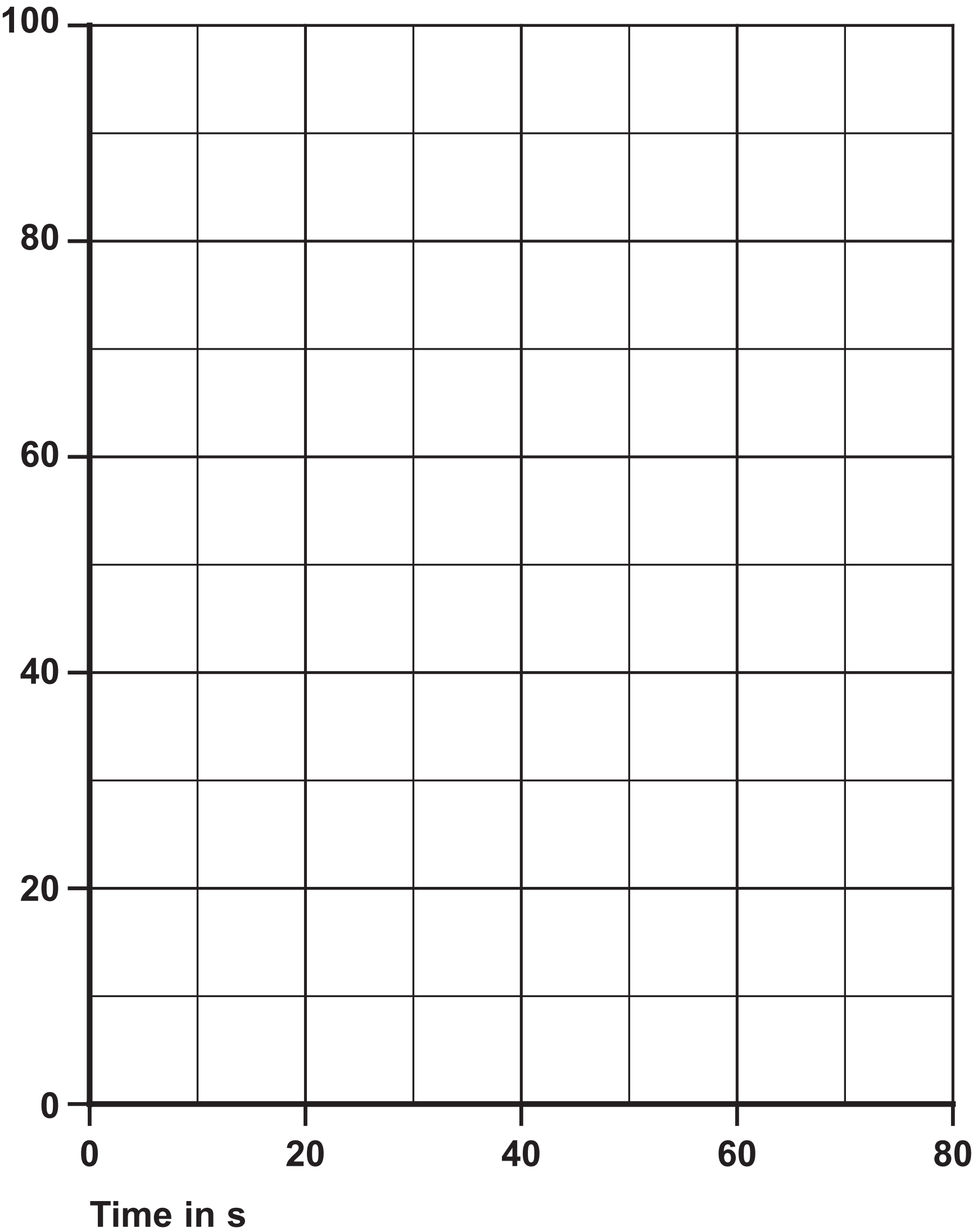
Question 6(b) and 6(c)

Volume of  
hydrogen in cm<sup>3</sup>



Question 6(b) and 6(c)

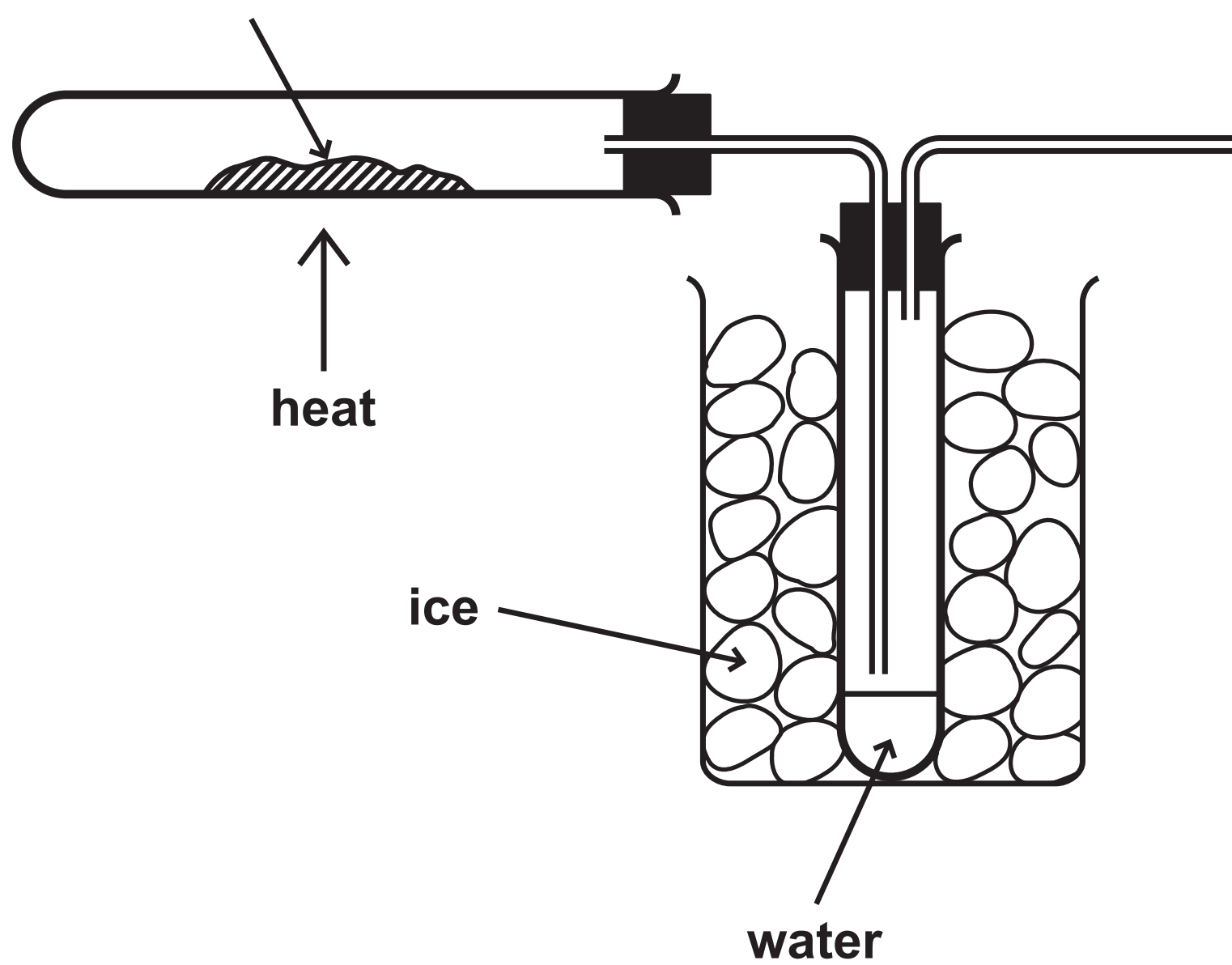
Volume of  
hydrogen in cm<sup>3</sup>





Question 7(c)

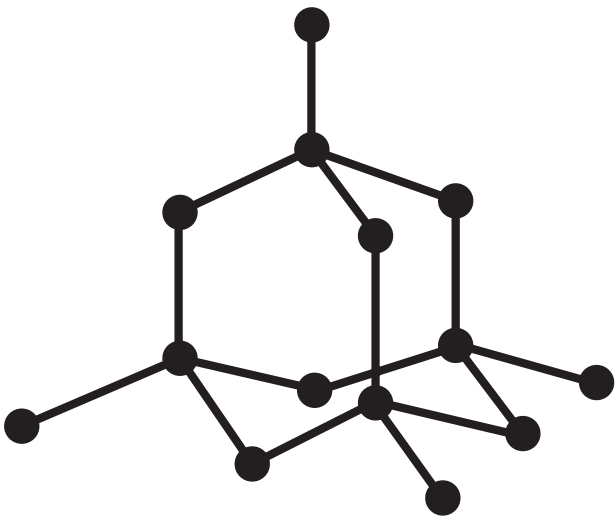
hydrated copper(II) sulfate



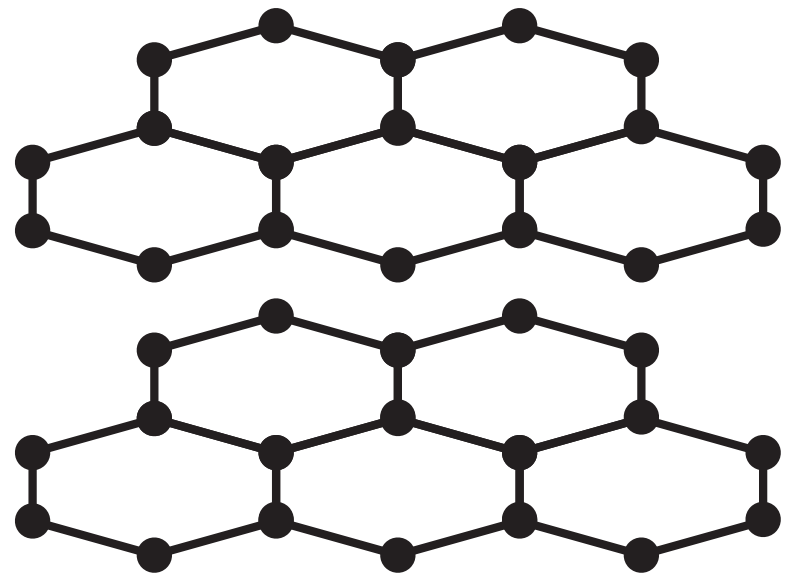
mass of empty tube in g	20.52
mass of tube and $\text{CuSO}_4 \cdot x\text{H}_2\text{O}$ in g	31.77
mass of tube and $\text{CuSO}_4$ in g	28.20

## Question 8(a)

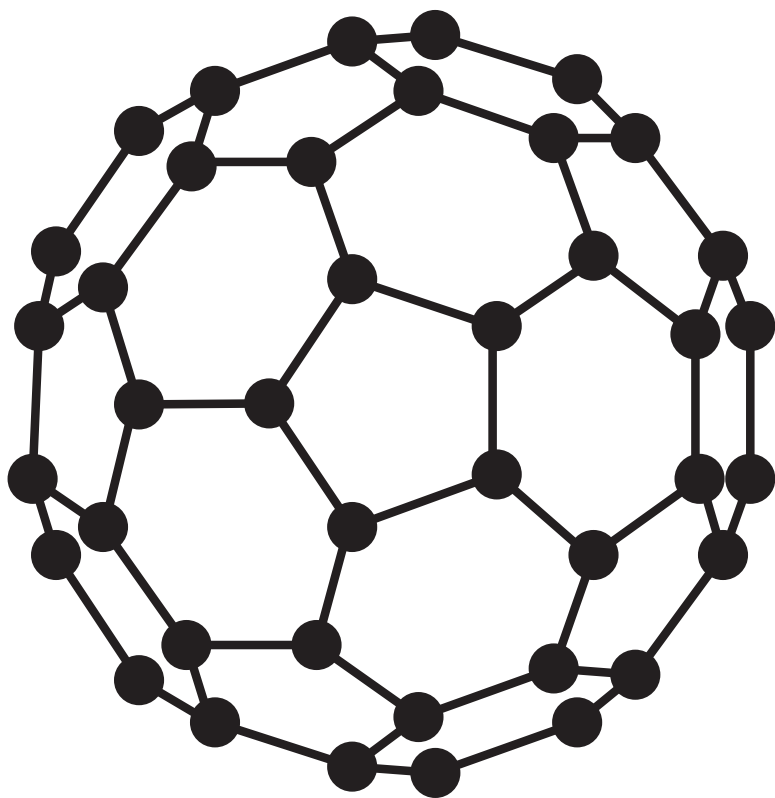
Diamond



Graphite



Question 8(b)



Substance	Approximate melting point in °C
diamond	4000
graphite	3600
C <sub>60</sub> fullerene	600

Question 10(b)

Name	ammonium sulfate		ammonium carbonate
Formula	$(\text{NH}_4)_2\text{SO}_4$	$\text{NH}_4\text{Cl}$	

Question 10(b)

Name	ammonium sulfate		ammonium carbonate
Formula	$(\text{NH}_4)_2\text{SO}_4$	$\text{NH}_4\text{Cl}$	

Question 10(c)

Name	Formula	Percentage of nitrogen (%)	Approximate pH in solution
ammonia	NH <sub>3</sub> (g)	82	11
ammonium nitrate	NH <sub>4</sub> NO <sub>3</sub> (s)		5·5
ammonium sulfate	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> (s)	21	5·5