AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 5.3.2.5

Concentration of solutions

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**7**
Available paper years	**2018–2025**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

5.3.2.5 Concentration of solutions

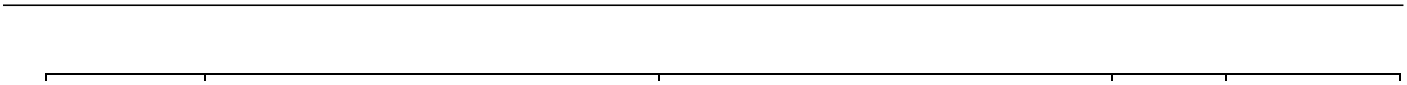
Answer 01 · Mark scheme June 2018 | 8464/C/1F | Original Q5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	chlorine		1	AO2 5.4.3.4
05.2	copper is less reactive than hydrogen		1	AO2 5.4.3.4
05.3	1.8 (mg)	allow an answer in range 1.7–1.9	1	AO3 5.4.3.4
05.4	$\frac{3.02 + 3.01 + x}{3} = 3.06$ 3.15 (mg)	an answer of 3.15 (mg) scores **2** marks allow any other suitable method if no other mark awarded allow 9.18 for **1** mark	1 1	AO2 5.4.3.4
05.5	$\frac{50}{1000}$ **or** $\frac{1}{20}$ **or** 0.05 (0.05) × 300 15 (g) **or** $\frac{300}{1000}$ **or** $\frac{3}{10}$ **or** 0.03 (1) (0.3) × 50 (1) 15 (g) (1)	an answer of 15 (g) scores **3** marks the second mark is dependent on the first mark being scored the second mark is dependent on the first mark being scored if no other mark awarded allow 150 **or** 15 000 for **1** mark	1 1 1	AO2 5.3.2.5
Total			**8**	

5.3.2.5 Concentration of solutions

Answer 01 · Mark scheme

June 2018 | 8464/C/1F | Original Q5



5.3.2.5 Concentration of solutions

Answer 02 · Mark scheme November 2020 | 8464/C/2F | Original Q3

03.1	balance		1	AO1 5.10.1.2 RPA13
03.2	mass was greater / more than expected		1	AO3 5.10.1.2 RPA13
03.3	dry the bottom of the evaporating basin **or** use an electric heater		1	AO3 5.10.1.2 RPA13
03.4	heat until the mass of the evaporating basin and contents is constant.		1	AO3 5.10.1.2 RPA13
03.5	evaporation	ignore boiling	1	AO1 5.10.1.2 RPA13
03.6	**C**		1	AO2 5.3.1.4 5.10.1.2 RPA13

5.3.2.5 Concentration of solutions

Answer 02 · Mark scheme

November 2020 | 8464/C/2F | Original Q3

03.7	$\frac{0.23 + 0.23 + 0.20}{3}$ **or** $\frac{0.66}{3}$ = 0.22 (g)		1 1	AO2 5.10.1.2 RPA13
03.8	mass of dissolved solids		1	AO1 5.10.1.2 RPA13
03.9	$\frac{25}{150} \times 3.6$ **or** $\frac{1}{6} \times 3.6$ = 0.6 (g)		1 1	AO2 5.3.2.5 5.10.1.2 RPA13
Total			**11**	

5.3.2.5 Concentration of solutions

Answer 02 · Mark scheme

November 2020 | 8464/C/2F | Original Q3

Question	Answers	Extra information	Mark	AO / Spec. Ref.

5.3.2.5 Concentration of solutions

Answer 03 · Mark scheme

June 2022 | 8464/C/1F | Original Q6

Question 6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	K_2SO_4		1	AO2 5.1.1.1 5.4.3.4 RPA9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.2	(volume of hydrogen) 30 (cm^3) **and** (volume of oxygen) 15 (cm^3)		1	AO2 5.4.3.4 RPA9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.3	(because) the ratio of volume of hydrogen : oxygen is 2 : 1 (and this is the) **same** as the ratio of hydrogen (atoms) : oxygen (atoms) in (formula of) H_2O **OR** (because) the ratio of volume of hydrogen : oxygen is **not** 2 : 1 (1) (and this is) **different** to the ratio of hydrogen (atoms) : oxygen (atoms) in (formula of) H_2O (1)	**must** relate to the volumes given in question **06.2**	1 1	AO3 5.4.3.4 RPA9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.4	9 ± 3 cm^3		1	AO2 5.3.1.4

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.5	(conversion) ($\frac{25}{1000}$ =) 0.025 (dm^3)		1	AO2 5.3.2.5 5.4.3.4
	(concentration =) $\frac{0.86}{0.025}$	allow correct use of incorrect / no conversion	1	
	= 34.4 (g per dm^3)	allow 34 (g per dm^3)	1	
	OR (conversion) $\frac{1000}{25}$ (1) = 40 (1) (40 × 0.86) = 34.4 (g per dm^3) (1)	allow correct use of incorrect / no conversion allow 34 (g per dm^3)		
	OR (concentration =) $\frac{0.86}{25}$ (1) = 0.0344 (1) (conversion) (0.0344 × 1000) = 34.4 (g per dm^3) (1)	allow 34 (g per dm^3)		

Total Question 6		8

5.3.2.5 Concentration of solutions

Answer 04 · Mark scheme

June 2022 | 8464/C/2F | Original Q7

Question 7

<table>
<tr><th>Question</th><th>Answers</th><th>Mark</th><th>AO / Spec. Ref.</th></tr>
<tr><td rowspan="4">07.1</td><td>Level 2: Scientifically relevant features are identified, the way(s) in which they are similar / different is made clear and (where appropriate) the magnitude of the similarity / difference is noted.</td><td>4–6</td><td rowspan="4">AO1
5.10.1.3</td></tr>
<tr><td>Level 1: Relevant features are identified and differences noted.</td><td>1–3</td></tr>
<tr><td>No relevant content</td><td>0</td></tr>
<tr><td>Indicative content
<table>
<tr><th>ground water</th><th>waste water</th></tr>
<tr><td>easier to obtain</td><td>more difficult to obtain</td></tr>
<tr><td>fewer processes</td><td>more processes</td></tr>
<tr><td>takes less time</td><td>takes more time</td></tr>
<tr><td>filtered through filter beds

to remove insoluble particles</td><td>screening and grit removal

to remove large particles</td></tr>
<tr><td></td><td>sedimentation

to produce sewage sludge and effluent</td></tr>
<tr><td></td><td>aerobic biological treatment of effluent

to reduce solid waste</td></tr>
<tr><td>sterilised

using chlorine, ozone or uv light

to kill bacteria</td><td>and then sterilised

using chlorine, ozone or uv light

to kill bacteria</td></tr>
<tr><td></td><td>sludge is anaerobically digested

by specific bacteria

to remove organic matter</td></tr>
</table></td><td></td></tr>
</table>

5.3.2.5 Concentration of solutions

Answer 04 · Mark scheme

June 2022 | 8464/C/2F | Original Q7

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.2	distillation		1	AO1 5.10.1.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.3	(conversion) ($\frac{150}{1000}$ =) 0.15 (dm^3) (concentration =) $\frac{2.40}{0.15}$ = 16 (g/dm^3) **OR** (conversion) $\frac{1000}{150}$ (1) = 6.67 (1) (6.67 × 2.4) = 16 (g/dm^3) (1) **OR** (concentration =) $\frac{2.4}{150}$ (1) = 0.016 (1) (conversion) (0.016 × 1000) = 16 (g/dm^3) (1)	allow correct use of incorrect / no conversion	1 1 1	AO2 5.3.2.5

Total Question 7		10

5.3.2.5 Concentration of solutions

Answer 05 · Mark scheme

June 2023 | 8464/C/1F | Original Q7

Question 7

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.1	neutralisation	allow exothermic	1	AO1 5.4.2.2 RPA8

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.2	(M_r =) (1 × 2) + 32 + (4 × 16) = 98		1 1	AO2 5.3.1.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.3	(A_r O × 4 =) 4 × 16 **or** 64 (percentage of oxygen =) $\frac{64}{110} \times 100$ = 58.18 = 58 (%)	 allow correct use of incorrectly determined mass of oxygen allow a correctly calculated answer to 2 significant figures from an incorrect calculation which uses the values in the question	1 1 1 1	AO2 5.3.1.2

5.3.2.5 Concentration of solutions

Answer 05 · Mark scheme

June 2023 | 8464/C/1F | Original Q7

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.4	(unit conversion) (25 cm^3 ÷ 1000) = 0.025 dm^3		1	AO2 5.3.2.5
	(conc =) $\frac{0.30}{0.025}$ (g/dm^3)	allow correct use of incorrect / no unit conversion	1	
	= 12 (g/dm^3)		1	
	alternative approach: $\frac{0.30}{25}$ (g/cm^3) (1)			
	= 0.012 (g/cm^3) (1)			
	(unit conversion) (0.012 × 1000) = 12 (g/dm^3) (1)	allow correct conversion of an incorrect concentration calculation		

Total Question 7	10

5.3.2.5 Concentration of solutions

Answer 06 · Mark scheme

June 2024 | 8464/C/1F | Original Q5

Question 5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	hydrogen		1	AO1 5.4.1.2 5.4.2.1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.2	$MgCl_2(l)$		1	AO2 5.1.1.1 5.2.2.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.3	(negative electrode) magnesium	allow Mg	1	AO2 5.4.3.1 5.4.3.2
	(positive electrode) chlorine	allow Cl_2	1	
		allow **1** mark if both elements are reversed		

5.3.2.5 Concentration of solutions

Answer 06 · Mark scheme

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.4	(most reactive metal) magnesium (iron) copper (least reactive metal) any **two** from: • magnesium reacts with both copper chloride solution and iron chloride solution • iron only reacts with copper chloride solution • copper does not react with either magnesium chloride solution or iron chloride solution	 allow Mg allow Fe allow Cu allow magnesium has two / most reactions allow iron has one reaction allow copper does not react	 1 2	AO3 5.4.1.2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.5	1.6 (g)		1	AO2 5.4.3.1 5.4.3.2

5.3.2.5 Concentration of solutions

Answer 06 · Mark scheme

June 2024 | 8464/C/1F | Original Q5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.6	(conversion 30.0 cm^3 =) 0.030 dm^3		1	AO2 5.3.2.5
	(mass =) 0.030 × 180	allow correct use of incorrect / no conversion of volume	1	
	= 5.4 (g)		1	
	OR			
	1000 cm^3 contains 180 g $MgCl_2$ (1)			
	30 cm^3 contains $\frac{180}{1000}$ × 30 (g) (1)			
	(30 cm^3 contains) 5.4 (g) (1)			
	OR			
	(ratio of volume $\frac{1000}{30}$ =) 33.3 (1)			
	(so ratio of mass) = $\frac{180}{33.3}$ (1)			
	= 5.4 (g) (1)			

Total Question 5	11

5.3.2.5 Concentration of solutions

Answer 07 · Mark scheme

June 2025 | 8464/C/1F | Original Q6

Question 6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	any **one** from: • do experiment in a fume cupboard • do experiment in a well-ventilated laboratory / room	ignore references to safety glasses or gloves allow use an extractor fan allow descriptions of well-ventilated such as open windows allow use a gas mask	1	AO3 5.4.3.4 RPA9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.2	all 6 points plotted correctly line of best fit	allow a tolerance of ± ½ a small square allow **1** mark for 4 or 5 points plotted correctly	2 1	AO2 5.4.3.4 RPA9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.3	any **one** from: • the increase in mass (for successive 60 second intervals) decreases • after 300 seconds the mass remains constant	allow evidence of two correctly determined changes in mass (for 60 second intervals) from **Table 1** allow the difference in mass (every 60 seconds) is not the same	1	AO3 5.4.3.1 5.4.3.4 RPA9

5.3.2.5 Concentration of solutions

Answer 07 · Mark scheme

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.4	(volume conversion 25 cm^3 =) 0.025 (dm^3)		1	AO2 5.3.2.5
	(concentration =) $\frac{5.5}{0.025}$	allow correct use of an incorrect / no conversion of volume	1	
	= 220 (g/dm^3)		1	
	OR			
	(concentration =) $\frac{5.5}{25}$ (1)			
	= 0.22 (g/cm^3) (1)			
	(conversion = 0.22 × 1000) = 220 (g/dm^3) (1)	allow correct use of an incorrectly determined concentration in g/cm^3 using the values in the question		
	OR			
	(ratio of volume $\frac{1000}{25}$ =) 40 (1)			
	(so ratio of mass =) 40 × 5.5 (1)			
	= 220 (g/dm^3) (1)			

5.3.2.5 Concentration of solutions

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.5	hydrogen is less reactive than potassium		1	AO2 5.4.3.4 RPA9

Total Question 6	**9**

5.3.2.5 Concentration of solutions

Answer 01 · Examiner comments

June 2018 | 8464/C/1F | Original Q5

Question 5 (low & standard demand)

05.1 Halogens are produced at the positive electrode if an aqueous solution contains a halide ion. 27% of students correctly selected chlorine as the gas produced.

05.2 Students could have linked their understanding of the reactivity series, with which ion is discharged when an aqueous solution is electrolysed. In this case, the production of copper at the negative electrode informs students that copper is less reactive than hydrogen. 30% of students were able to correctly deduce this.

05.3 Students needed to look at the data and see that the mass produced at three minutes was missing from the table. Experimental errors account for the trend not being exactly directly proportional. 42% of students noticed the relationship and correctly deduced the mass within the allowed range of 1.7 to 1.9 (mg).

05.4 This question discriminated well. 28% of students achieved full marks for this question giving an answer of 3.15 (mg), however, some did so without showing their working. This was not an issue where they obtained the correct answer, but some did not and therefore gained no credit as it was not possible to see how they had obtained their answer. 15% of students did not attempt to answer this question.

05.5 A unit conversion is essential to make progress in this calculation. A conversion between cm^3 and dm^3 requires a division of either 50 by 1000 to convert cm^3 to dm^3 or 300 by 1000 to convert mass per dm^3 to mass per cm^3. 1% of students understood this concept to achieve the maximum three marks for this question. 28% of students did not attempt to answer this question.

Answer 03 · Examiner comments

June 2022 | 8464/C/1F | Original Q6

Question 6 (Standard demand)

06.1 Students were given the formula of the potassium and sulfate ions and asked to deduce the formula of potassium sulfate. Just under 40% of students correctly determined the formula as K_2SO_4. The formula $K(SO_4)_2$ proved to be a good distractor.

5.3.2.5 Concentration of solutions

Answer 03 · Examiner comments June 2022 | 8464/C/1F | Original Q6

06.2 Just under 15% of students were able to correctly read the volumes of hydrogen and oxygen in the measuring cylinders. Most wrote the volumes of solution left in the measuring cylinder, rather than the gas, stating 20 cm^3 for hydrogen and 35 cm^3 for oxygen.

06.3 Students were given a hypothesis linking the ratio of the volumes of gases collected in an electrolysis experiment with the ratio of hydrogen to oxygen atoms in a water molecule. When students deduced that the volumes of hydrogen gas and oxygen gas collected were 30 cm^3 and 15 cm^3, they were able to simplify this ratio to 2:1 which they recognised as the ratio of hydrogen atoms to oxygen atoms in a water molecule and thus able to confirm the hypothesis. When the ratio of their volumes was not 2:1 many did not then go on to state that the hypothesis was incorrect.

06.4 Just over 30% of students identified that the measure of uncertainty in the 4 experiments was 9 ± 3 cm^3. The mean volume was 9 cm^3 and the range of reading was from 6 to 11 cm^3. The option of 9 ± 2 cm^3 proved a good distractor.

06.5 Just over 10% of students gained 2 of the 3 marks, usually following method 3 for dividing the mass of 0.86 g by the volume of 25 cm^3. Few students then went onto carry out the unit conversion of cm^3 into dm^3 which required multiplying their answer (in g/cm^3) by 1000.

5.3.2.5 Concentration of solutions

Answer 04 · Examiner comments

June 2022 | 8464/C/2F | Original Q7

Question 7

The topic of water purification was generally not well known.

07.1 Over 60% of students were able to score at least 1 mark comparing the methods of treatment of ground and wastewater to make potable water. This was usually for a simple statement that both waters need to be filtered. Responses were lacking in specific detail in this recall question. The idea that both waters need to be distilled was very commonly seen, mistaking this with sea water.

07.2 About one third of students were able to identify distillation to desalinate sea water. The most common incorrect response was filtration.

07.3 About a quarter of students were able to score two of the three marks on this item, the conversion of cm^3 to dm^3 being the most likely mark missed.

5.3.2.5 Concentration of solutions

Use of statistics

Statistics used in this report may be taken from incomplete processing data. However, this data still gives a true account on how students have performed for each question.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.

5.3.2.5 Concentration of solutions

Answer 05 · Examiner comments

June 2023 | 8464/C/1F | Original Q7

Question 7 (standard demand)

07.1 This question was answered with a wide variation of responses. Just under 20% of students knew that the reaction was either neutralisation or exothermic. Displacement was a common incorrect response as was endothermic which was given more frequently than exothermic.

07.2 Nearly a third of students correctly calculated the relative formula mass of sulfuric acid from the given formula and showed clear steps in their calculation. Students should be aware that when data is provided it is usually all required to be used to get to the correct answer. The most common responses seen that were not creditworthy were M_r = 49 from (1+32+16), M_r = 512 from (1×16×32) and M_r = 146 from (2+16+(4×32)).

07.3 Students found this question demanding but it proved to be a good discriminator. Just over a third of students gained at least 1 mark. Some students were not credited with MP1 as they had used the mass of O = 16, rather than O = 16 × 4. Some students successfully worked through the calculation logically but either forgot to follow the question instruction to give their answer to 2 significant figures or left their answer correct to 2 decimal places. Other responses showed little or no understanding of what was required in the calculation with figures added, subtracted or simply multiplied together.

07.4 Students found this question demanding but it proved to be a good discriminator. A small number of students gained all 3 marks. Many just multiplied the mass (0.30 g) by the volume (25 cm^3). Many answers calculated the concentration of the solution successfully (0.30 ÷ 25) but omitted to convert the volume of cm^3 into dm^3. Other students showed the correct conversion of the volume (0.025 dm^3) but then took the calculation no further.

5.3.2.5 Concentration of solutions

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.

Answer 06 · Examiner comments

June 2024 | 8464/C/1F | Original Q5

Question 5 (low demand)

05.1 Just over two thirds of students knew that hydrogen gas is produced when a metal reacts with an acid. A quarter of students selected the distractor nitrogen.

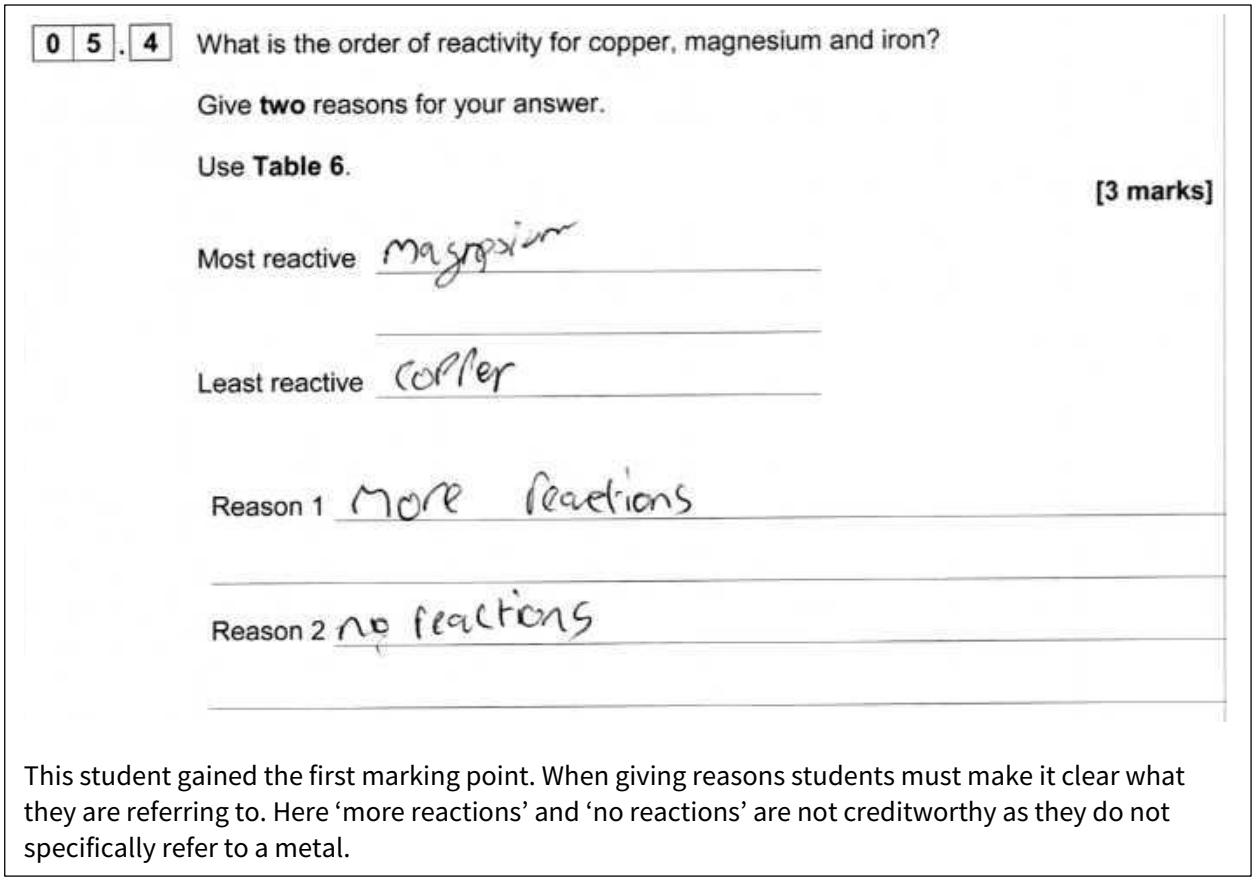
05.2 Nearly two-thirds of students knew molten magnesium chloride is a liquid, which is represented by the state symbol (l). A quarter of students incorrectly selected (g) as the state symbol.

05.3 10% of students gained both marks and students were awarded 1 mark if both elements were correct but reversed. Chlor*ide* is not creditworthy although was a common response.

Many students wrote the formula of the ions that were attracted to the electrodes rather than the element that is discharged. Nearly 20% of students did not attempt this question.

05.4 More than half of students gained 2 or 3 marks for correctly deducing the order of reactivity, with magnesium being the most reactive and copper the least reactive and giving one or two reasons. Students were able to give a reason associated with each metal eg iron only reacts with copper chloride solution or copper does not react.

Common incorrect responses included magnesium reacts with both metals (rather than both metal chloride solutions) or reasons which were not clearly linked to a metal (see example below).



0 5 . 4 What is the order of reactivity for copper, magnesium and iron?

Give **two** reasons for your answer.

Use **Table 6**.

[3 marks]

Most reactive magnesium

Least reactive copper

Reason 1 More reactions

Reason 2 no reactions

This student gained the first marking point. When giving reasons students must make it clear what they are referring to. Here 'more reactions' and 'no reactions' are not creditworthy as they do not specifically refer to a metal.

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5.3.2.5 Concentration of solutions

Answer 06 · Examiner comments June 2024 | 8464/C/1F | Original Q5

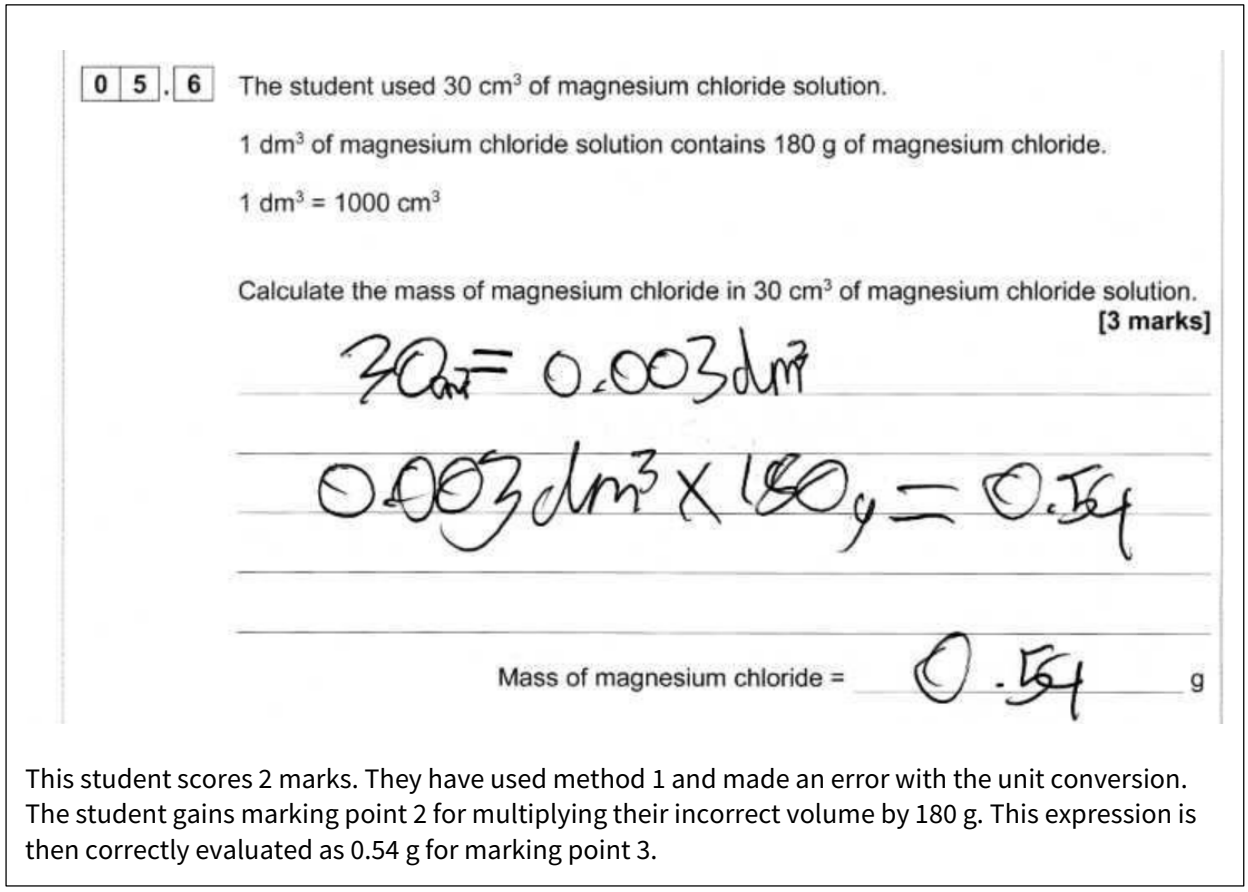
05.5 The law of conservation of mass states that the mass of reactants equals the mass of products. In this question a third of students correctly evaluated that the mass of iron oxide that reacts with 0.72 g of magnesium.

Common incorrect responses were 1.67 (multiplying 0.72 by 2.32) together with 3.2 and 0.31 (evaluated by dividing 2.32 by 0.72 or 0.72 by 2.32 respectively).

05.6 This question required a unit conversion as data is given in dm^3 and needed to be converted to cm^3. This conversion factor was given to lower the demand of the question.

Nearly 30% of students gained all 3 marks. Approximately 10% of students gained 2 marks usually for either not using the conversion factor, for multiplying rather than dividing by 1000 or for using an incorrect factor (eg dividing by 100 rather than 1000). A further 10% of students who gained 1 mark usually calculated the volume correctly in dm^3 but then did not multiply their answer by 180 g or used method 3 in the mark scheme and calculated the ratio of volume as 33.3 but then incorrectly multiplied this by 180 g.

17% of students did not attempt this question.



0 5 . 6 The student used 30 cm^3 of magnesium chloride solution.

1 dm^3 of magnesium chloride solution contains 180 g of magnesium chloride.

1 dm^3 = 1000 cm^3

Calculate the mass of magnesium chloride in 30 cm^3 of magnesium chloride solution.

[3 marks]

30cm³ = 0.003dm³

0.003dm³ x 180g = 0.54

Mass of magnesium chloride = 0.54 g

This student scores 2 marks. They have used method 1 and made an error with the unit conversion. The student gains marking point 2 for multiplying their incorrect volume by 180 g. This expression is then correctly evaluated as 0.54 g for marking point 3.

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Answer 07 · Examiner comments

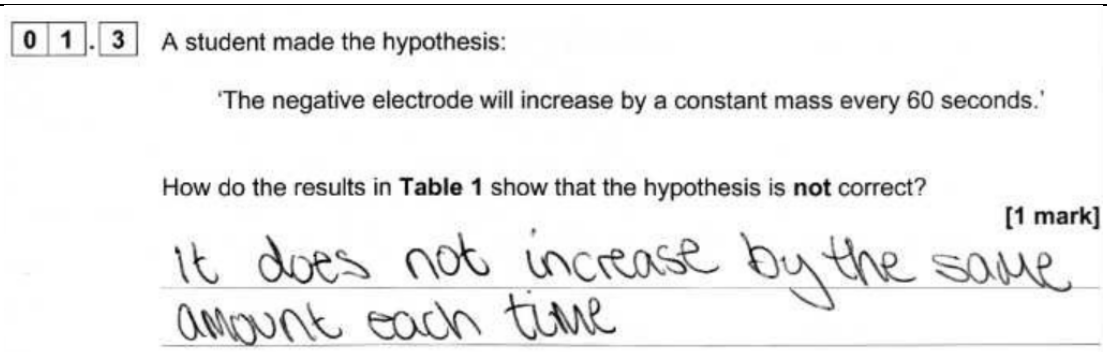
June 2025 | 8464/C/1F | Original Q6

Question 6 (Standard demand)

06.1 The most common response of reducing the risk of harm from chlorine gas was 'wear a mask' which was insufficient to gain credit, as was 'face mask', when what was required was the use of 'a gas mask'. Conducting the experiment 'in a fume cupboard' was a rarely seen correct response as was good ventilation which was well-remembered from the required practical.

06.2 Many students were able to plot the six points. Drawing a curve as a line of best fit remains problematic; lines failed to go through the points, lines between the points were drawn with a ruler or double lines are drawn, lines were stopped and restarted and many were drawn with a thick pen or blunt pencil that was more than half a small square thick. Numerous students drew a straight line, despite the points clearly indicating a curve and some drew both a straight line and a curve.

06.3 This question was poorly answered. Some students referred to the graph for their answer, when the question demanded that they use the results from Table 5. The results show that as time increased in 60 second intervals the mass of the negative electrode increased but at a decreasing rate until 300 seconds when the mass remained constant. Rather than stating 'increase/changes in mass' in their responses, many students referred to 'it'; this was ambiguous and did not gain credit. The most common correct answer was that the mass was constant after 300 seconds. Using two correctly determined changes in mass was creditworthy, but many students simply quoted numbers from the table which was insufficient.


0 1 . 3 A student made the hypothesis:

'The negative electrode will increase by a constant mass every 60 seconds.'

How do the results in **Table 1** show that the hypothesis is **not** correct?

[1 mark]

it does not increase by the same amount each time

An example of a response (from a Higher tier paper) where 'it' was been used; 'it' was ambiguous and not creditworthy.

06.4 The calculation proved difficult for many students with answers achieving all 3 marks rarely seen. A large number did not attempt this question. Many students were able to convert 25 cm^3 to 0.025 dm^3 for 1 mark but were unable to take the calculation further. Others attempted the unit conversion but either divided by 100 or multiplied by 100 or 1000. Numerous students laid out their working clearly, giving units throughout, although few used words e.g. 'concentration ='. Those who didn't quote an equation for concentration very frequently went on to get mass and volume the wrong way up or multiplied them.

06.5 More than half of students knew that when potassium chloride solution is electrolysed hydrogen gas is given off at the negative electrode because hydrogen is less reactive than potassium. The reverse statement hydrogen is more reactive than potassium was the most popular incorrect distractor.

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