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CAMBRIDGE
International Education

Cambridge IGCSE™

CHEMISTRY **0620/63**

Paper 6 Alternative to Practical **May/June 2026**

MARK SCHEME

Maximum Mark: 40

Published

This mark scheme contains the instructions and marking guidance that our examiners used to mark candidate responses for this component.

Before they start marking, examiners complete a standardisation process. They review a range of candidate responses and discuss the mark scheme in detail to agree which answers can and cannot be accepted. Examiners award marks where it is clear that candidate responses have met the requirements of the mark scheme. These requirements may vary between different components or different versions of the same component, depending on the exact requirements of the question and the candidate responses seen during the standardisation process.

Sometimes, our mark schemes may allow marks to be awarded to responses which contain elements that are factually incorrect or for content not covered by the syllabus. We do this in response to the demands of a specific question to support candidates and make sure that our assessments are fair. However, these allowances should not be used as a guide for teaching and learning.

We cannot discuss the mark scheme with schools, and we recommend that schools read the mark scheme together with the assessment material and the Principal Examiner Report for Teachers.

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General marking principles

All examiners must apply these marking principles when marking candidate responses.

1	Examiners must award marks for each response in line with: • the specific **content** defined in the mark scheme • the specific **skills** defined in the mark scheme or in the level descriptions • the **standard of response** required as exemplified by the standardisation scripts.
2	Examiners must award **whole marks** (not half marks, or other fractions).
3	Examiners must award marks **positively**. This means that: • marks are not deducted for errors or omissions • marks are awarded for correct/valid answers as defined in the mark scheme and also for **other valid answers** which go beyond the scope of the syllabus and mark scheme referring to your team leader as appropriate • the quality of spelling, punctuation and grammar are judged **only** when the mark scheme indicates that these features are **specifically assessed** in the question. However, the meaning of all responses must be unambiguous.
4	Examiners must **consistently** apply the requirements of the mark scheme and any rules for what to do when candidates have not followed instructions correctly.
5	Examiners must use the **full range of marks** defined in the mark scheme, unless limited by the quality of the candidate responses seen.
6	Examiners must award marks according to the mark scheme and **must not** award marks with grade thresholds or grade descriptions in mind.

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Science-Specific Marking Principles

1	Examiners should consider the context and scientific use of any keywords when awarding marks. Although keywords may be present, marks should not be awarded if the keywords are used incorrectly.
2	The examiner should not choose between contradictory statements given in the same question part, and credit should not be awarded for any correct statement that is contradicted within the same question part. Wrong science that is irrelevant to the question should be ignored.
3	Although spellings do not have to be correct, spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. ethane / ethene, glucagon / glycogen, refraction / reflection).
4	The error carried forward (ecf) principle should be applied, where appropriate. If an incorrect answer is subsequently used in a scientifically correct way, the candidate should be awarded these subsequent marking points. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.
5	'List rule' guidance For questions that require ***n*** responses (e.g. State **two** reasons …): • The response should be read as continuous prose, even when numbered answer spaces are provided. • Any response marked *ignore* in the mark scheme should not count towards ***n***. • Incorrect responses should not be awarded credit but will still count towards ***n***. • Read the entire response to check for any responses that contradict those that would otherwise be credited. Credit should **not** be awarded for any responses that are contradicted within the rest of the response. Where two responses contradict one another, this should be treated as a single incorrect response. • Non-contradictory responses after the first ***n*** responses may be ignored even if they include incorrect science.

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6 Calculation specific guidance

Correct answers to calculations should be given full credit even if there is no working or incorrect working, **unless** the question states 'show your working'.

For questions in which the number of significant figures required is not stated, credit should be awarded for correct answers when rounded by the examiner to the number of significant figures given in the mark scheme. This may not apply to measured values.

For answers given in standard form (e.g. $a \times 10^n$) in which the convention of restricting the value of the coefficient (a) to a value between 1 and 10 is not followed, credit may still be awarded if the answer can be converted to the answer given in the mark scheme.

Unless a separate mark is given for a unit, a missing or incorrect unit will normally mean that the final calculation mark is not awarded. Exceptions to this general principle will be noted in the mark scheme.

7 Guidance for chemical equations

Multiples / fractions of coefficients used in chemical equations are acceptable unless stated otherwise in the mark scheme.

State symbols given in an equation should be ignored unless asked for in the question or stated otherwise in the mark scheme.

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Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	information missing or insufficient for credit
	benefit of doubt given
	contradiction in response, mark not awarded
	incorrect point or mark not awarded
	key point attempted / working towards marking point / incomplete answer / response seen but not credited / blank page seen
	error carried forward applied
	incorrect or insufficient response, mark not awarded
	response has not answered question
	benefit of doubt was considered, but the response was decided to not be sufficiently close for benefit of doubt to be applied
	incorrect point or mark not awarded
	blank page seen

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Annotation	Meaning
	correct point of mark awarded

Mark Scheme Abbreviations	
;	separates marking points
/	alternative responses for the same marking point
R	reject the response
A	allow/accept the response
I	ignore the response
CON	contradiction in response, no mark
ecf	error carried forward
ora	or reverse argument
AW	alternative wording
underline or **bold**	actual word given must be used by candidate (grammatical variants excepted)
( )	the word / phrase in brackets is not required but sets the context
max	indicates the maximum number of marks that can be given
MP / M	marking point

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Question	Answer	Marks	Guidance
1(a)	beaker	1	**Allow** electrolysis cell **Reject** trough / measuring cylinder / (conical) flask / boiling tube, etc.
1(b)	anode	1	
1(c)	lamp lights up	1	**Allow** bulb **Allow** (yellow) green vapour **Allow** (yellow) green gas **Ignore** pungent smell **Ignore** gas formed / hydrogen formed / chlorine formed / colourless gas formed **Ignore** bubbling / bubbles / fizzing **Reject** solid formed
1(d)	place a test-tube over the anode	1	**Allow** ignition tube / boiling tube / measuring cylinder / burette **Allow** a test-tube, etc. over the anode from the diagram in **1(a)**. **Ignore** the diagram if the mark is awarded from the answer space **Ignore** any test-tube over the cathode in the diagram **Reject** syringe / pipette
1(e)	M1 (damp) litmus M2 bleaches / turns white	2	**Allow** UI in place of litmus for M1 **Allow** paper or solution for M1 **Ignore** indicator paper but M2 is available **Ignore** turning red before bleaching for M2 **Reject** turning blue before bleaching for M2 **Reject** any incorrect tests such as use of aqueous silver nitrate for M1 and M2 M2 only awarded if M1 correct or near miss

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Question	Answer	Marks	Guidance
1(f)	use a fume cupboard	1	**Allow** well-ventilated space / open windows / fume box / fume hood / fume closet / fume cabinet **Allow** other appropriate safety precautions **Allow** gas for fume **Ignore** chamber **Ignore** comments on heating / fire / burns / masks / face masks / tie hair back, etc. **Ignore** make sure electrodes do not touch / wear safety gear / tie hair up / wearing gloves

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td rowspan="4">2(a)</td><td>M1 all masses of sodium thiosulfate correct</td><td>1</td><td>Ignore missing trailing zeros</td></tr>
<tr><td>M2 initial temperatures correct

M3 final temperatures correct</td><td>2</td><td></td></tr>
<tr><td>M4 all temperature changes correct</td><td>1</td><td>Allow ECF on incorrect M2 and M3
Allow ECF on incorrect M2 and M3</td></tr>
<tr><td>M5 all values shown to 1 dp

<table>
<tr><th rowspan="2">sodium thiosulfate / g</th><th colspan="3">temperature / °C</th></tr>
<tr><th>initial</th><th>final</th><th>change</th></tr>
<tr><td>1.0</td><td>23.5</td><td>22.0</td><td>1.5</td></tr>
<tr><td>2.0</td><td>24.5</td><td>21.5</td><td>3.0</td></tr>
<tr><td>3.0</td><td>23.0</td><td>18.0</td><td>5.0</td></tr>
<tr><td>4.0</td><td>22.5</td><td>17.5</td><td>5.0</td></tr>
<tr><td>5.0</td><td>23.0</td><td>15.0</td><td>8.0</td></tr>
</table>
</td><td>1</td><td>Ignore signs</td></tr>
</table>

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Question	Answer	Marks	Guidance
2(b)	M1 *y*-axis scale in linear and points extend over halfway up scale above zero	1	
	M2 and M3 All points plotted correctly	2	If scale non-linear then no marks awarded for plotting in the non-linear section. Half small square tolerance.
	M4 ruler drawn line of best-fit ignoring the anomaly at point 4 and passes through the origin	1	**Ignore** any line to the left of 1.0 g and to the right of 5.0 g **Reject** multiple lines (daylight visible between lines), dot to dot lines, feathery lines, very think lines, very wobbly lines
2(c)	M1 extrapolation to 5.7 g on the graph	1	**Allow** smooth continuation of plotted line **Reject** a straight line becoming a curve
	M2 a vertical line from 5.7 g to the extrapolation AND a horizontal line back to the *y*-axis	1	**Allow** as a minimum a mark at 5.7 g on extrapolation **Allow** a mark on *x*-axis at 5.7 g AND a corresponding mark on the *y*-axis Half small square tolerance.
	M2 correct value	1	**Allow** ecf from incorrect mass on graph line no ecf if working to random point on grid and not on the line. if no extrapolation M3 only for a correct reading at 5.7 g if they had extrapolated the line.
2(d)	to increase the rate of dissolving	1	**Allow** to increase the rate of reaction **Allow** to speed up the reaction **Allow** so its faster **Ignore** to increase the surface area / to decrease the particle size **Ignore** dissolving properly

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Question	Answer	Marks	Guidance
2(e)	(more) accurate	1	**Allow** (more) precise / (more) exact **Allow** accuracy / precision **Ignore** faster / slower addition **Ignore** has a smaller scale
2(f)	endothermic and temp decreases / gets cooler	1	**ECF from table** **Allow** temperature decreases are positive **Allow** temperature of surroundings decrease **Allow** temperature at the end is lower **Allow** temperature of the products is less than that of the reactants **Reject** temperature changes are positive **Ignore** comments about heat lost / gained (from surroundings) – the answer must use the data in Table 2.1 which shows a temperature decrease **Ignore** comments on trends in temperature decrease. So 'endothermic because the temperature decrease decreases as the volume gets larger' scores the mark as it is endothermic and there is a temperature decrease Ignore quoted values
2(g)	so energy is not taken in from the surroundings	1	**Allow** so energy is not transferred **Allow** so energy is not lost to the surrounding **Allow** so heat is not lost **Allow** reduces heat gain / reduces heat loss / reduces heat transfer **Allow** it dissipates heat if there is no lid **Ignore** to stop gases leaving / so it is a closed system **Reject** to keep temperature constant

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Question	Answer	Marks	Guidance
2(h)	measuring a temp change		**Allow** the initial temp is being used to calculate a temperature change (so it does not affect the results) **Allow** any response that refers to a temperature change **Ignore** the initial temperature will not affect the end result
2(i)	$20 \times 4.18 \times 5 = 418$		**Allow** ECF from **2(a)** **Ignore** sign FOR ECF Allowing answer to 3 SF or more and ignore missing trailing zeros.

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Question	Answer	Marks	Guidance
3(a)	calcium ions	1	the name takes precedence over the formula **Allow** calcium / Ca^{2+} **Ignore** Ca
3(b)	chloride ions	1	the name takes precedence over the formula **Allow** Cl^- **Allow** not iodide, not bromide **Ignore** Cl **Reject** chlorine ions
3(c)	**M1** description of using a non-luminous / blue / roaring (Bunsen) flame	1	**Ignore** any cleaning of a wire **Allow** colourless flame / air-hole open / oxidising flame **Ignore** open flame **Reject** use of yellow / safety flame
	M2 description of how the substance is put **into the flame** – on a wire / on a splint / spray a solution	1	**Allow** just 'wire' or platinum wire or (ni)chrome wire or 'inoculation loop', **Reject** incorrect specified materials for wire (such as copper or magnesium) **Allow** spraying solution into a flame **Allow** any type of flame from any source **Ignore** 'stick' / 'rod', etc. **Allow** the substance tested to be referred to as a metal **Reject** putting the substance into a flame with a spatula / spoon / tongs / on a gauze, etc. Substance must be put **IN** flame or at the edge of the flame, against flame or tip of flame – not above, near or on the flame. Above the cone of a roaring flame is acceptable as that is in the blue part of the flame.
3(d)	sulfuric acid	1	**Allow** any named acid / acid / H^+ **Ignore** conc / dil

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Question	Answer	Marks	Guidance
3(e)	M1 white precipitate	**1**	**Allow** ppt / ppte **I** solid **Allow** dissolves
	M2 soluble (in excess)	**1**	**Allow** forms colourless solution **Ignore** white ppte turns colourless **Allow** soluble white precipitate for both marks **Reject** additional incorrect observations
3(f)	white precipitate	**1**	**Allow** ppt / ppte **Ignore** solid
3(g)	remains colourless / no change	**1**	**Allow** remains colourless / no ppte / no reaction / nothing happens / no observation

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Question	Answer	Marks	Guidance
4	any 6 from: **MP1** known / stated / same mass of leaves **MP2** grind / crush with water **MP3** known / set volume of leaf solution / (oxalic) acid or manganate (aliquote) **MP4** use of flask / beaker appropriate for manganate(VII) / acid reaction **MP5** add one reagent to other until colour changes **MP6** mix / swirl during addition **MP7** correct conclusion statement	**max 6**	 **M1 I** amount **MP2** Allow crush leaves and add water **MP2 Ignore** filtering **MP2 Ignore** what the leaves are ground in **MP2 Ignore** addition of alcohol **MP3** Ignore amount **MP4 Allow** any suitable container for the experiment **MP4** Allow adding manganate to a leaf in a suitable container.

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	Method A titration with fixed volume of acid from leaves	**Method B titration with fixed volume of manganate**	**Method C Add together and time to decolourise**	**Method D Add together and leave for set time and see which has decolourised**
MP1	Known mass of leaves	Known mass of leaves	Known mass of leaves	Known mass of leaves
MP2	Crush leaves with water or Crush leaves and add water	Crush leaves with water or Crush leaves and add water	Crush leaves with water or Crush leaves and add water	Crush leaves with water or Crush leaves and add water
MP3	use of flask / beaker appropriate for manganate(VII) / acid reaction	use of flask / beaker appropriate for manganate(VII) / acid reaction	use of flask / beaker appropriate for manganate(VII) / acid reaction	use of flask / beaker appropriate for manganate(VII) / acid reaction
MP4	Known volume acid	Known volume manganate	Known volume manganate	Known volume manganate
MP5	Add manganate to acid until there is a colour change (and note the volume)	Add acid to manganate until there is a colour change (and note the volume)	Add manganate to acid time how long it takes to decolourise	Add manganate to acid and leave for a set time
MP6	mixing / swirling	mixing / swirling	Mix / swirl	Mix / swirl
MP7	the acid / leaf that needs most manganate is most concentrated	the acid / leaf with smallest volume is most concentrated	the one that takes the shortest time to decolourise is the most concentrated	the one that decolourises the most is the most concentrated

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