| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(a)(i)** | electrical (energy) / electricity / direct (electric) current | | **(1)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(a)(ii)** | A description including<br><br>• {light / ignite} gas / lighted splint (1)<br>• gas burns / (squeaky) pop (if air is present) (1) | <br><br>reject glowing splint<br><br>second mark conditional on first | **(2)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(b)** | sea water / salt / brine / sodium chloride (solution) | | **(1)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(c)(i)** | **D** salt and water only | | **(1)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(c)(ii)** | A description to include two from<br><br>• (green) solid {disappears / dissolves} (1)<br><br>• effervesces / bubbles (of colourless gas) given off (1)<br><br>• blue (solution) forms (1) | <br><br>ignore references to names of products<br><br>fizz<br><br>goes blue<br>ignore incorrect colours of solution<br><br>ignore temperature rise | **(2)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(d)(i)** | An explanation linking<br><br>• tablet C (1)<br>• because it neutralises greatest volume of acid (1) | ignore references to rate | **(2)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **1(d)(ii)** | • {crushed tablets / chewed tablets} have a shorter reaction time (than whole tablets) (1) | ignore crushed because times are quicker / larger surface area / do not need to break down | **(1)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **2(a)** | magnesium nitrate<br>water<br>carbon dioxide<br><br>all three correct (2)<br>magnesium nitrate + one other correct (1) | allow correct formulae | **(2)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **2(b)(i)** | C – neutralisation | | **(1)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **2(b)(ii)** | $ZnO + 2HCl \rightarrow ZnCl_2 + H_2O$ (3)<br><br>LHS (1)<br>RHS (1)<br>balancing of correct formula (1) | correct multiples<br>ignore state symbols | **(3)** |

| Question Number | | Indicative Content | Mark |
|---|---|---|---|
| **QWC** | ***2(c)** | A description including some of the following points<br><br>experiment set up<br>• hydrochloric acid in container<br>• carbon rods in acid<br>• attach rods to electrical supply<br>• d.c. supply(or reference to positive and negative)<br>• test tubes to collect gases<br>test hydrogen<br>• lighted splint<br>• squeaky pop (with air)/burns<br>test chlorine<br>• (damp blue) litmus paper<br>• (turns red then) bleaches/white | **(6)** |
| **Level** | | No rewardable content | |
| **1** | **1 – 2** | • a limited description e.g. simple description/diagram of electrolysis set up OR description of test for one of the gases.<br>• the answer communicates ideas using simple language and uses limited scientific terminology<br>• spelling, punctuation and grammar are used with limited accuracy | |
| **2** | **3 – 4** | • a simple description e.g. a full description of electrolysis OR test for both gases OR simple description of electrolysis and the test for one of the gases.<br>• the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately<br>• spelling, punctuation and grammar are used with some accuracy | |
| **3** | **5 – 6** | • a detailed description e.g. description of electrolysis and test for both gases OR a full description of electrolysis and of one gas test.<br>• The answer communicates ideas clearly and coherently uses a range of scientific terminology accurately<br>• spelling, punctuation and grammar are used with few errors | |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **3(a)** | D a salt and water only | | **(1)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **3(b)(i)** | A description including two of<br><br>• (acid) colourless (liquid/solution) (1)<br>• (carbonate) green (solid) (1)<br>• disappears (1)<br>• effervesces/fizzes/bubbles (1)<br>• blue (solution) (forms) (1) | <br><br>Ignore clear<br><br>dissolves<br>Ignore gas/carbon dioxide given off | **(2)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **3(b)(ii)** | $CuCO_3 + 2HNO_3 \rightarrow Cu(NO_3)_2 + H_20 + CO_2$<br><br>reactants (1)<br>products (1)<br>balancing of correct formulae (1) | multiples | **(3)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **3(c)(i)** | An explanation linking<br><br>• decomposition (of compound/substance) (1) M1<br><br>• (by) (direct electric) current (1) M2 | <br><br>splitting up/breaking down/breaking up (of compound/substance)<br>Reject splitting of atoms/elements for M1<br>Ignore separating<br><br>(by) electricity/electrical energy/direct current<br>Reject alternating current/ac | **(2)** |

| Question Number | Answer | Acceptable answers | Mark |
|---|---|---|---|
| **3(c)(ii)** | A description linking<br>• glowing splint (1) M1<br><br>• relights (1) M2 | smouldering splint<br>Reject unlit (splint)<br>Ignore blown out (splint)<br>M2 dependent on M1 but<br>lighted splint burns brighter = 2 | **(2)** |