Mark schemes must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
1 (a) measuring cylinder (1)

(b) (i) condenser (1) accept condensing tube
  evaporating dish/basin/bowl (1) accept crystallising dish/basin/bowl
  tripod (1) [3]

(ii) A/distillation (1) [1]

(c) ignore reference to filtering
  heat/evaporate/use apparatus B (1) not ‘heat’ if the method would not work
  to crystallising point/until saturated (1) [2]

2 (a) Table of results

  highest temperatures correct (3), –1 for each incorrect up to 3
  26, 28, 34, 38, 42 ignore decimal place unless incorrect

  temperature rises (1)
  4, 6, 12, 16, 20 ignore decimal place unless incorrect [4]

(b) points plotted correctly (2), –1 for each incorrect up to 2 ignore origin
  straight line drawn with a ruler and missing anomalous point (1)
  need not go through origin, do not accept double lines [3]

(c) second point/Experiment 2/0.6 g zinc/6 °C (1) [1]

(d) 24 (1) accept 23.5–24.5 °C (1) extrapolation shown on grid (1) [3]

(e) blue colour turns colourless/paler/owtte (1) not just colour changes
  pink/red/brown/black solid (1) not Zn dissolves/Cu forms
  fizzing/bubbles (1) not gas given off max [2]

3 (a) lamp lights (1)
  fizzing/bubbles/green gas (1) ignore gas/H₂ produced allow bleach like smell [2]

(b) carbon/graphite/platinum (1) [1]

(c) hydrogen/H₂ (1) not H [1]

(d) fume cupboard/ventilated area (1)
  protective clothing e.g. gloves/goggles/lab coat/tie back hair (1) [2]
Experiment 1

(a) Table of results
volume boxes completed correctly (3), –1 for each incorrect up to 3
0, 13, 22, 30, 36, 43, 49  ignore decimal place unless incorrect [3]

(b) Experiment 2
volume boxes completed correctly (3), –1 for each incorrect up to 3
0, 5, 10, 13, 17, 20, 23  ignore decimal place unless incorrect [3]

(c) all points correctly plotted (3), –1 for any incorrect up to 3
two smooth line graphs and must go through origin (2)
lines clearly labelled (1) [6]

(d) (i) Experiment 1/acid X (1)

(ii) acid X stronger/more concentrated or converse (1) allow 2×
ignore reference to catalyst/reactivity [1]

(e) reaction finished (1) all acid used up (1) not Mg used up, ignore reactants used up [2]

(f) value from graph (1) 69–72 s  allow ecf from incorrect graph
tie line/indication shown (1) [2]

(g) advantage e.g. convenient/easy/quick to use/fairly accurate (1)
disadvantage e.g. reference to inaccurate measurement (1)
do not allow 2 marks for references to accuracy [2]

5 (b) (i) white (1) precipitate (1) [2]

(ii) paper turns blue (1) pH>7 (1) smelly/pungent gas (1) max [2]

(iii) no precipitate/reaction/change (1) [1]

(e) carbon dioxide/CO₂ produced (1) [1]

(f) calcium (1) carbonate (1) [2]

6 known/fixed/same volume/same mass of water (1)
temperature taken at beginning and end or temperature change (1)
known mass/volume/change in mass of fuel (1) accept any measurement of mass of fuel
ignite/burn the fuel or heat the water (1) accept flame in diagram
both fuels tested (1)
comparison (1) accept any attempt at comparison

[Total: 60]