UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

MARK SCHEME for the May/June 2010 question paper for the guidance of teachers

5070 CHEMISTRY

5070/42

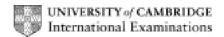
Paper 4 (Alternative to Practical), maximum raw mark 60

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Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE O LEVEL – May/June 2010	5070	42

- 1 (a) (gas) syringe (1)
 - **(b)** lime water turns milky / cloudy / white / chalky ppt. (1)
 - (c) 72 (1) cm³
 - (d) 0.003 (1)
 - **(e) (i)** 0.003 (1)
 - (ii) 100 (1)
 - (iii) 0.3 (1) g

[9]

- 2 (a) (i) shiny, silver or grey (1) (solid)
 - (ii) blue solution / liquid (1)
 - **(b) (i)** beaker gets warm or wtte (1)
 - (ii) copper (1) (accept Cu but not Cu(II))
 - (c) zinc dissolves / disappears; blue colour fades / disappears; fizzes / bubbles / effervescence / gas evolved. Any 2 (2)
 - (d) (i) $Zn + CuSO_4 = ZnSO_4 + Cu(1)$
 - (ii) redox, displacement, reduction and / or oxidation (1)

[8]

3 (c) [1]

4 (b) [1]

5 **(c)** [1]

6 (b) [1]

7 (c) [1]

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
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- 8 (a) pipette (1)
 - **(b)** yellow to pink, orange or red (1)
 - (c) 22.8 39.7 31.3 0 17.5 8.9 22.8 22.2 22.4

[Mark rows or columns to the benefit of the candidate. One mark for each correct row or column] (3)

Mean value 22.3 (1) cm³

- (d) 0.001 (1)
- (e) 0.002 (1)
- **(f)** 2 (1)
- **(g)** 2 (1)
- (h) (i) H_2SO_4 or sulfuric acid (1) (no H_2A)
 - (ii) $H_2SO_4 + 2NaOH = Na_2SO_4 + 2H_2O (1)$ (ecf on (g) and (h)(i)) [12]
- 9 (a) transition metal / element / d-block but not V is a transition metal (1)
 - **(b) (i)** green ppt. (1)
 - (ii) insoluble in excess (1)
 - (iii) gas turns litmus blue (1) ammonia (1)
 - (c) aq. barium chloride / nitrate + hydrochloric / nitric acid (2) white ppt. (1)
 - (d) aq. silver nitrate / nitric acid (2) white ppt. (1) In parts (c) and (d) no acid or 'acidified' can score 2/3 White ppt. on own or no BaCl₂ or AgNO₃ no marks No Pb(NO₃) test. Use of BaSO₄, AgCl, H₂SO₄ or HCl in test white ppt. mark only Conclusion: NH₄Cl / (NH₄)₂ SO₄ (1) FeCl₂ / FeSO₄ (1)

[13]

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
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- **10** (a) 32, 55, 69, 80 all correct (2), one error (1)
 - (b) all points stated in (a) plotted correctly (1) straight line (use of ruler) <u>and</u> smooth curve (1) appropriate extrapolations at lower ends (1) and upper ends (1)
 - (c) (i) 0.35 g (1)
 - (ii) 2.6 g (1)
 - (d) 75°C (1)
 - (e) 35 g / 100 g of water (1) For (c), (d) and (e) results must be seen on graph.
 - (f) sodium chloride colourless solution or no solid present (1) potassium chlorate(V) solid and liquid present (1) or some solid dissolved (not 'all solid undissolved') or wtte in both cases.
 Mark individually.
 - **(g)** increase in temperature gives a large increase in solubility of potassium chlorate(V) but not much effect on solubility of sodium chloride (1) wtte. (Comparison required)

[13]

In parts **(c)**, **(d)** and **(e)** read candidate's graph in awarding marks. Read graphs to + / – half small square.