UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

General Certificate of Education Ordinary Level

MARK SCHEME for the June 2005 question paper

5070 CHEMISTRY

5070/04 **Paper 4 (Alternative to Practical), maximum mark 60**

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June 2005

GCE O Level

MARK SCHEME

MAXIMUM MARK: 60

SYLLABUS/COMPONENT: 5070/04

CHEMISTRY
Paper 4 (Alternative to Practical)

1 **(a)** syringe
(b) 12 cm^3

2 **(a)** White **[1]**

(b) Filtration **[1]**

(c) **(i)** 0.012 (moles) **[1]**

(ii) 0.015 (moles) **[1]**

(d) **(i)** 0.012 (moles) **[1]**

(ii) $BaSO_4$ **[1]**

(iii) 233 (1) x 0.012 = 2.796 (2.80) (1) g **[2]**
(ecf on incorrect answer for **(d)(i)** and incorrect formula **(d)(ii)**

3 **(a)** solid does not conduct a current (or similar) **[1]**

(b) **(i)** bromine **[1]**

(ii) brown gas **[1]**

(gas or vapour must be mentioned in either **(i)** or **(ii)**)
(no other gas is acceptable)

(iii) lead **[1]**

(iv) on the floor of the cell **[1]**

(c) **(i)** chlorine (1), bleaches litmus (1) **[2]**

(ii) hydrogen (1), pops in a flame or with a lighted splint (1) **[2]**

if products in **(b)(i)** and **(iii)** or gases in **(c)(i)** and **(ii)** are correct but reversed, 1 out of 2 in each or either case. Ecf test for O_2 only in **(c)**, not any other gas.

(d) molten sodium chloride **[1]**

4 to 8 **(a)**, **(c)**, **(b)**, **(d)**, **(d)** 1 mark each. **[5]**

9 **(a)** 1.98 (g) **[1]**

(b) pipette **[1]**

(c) yellow to orange, red or pink **[1]**

(d)

25.9	48.7	33.4	1 mark for each
0.0	23.3	7.8	correct row **or**
25.9	25.4	25.6	column **[3]**

mean value: 25.5 ($cm^{3)}$ **[1]**

(e) 0.00204 (moles) **[1]**

(f) 0.00102 (moles)

(g) 0.0102 (moles) **[1]**

(h) 106 (g) **[1]**

(i) 1.081 (g) **[1]**

(j) 0.899 (0.90) (g) **[1]**

(k) 4.90 (5) (accurate answer must be seen to gain this mark) **[1]**

10 1. coloured solution (no compounds) **[1]**
2 red-brown precipitate (1) insoluble in excess (1) **[2]**
3 red-brown precipitate (1) insoluble in excess (1) **[2]**
4 aq sodium hydroxide (1) aluminium foil and warm (1) **[2]**
ammonia or gas evolved (1) which turns red litmus blue (1) **[2]**
(or alternative test for ammonia)
(if acid is used instead of NaOH in test, 1 mark lost
if ammonia is used in test, 2 marks lost)

$Fe(NO_3)_3$ **[1]**

11 **(a)** 32, 55, 69, 80. All correct (2), one error (1) **[2]**

(b) all points stated in **(a)** plotted correctly (1)
straight line and curved line (1) **[2]**

(c) Appropriate extrapolations at the lower ends (1)
and upper ends (1) **[2]**

(i) potassium chlorate(V) 0.35 g **[1]**

(ii) potassium nitrate 3.30 g **[1]**

(iii) 90 °C **[1]**

(d) 52 g/100 g of water **[1]**
(in parts **(c)** and **(d)** candidate's own graph should be read in marking the results)

(e) solution and solid present **[1]**

Note: **(i)** if potassium chlorate (V) curve is extrapolated through zero, first extrapolation mark is lost but **(c)(i)** can score ecf from zero
(ii) mark **(a)**, **(c)(i)**, **(ii)** and **(d)** to nearest half a small square

(Indicate marks awarded for graph at appropriate points)