

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

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

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June 2005

GCE O Level

MARK SCHEME

MAXIMUM MARK: 60

SYLLABUS/COMPONENT: 5070/04

CHEMISTRY
Paper 4 (Alternative to Practical)



Page 1	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – JUNE 2005	5070	4

- 1 (a) syringe [1]
 (b) 12 cm^3 [1]
- 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) $233 (1) \times 0.012 = 2.796 (2.80) (1) \text{ g}$ [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 correct row <u>or</u> column
0.0	23.3	7.8	
25.9	25.4	25.6	

 [3]
 mean value: $25.5 \text{ (cm}^3\text{)}$ [1]
 (e) 0.00204 (moles) [1]

Page 2	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – JUNE 2005	5070	4

- (f) 0.00102 (moles) [1]
- (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(NO₃)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)