

MARK SCHEME for the October/November 2007 question paper

5070 CHEMISTRY

5070/04

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

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

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

CIE is publishing the mark schemes for the October/November 2007 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



Page 2	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – October/November 2007	5070	04

- 1 (a) **B** (1),
- (b) pipette (1) [2]
- 2 (a) hydrocarbon oil or long chain ($> C_6$) or named hydrocarbon (1)
+ porcelain etc (1) or ethanol (1) + aluminium oxide (1).
- (b) ethene is insoluble in water (1).
- (c) to prevent the water sucking back into the tube(1).
- (d) aqueous bromine or bromine water (1)
is decolourised by ethene (1). [6]
- 3 (a) chromatography (1)
- (b) **B** – finish line of the solvent or water (1)
- (c) ink contains a number of dyes, substances or compounds (1)
which is separated into its components or produces dots or lines (1)
- (d) **X – M, N, and P; Y – L and P** (1) (both correct)
- (e) (i) R_f value = distances travelled by substance / solvent (1)
- (ii) **P**: $2.5/5.5 = 0.45$ (1) [7]

Page 3	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – October/November 2007	5070	04

- 4 (a)** white precipitate (1).
- (b) (i)** 0.02 (1)
- (ii)** 0.015 (1) (reversed ½)
- (c)** 3.495 (3.5) g (1)
- (d)** 95.85% (95.9%)(95.7% using 3.5 g)(accept 96)(1)
- (e)** product was not dried etc (1)
- (f)** barium chloride, carbonate, bromide, or iodide (1)
(not phosphate); [7]
- 5 to 9 (c), (a), (c), (b), (c)** respectively 1 mark each correct answer. [5]
- 10 (a)** 4.85 g (1)
- (b) (i)** blue (1),
- (ii)** filtration (1)
- (iii)** $\text{CuO} + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O}$ (1)
- (c) (i)** blue
- (ii)** green or blue/green(1)
- (d)**
- | | | | |
|------|------|------|---|
| 26.6 | 40.7 | 46.2 | (mark columns OR rows to benefit of candidate. 1 mark for each correct column or row) (3) |
| 0.0 | 14.6 | 19.9 | |
| 26.6 | 26.1 | 26.3 | |
- Mean value = 26.2 cm³ (1)
- (e)** 0.00262 (1)
- (f)** 0.00131 (1)
- (g)** 0.0131 (1)
- (h)** 0.05 (1)

Page 4	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – October/November 2007	5070	04

(i) 0.0369 (1)

(j) 0.0369 (1)

(k) (i) 2.93 g (1)

(ii) 60.4 % (1)

[17]

11 Transition metal ion present (1)
orange (1) to green (1)
purple (1) to colourless (1)

[5]

12 (a) temperatures: 24.5, 29, 27, 23.5. all correct (1)
temperature rises: 4.5, 9, 7, 3.5. all correct (1)

(b) all points correctly plotted (1)
joined by two intersecting straight lines (1)

(c) (i) 9.8 °C (1)

(ii) 56 cm³ of H, 44 cm³ of J both (1).

(d) moles NaOH : H₂SO₄ = 2 : 1(1)
Concentration of H = 0.39(3) moles/dm³
Correct answer with working (2)

(e) (i) 4.9 °C (1)

(ii) 56/44 (1)

[11]