

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the October/November 2008 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 2008 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 2008	5070	04

- 1 (a) (i) nitrogen [1]
(ii) 64 cm^3 [1]
(iii) $16/80 = 20\%$ [1]
- (b) (i) $2\text{Cu} + \text{O}_2 = 2\text{CuO}$ [1]
(ii) black [1]
- (c) (i) $0.16/64 = 0.0025$ moles [1]
(ii) 0.00125 moles [1]
(iii) 30 cm^3 [1]
(iv) 150 cm^3 [1]
(If dm^3 used in both (iii) and (iv) and stated, no deduction.
If not stated mark lost in (iii) but e.c.f for (iv).

[Total: 9]

- 2 (a) (i) orange to green [1]
(ii) oxidising agent etc. [1]
(iii) sulfur dioxide or hydrogen sulfide [1]
(iv) propanol, [1]
- (b) (i) propyl propanoate (e.c.f on incorrect alcohol in (a) (iv)) [1]
(ii) esters [1]
(iii) sweet or fruity smell (e.c.f for (i) and (ii) on propene only) [1]
- (c) yellow or orange (propanoic acid), red (sulfuric acid) [1]
- (d) (i) gas evolved, effervescence, fizzing, bubbles, Mg dissolves,
or test-tube gets hot. [1]
(ii) reaction faster with sulfuric acid [1]
- (e) sulfuric acid is a stronger acid (than propanoic acid) [1]

[Total: 11]

Page 3	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – October/November 2008	5070	04

- 3 (c) [1]
- 4 (d) [1]
- 5 (b) [1]
- 6 (b) [1]
- 7 (b) [1]

[Total 3–7: 5]

- 8 (a) 1.32 g [1]
- (b) (i) 106 g [1]
- (ii) $1.32 \times 4 / 106 = 0.0498$ (0.05) mol/dm³ [1]
- (c) (i) yellow to (ii) orange, red, pink. [1]
- (d) titre was too small to obtain accuracy etc [1]
- (e) water – first (1) diluted acid or solution H – second (1) [2]
- (f)
- | | | |
|------|------|------|
| 23.7 | 40.6 | 44.2 |
| 0 | 17.5 | 20.9 |
| 23.7 | 23.1 | 23.3 |
- Mean value = 23.2 (1) cm³
- (1 mark for each correct row or column (3)) [4]
- (g) 0.00125 [1]
- (h) 0.0025 [1]
- (i) $0.0025 \times 1000 / 23.2 = 0.108$ [1]
- (j) 1.08 mol/dm³ [1]
- (k) Increase the concentration or amount of Na₂CO₃ (1)
by factor of 10 (1) [2]

[Total: 17]

Page 4	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – October/November 2008	5070	04

- 9 (a) Colourless solution (1)
- (b) Al^{3+} (1) and Zn^{2+} (1) (or any correct ion e.g. Pb^{2+})
(If either or both charges are incorrect or missing -1)
- (c) No precipitate or slight white ppt. (1) (not no reaction)
- (d) HNO_3 (not conc) (1) $\text{Pb}(\text{NO}_3)_2$ or AgNO_3 (1)
yellow ppt. (1)
 CaI_2 (1) [8]
- [Total: 8]**
- 10 (a) 29, 49, 21, 18. (1) all correct.
37, 33, 28, 29. (1) all correct.
12, 8, 3, 4. (1) all correct. [3]
- (b) Points connected by a smooth curve [1]
- (c) (i) 10 cm^3 (read candidates graph). (Must show evidence of extending graph). [1]
- (ii) The greater the atomic mass of the element the less moles or amount are/is involved.
(or w.t.t.e) [1]
- (d) Points connected by a series of straight lines (1)
all points plotted correctly in both graphs (1) [2]
- (e) graph does not show any relationship between the two,
not uniform, not a curve or a straight line, or w.t.t.e. [1]
- (f) Copper does not react with hydrochloric acid. [1]
- [Total: 10]**