

## MARK SCHEME for the May/June 2014 series

### 5070 CHEMISTRY

5070/42

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, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus
	GCE O LEVEL – May/June 2014	5070

- 1 (a) (i) (gas) syringe (1)  
(ii)  $16 (1) \text{cm}^3$
- (b) (i) carbon dioxide /  $\text{CO}_2$  (1)  
limewater turns milky (1)  
 $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$  (1) [3]
- (ii) Hydrogen /  $\text{H}_2$  (1) pops in a flame (1)  
 $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$  (1) [3]

[Total: 8]

- 2 (a) (i) off white or cream or pale yellow (1) [1]  
(ii) filtration / filter (1) [1]
- (b) (i) 0.05 (1) moles [1]  
(ii) 0.06 (1) moles [1]
- (c)  $0.05 (1) \times 188 = 9.4 \text{g}$  (1) [2]
- (d)  $0.03 (1) \times 188 = 5.64 \text{g}$  (1) [2]

[Total: 8]

- 3 (a)  $\text{C}_6\text{H}_{14}$  AND  $\text{C}_7\text{H}_{16}$  (1) [1]
- (b) reaction flask with some form of heat indicated (1)  
thermometer + cork / bung / closed (1)  
condenser with water circulating in the correct direction (1)  
receiver flask, not closed (1) [4]

[Total: 5]

Page 3	Mark Scheme	Syllabus	or
	GCE O LEVEL – May/June 2014	5070	

- 4 (c) [Total: 1]
- 5 (d) [Total: 1]
- 6 (d) [Total: 1]
- 7 (b) [Total: 1]
- 8 (c) [Total: 1]
- 9 (a) 3.85g (1) [1]
- (b)  $\text{ZnO} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2\text{O}$  (1) [1]
- (c) red / pink to yellow (1) [1]
- (d) 

25.2	31.1	48.3	(1)
0.0	6.8	23.8	(1)
25.2	24.3	24.5	(1)

  
Mean titre = 24.4 cm<sup>3</sup> (1)
  
1 mark for each correct row or column to the benefit of the candidate. [4]
- (e) 0.00244 (1) moles [1]
- (f) 0.00122 (1) moles [1]
- (g) 0.0122 (1) moles [1]
- (h) 0.05 (1) moles [1]
- (i) 0.0378 (1) moles [1]
- (j) 0.0378 (1) moles [1]
- (k) 3.06 g (1) [1]
- (l) 79.5% (1) [1]
- [Total: 15]**

Page 4	Mark Scheme	Syllabus
	GCE O LEVEL – May/June 2014	5070

10 (a) colourless (1) to brown / black (1)

(b) orange (1) to green (1)

(c) purple / pink (1) to colourless (1)

[Total: 6]

11 (a) maximum temperature: 24.5, 29, 27, 23.5 (1)  
 temperature rise: 4.5, 9.0, 7.0, 3.5 (1)

[2]

(b) All four points plotted correctly (1)

Draw two straight lines only (1)

Line 1 must involve points 1 and 2

Line 2 must involve points 3 and 4

Lines intersect without use of a curve (1)

[3]

(c) (i) mixture 1:  $H = 74 \text{ cm}^3$  AND  $J = 26 \text{ cm}^3$  (1)  
 mixture 2:  $H = 34 \text{ cm}^3$  AND  $J = 66 \text{ cm}^3$  (1)

[2]

(ii)  $9.8^\circ\text{C}$  (1)

[1]

(iii)  $H = 56 \text{ cm}^3$  AND  $J = 44 \text{ cm}^3$  (1)

[1]

In questions (c) read candidate's graph to +/- half a small square.

In answers (c)(i) and (iii) totals must add up to  $100 \text{ cm}^3$ .

(d) No. of moles of J (1)

$$M = 44 \times 1.00 / 56 \times 2 = 0.393 \text{ (0.39) mol/dm}^3 \text{ (1)}$$

[2]

(e) (i)  $4.9^\circ\text{C}$  (1)

[1]

(ii)  $56 \text{ cm}^3$  H AND  $44 \text{ cm}^3$  J (1)

[1]

[Total: 13]