www.dynamicpapers.com

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the October/November 2015 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 October/November 2015 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

CAMBRIDGE
International Examinations

www.dynamicpapers.com

1 **(a)** (gas) syringe (1) [1]

(b) **(i)** hydrogen (1) [2]
burning splint pops **or** pops in a flame (1)

(ii) $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$ (1) [1]

(c) **(i)** 0.004 (mol) (1) [1]

(ii) 0.26 (g) (1) [1]

(iii) 0.94 (g) (1) [1]

(d) (copper) wet / not dried / some solution remaining (1) [1]

[Total: 8]

2 **(a)** **(i)** cracking (1) [1]

(ii) catalyst / speeds up reaction (1) [1]

(iii) C_8H_{18} (1) [1]

(iv) C_2H_4 with any one other viable product in a balanced equation (1)
e.g. $C_8H_{18} \rightarrow C_2H_4 + C_6H_{14}$ **or** $2C_2H_4 + C_4H_{10}$
or $3C_2H_4 + C_2H_6$ **or** $4C_2H_4 + H_2$ [1]

(b) **(i)** (turns) colourless / decolourises (1) [1]

(ii) addition (1) [1]

(iii) $C_2H_4 + Br_2 \rightarrow C_2H_4Br_2$ / correct structural formula (1) [1]

(c) carbon dioxide (1)
limewater turns milky or forms a white ppt. (1) [2]

[Total: 9]

3 **(d)** (1) **[Total: 1]**

4 **(b)** (1) **[Total: 1]**

5 **(c)** (1) **[Total: 1]**

6 **(a)** (1) **[Total: 1]**

© Cambridge International Examinations 2015

www.dynamicpapers.com

7 **(a)** 1.82 (g) (1) [1]

(b) volumetric flask / standard flask / graduated flask (1) [1]

(c) (before) yellow to (after) orange **or** red **or** pink **or** a combination e.g. orange / red (1) [1]

(d)

19.8	29.1	46.7	one mark for each correct row **or** column
0.0	10.0	27.4	to the benefit of the candidate (3)
19.8	19.1	19.3	

mean titre 19.2 (cm^3) (1) [4]

(e) 0.00192 (mol) (1) [1]

(f) $Na_2CO_3 + 2HCl \rightarrow 2NaCl + CO_2 + H_2O$ (1) [1]

(g) 0.00096 (mol) (1) [1]

(h) 0.0096 (mol) (1) [1]

(i) 1.018 **or** 1.02 (g) (1) [1]

(j) 0.8(0) (g) (1) [1]

(k) 44(.0) % (1) [1]

[Total: 14]

8 **(a)** **L** does not contain a transition metal / transition element / transition metal compound / transition metal ions (1) [1]

(b) **(i)** white ppt (1)

(ii) soluble in excess / forms a solution (1) [2]

(c) **(i)** white ppt (1)

(ii) insoluble in excess (1) [2]

(d) (dilute / aqueous) nitric / hydrochloric acid (1)
(aqueous) barium nitrate / chloride / hydroxide (1)
white ppt (1) [3]

© Cambridge International Examinations 2015

www.dynamicpapers.com

(e) $Al_2(SO_4)_3$ (1) [1]

[Total: 9]

9 **(a)** $2Cu + O_2 \rightarrow 2CuO$ (1) [1]

(b) nitrogen (1) [1]

(c) **(i)** all points plotted correctly (1)
ruled straight line of best fit (1)
passing through the origin (1) [3]

(ii) point at 50, 45 circled (1) [1]

(iii) value in range 39–41 cm^3 only (1) [1]

(iv) gas not been passed until all oxygen is used up / copper has not been heated long enough / there is not enough copper / oxygen in excess / gas is not allowed to cool (1) [1]

(d) **(i)** 20(.0)(cm^3) **allow** correctly read value from candidate's graph (1) [1]

(ii) 44(.0)(cm^3) **allow** correctly read value from candidate's graph (1) [1]

[Total: 10]

10 **(a)** sulfuric acid (1) [1]

(b) $CuO + H_2SO_4 \rightarrow CuSO_4 + H_2O$ (1) [1]

(c) blue (1) [1]

(d) heat / evaporate / warm / boil / leave in sun (1) [1]

to crystallisation point / saturation point / leave some of water / leave solution to cool / leave solution to crystallise / leave a concentrated solution (1) [1]

wash **and** dry crystals (1) [1]

[Total: 6]

© Cambridge International Examinations 2015