

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0620 CHEMISTRY

0620/61

Paper 6 (Alternative to Practical), maximum raw mark 60

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- 1 (a) boxes completed to show stirrer / glass rod (1) [2]
 watchglass / evaporating dish (1)
- (b) to speed up the reaction (1) [1]
- (c) correct answer 4.2 g (2)
 if incorrect, evidence of 17.8 – 13.6 (1) [2]
- (d) (i) solid / lead oxide visible / remaining (1) [1]
do not allow: mention of precipitate
- (ii) filtration (1) [1]
- (iii) excess (1) [1]
allow: residue
- (e) Any **two** from:
 evaporation / steam (1)
 solid / crystals formed (1)
 breakdown / decomposition of solid (1) [2]
- 2 (a) smooth curve missing anomalous point (1) [1]
- (b) **composition of mixture**
 double volume / 100 cm³ of hydrogen peroxide (1)
 more than 1 g of manganese(IV) oxide / powdered (1) [2]
ignore: references to water
note: double the concentration is valid for (2)
- explanation**
 double volume of gas (1)
 faster reaction (1) [2]
- (c) catalyst / increase the rate of the reaction (1) [1]
- (d) sketch graph less steep than original for Experiment 1 (1)
 to same level (1) [2]
- 3 (a) (i) chromatography (1) [1]
- (ii) to prevent loss / evaporation of solvent (1) [1]
- (b) when the solvent is near the top of the paper / before the solvent reaches the top of the paper (1) [1]

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(c) (i) 4 (1) [1]

(ii) yes, one artificial dye (1)
at same height / matches (1) [2]

4 (a) table of results for Experiment 1
initial volume completed correctly (1)
0 or 24.4
all readings to 1 decimal place (1) [2]

(b) table of results for Experiment 2
final volume completed correctly (1)
6.1
difference correct (1) [2]

(c) (i) neutralisation (1) [1]
allow: acid-base

(ii) as an indicator / to show end point (1) [1]

(d) water to remove the solution A of acid (1)
acid B to remove traces of water (1) [2]

(e) (i) Experiment 1
ecf from readings (1) [1]

(ii) any correct comparison (1) [1]

(iii) solution B more concentrated / stronger (1) or converse
less volume was needed (1) [2]

(f) half value from table result for experiment 2 (1)
cm³ (1) [2]

(g) advantage: easy to use / quick / convenient (1)
disadvantage: not accurate owtte (1) [2]

(h) same volume of each solution (1)
add suitable reactant (1)
expected observation (1)
comparison (1) [4]
note: e.g. 10 cm³ of each acid (1), add strip of magnesium / named carbonate (1)
effervescence (1), more rapid bubbles means stronger acid (1)

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- 5 (c) no reaction / no change / no precipitate (1) [1]
- (d) white (1)
precipitate (1) [2]
- (e) transition metal present (1)
allow: iron
water / hydrated (1) [2]
- (f) hydrated (1) iron (1) (II) (1) (sulfate) [3]
- 6 (a) (i) gas syringe / inverted measuring cylinder in trough of water (1)
labelled (1) [2]
- (ii) limewater (1)
milky (1) [2]
- (b) measured volume of water (1)
in named weighed container (1)
evaporate to dryness (1)
reweigh / measure mass of solid (1)
conclusion: e.g. double the mass of residue if 500 cm³ water used to check mass in
1000 cm³ (1) max [4]