UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

0620 CHEMISTRY

0620/61 Paper 6 (Alternative to Practical), maximum raw mark 60

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1 **(a)** tripod (1) **accept**: stand spatula (1) not: spoon [2]

(b) fizz/bubbles/effervescence stops (1)
solid/iron/powder visible / no more iron dissolves/reacts (1) [2]

(c) evaporation of water/steam (1) solid/residue/crystals formed (1)
colour change turns brown/darker green (1)
effect of heat on solid solid breaks down (1) max 3 [3]

[Total: 7]

2 **(a)** thermometer readings correct (3), –1 for any incorrect

methanol	25	28	3
ethanol	26	39	13
propanol	23	46	23
butanol	24	58	34

temperature rises correct (1) [4]

(b) points plotted correctly ±1/2 small square (3)
straight line drawn with a ruler (1) [4]

(c) value from graph (1) unit (1) 44°C
extrapolation shown on grid (1) [3]

(d) temperature rises would be greater/faster/quicker (1)
copper is a good conductor (1) [2]

[Total: 13]

3 **(a)** pestle (1) mortar (1) [2]

(b) stir/mix/shake (1) allow: heat/boil [1]

(c) diagram showing funnel (1)
indication of filter paper (1) note: labels not necessary [2]

(d) heat/evaporation (1)
to crystallising point or description (1)
in fume cupboard (1) max 2 [2]

(e) melting point/description of (1) **allow**: chromatography **ignore**: bp [1]

[Total: 8]

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4 **(a)** Table of results **ignore**: units in table
volume of aqueous potassium chloride boxes completed correctly (1) 1, 2, 4. 5, 6, 7
heights of solid boxes completed ±1mm (2) 4, 8, 16, 20, 24, 24
in mm (1) [4]

(b) all points correctly plotted (2), –1 for any incorrect
straight line graphs (2) **note**: one for each line, doesn't have to go through origin [4]

(c) value from graph 14 (1) unit (1) shown clearly (1) [3]

(d) precipitation (1) **allow**: double decomposition ignore: exo/endothermic [1]

(e) **(i)** same (1) no ecf **not**: almost the same
all lead nitrate reacted/reaction finished/lead nitrate is limiting factor (1) [2]

(ii) same heights/owtte (1)
lead nitrate is limiting factor/same amount of lead nitrate/excess potassium chloride (1) [2]

(g) yellow (precipitate) (1) [1]

(h) improvement (1) e.g. use burette/pipette/leave solid to settle longer/repeat
explanation (1) e.g. instead of a measuring cylinder/heights more accurate/take average [2]

[Total: 19]

5 **(c)** fizz/bubbles/effervescence (1) limewater (1)
milky/cloudy/white ppt (1) **cond**: on limewater [3]

(e) ammonia (1) [1]

(f) non-transition metal (1)
ammonium (salt or carbonate) (2) **not**: ammonia max [2]

[Total: 6]

6 steel nail(s) in test-tube/suitable glass container (1)
x cm^3 (1)
water (1) no water = max 3
known volume of inhibitor added (1)
observe effect after suitable time (1) note: minimum time = 1 day
repeat using other inhibitors (1)
observe/comparison of results (1) [7]

[Total: 7]

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