UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0620 CHEMISTRY

0620/63 Paper 6 (Alternative to Chemistry), maximum raw mark 60

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1 **(a)** funnel (1) stirrer/glass rod (1) evaporating dish (1) [3]

(b) filtration (1) [1]

(c) **C**/**A** (1) [1]

2 **(a)** temperatures correctly recorded (3) -1 for each incorrect
25, 41, 44, 29, 31

temperature rises correct (1)
0, 16, 19, 4, 6 [4]

(b) appropriate scale for y axis (1) **note** must be greater than half of grid
bars correct heights (2) plotting final temps = max 2
bars labelled correctly (1) no bar chart = max 1 [4]

(c) **(i)** calcium (1) [1]

(ii) no temperature rise (1)
no reaction/unreactive (1) **not** low/less reactive [2]

(d) correct order of reactivity (2), two in wrong order (1) [2]

least	copper
	iron
	zinc
	magnesium
most	calcium

(e) temperature changes/rises would be less/lower/half (1)
more acid/volume (1) [2]

3 **(a)** smooth curve missing anomalous points (1) [1]

(b) at 20 ^{o}C (1) [1]

(c) decreases (1) [1]

(d) line sketched below original curve (1) [1]

4 **(c)** Table of results
initial readings completed correctly 0.0, 1.9, 11.1 (1)
final readings completed correctly 10.4, 22.7, 16.3 (1) all readings to 1 dp (1)
differences completed correctly 10.4, 20.8, 5.2 (1) [4]

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(d) pink (1) to colourless(1) **not** clear [2]

(e) neutralisation/exothermic (1) [1]

(f) **(i)** C/3 smallest, B/2 largest (1) [1]

(ii) order is C/3, A/1, B/2 (2) one correct = 1 [2]

(g) Experiment 2 2x volume Experiment 1 or converse (1) [1]

(h) 10.4 (1) cm^3 (1) **allow** ecf from **(c)** [2]

(i) use a pipette/burette [1]

(j) no effect/owtte (1)
no change in concentration/temperature has no effect on quantities/only affects speed (1) [2]

(k) any correct method that would work – precise details not needed
same method using different acids = 0
reagents (1) method (1) result (1) [3]

e.g. to sodium hydroxide add named acid (1)
measure temperature change (1)
largest change = strongest/more concentrated solution (1)

to sodium hydroxide add named (excess) metal salt solution (1)
filter precipitate (1)
largest mass = strongest/more concentrated solution (1)

5 **(a)** **(i)** yellow/brown/orange (1) [1]

(b) **(i)** no change/no reaction/owtte (1) [1]

(ii) white (1) precipitate (1) [2]

(iii) brown (1) precipitate (1) [2]

(iv) brown precipitate (1) [1]

(d) carbon dioxide (1) [1]

(e) carbonate/hydrogen carbonate (1)
non transition metal/named metal e.g. sodium (1) [2]

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6 **(a)** substance/liquid that dissolves/owtte (1) [1]

(b) (in)flammable/catches fire easily (1) [1]

(c) fractional distillation (1) [1]

(d) chromatography (1)
apply spot of oil to paper (1) use of solvent (1)
description of process (1) results (1) max [4]

[Total: 60]

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