CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0620 CHEMISTRY

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

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1 **(a)** funnel (1) [1]

(b) to move products through the apparatus / owtte e.g. let the gases go out (1) [1]

(c) **(i)** limewater (1)
to detect carbon dioxide (1) [2]

(ii) so gas bubbles through liquid (1) [1]

(d) condensation / drops (1) water (1) [2]
allow: black deposit (1) soot / carbon (1)

2 **(a)** straight line drawn with a ruler through all points missing point at pH 5 (1) [1]

(b) idea of fair test / comparability (1) [1]

(c) temperature (1) [1]

(d) the lower the pH the greater the % corrosion / or converse / pH 1 is most corrosive (1) [1]

(e) 2.5% (1) [1]

3 **(a)** table of results for Experiment 1
initial, final and difference volume boxes completed correctly (1)
0.0, 38.0 difference 38.0
readings to 1dp (1) [2]

(b) table of results for Experiment 2
initial and final boxes completed correctly (1) 10.0, 29.0
difference (1) [2]

(c) colourless (1) pink (1) [2]

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

(e) 2 × volume for Experiment 1 from table / 76 (1) cm^3 (1) [2]

(f) **(i)** reacts with the acid / neutralised (1) less sodium hydroxide needed (1) [2]

(ii) volume in **(e)** – volume added in Experiment 2 (1) e.g. 76–19
correct value (2) e.g. 57 cm^3 [2]

(iii) estimate based on **(ii)** answer to **(ii)** / 3 divided into 19 × 0.1 + 0.3 = 0.4 g [1]

(g) no effect (1)
reason – reaction not affected by temperature (1) [2]

(h) **(i)** more accurate (1) than a measuring cylinder (1) [2]

(ii) no effect / advantage (1) not measuring temperature changes (1) [2]

4 tests on liquid L

(a) colourless (liquid) [1]
allow: (pale) yellow

(c) no reaction / change (1) [1]

(d) yellow (1) precipitate (1) [2]

(e) iodine dissolves / owtte (1) [1]

(f) organic (1) solvent (1) liquids do not mix (1) max [2]

5 **(a)** volumes completed correctly (4), –1 each incorrect [4]

time / s	catalyst R	catalyst S
0	0	0
30	23	16
60	34	36
90	59	51
120	66	63
150	71	69
180	72	72

(b) points plotted correctly (3) smooth curves (2) labels (1) [6]

(c) result at 60s / volume 34 / third result (1) [1]

(d) R (1) rate faster (1) [2]

(e) sketch to left of R graph / steeper (1) to same level (1) [2]

6 mass of silica gel (1)
heat in oven > 100 ˚C (1)
for specified realistic time / until turns blue (1)
reweigh (1) record (1)
heat in oven again to check constant mass / indication of colour change (1)
calculation (1) max [6]