

## **MARK SCHEME for the May/June 2013 series**

### **0620 CHEMISTRY**

**0620/53**

Paper 5 (Practical), maximum raw mark 40

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.

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1 (b) Table of results

Experiment 1

initial and final volumes completed correctly (1)

difference calculated correctly (1)

Experiment 2

initial and final volumes and difference completed correctly (1)

difference calculated correctly (1)

both experiments

all results to 1 (or 2) dp, including 0.0 (1)

difference in experiment 2, difference in experiment 1 (1) [6]

(c) yellow (1) to orange / pink / red (1) [2]

(d) neutralisation (1) **accept:** endothermic [1]

(e) experiment 2 (1) **allow:** ecf on results [1]

(f) (i) (about) 3x as much used in experiment 1 (1) **allow:** ecf on results [1]

(ii) solution / acid **G** / 2 (1) [1]

(g) twice value from table result for experiment 2 (1) cm<sup>3</sup> (1) [2]

(h) use a pipette / burette [1]

(i) effect none owtte (1)

reason no change in concentration / same amounts (1) owtte [2]

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(j) any correct method that would work – precise details not needed

using same method (volume required) with different bases = 0  
adding indicator and checking colour = 0

reagents (1) method (1) result (1)

[3]

e.g. (to hydrochloric acid) add named metal e.g. Mg, Zn (1)

measure temperature change (1)

largest change = more concentrated solution (1)

(to hydrochloric acid) add sodium hydroxide solution (1)

measure temperature change (1)

largest change = more concentrated solution (1)

to hydrochloric acid add named metal / metal carbonate

measure speed of reaction (time to complete/rate of gas production)

fastest = more concentrated solution

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- 2 (a) blue / green (1) [1]  
 (pale) blue / green / greener (1) [1]
- (b) blue (1) precipitate (1) [2]  
 with heat: turns brown (1) then black (1)  
 sharp / vinegar / pungent / strong / sour / bitter smell (1) max 2 [2]  
 with nitric acid turns green / blue (1) [1]
- (c) blue (1) precipitate (1) [2]  
 with excess: deep blue (1) solution / clear / dissolves (1) [2]
- (d) (i) solid turns black (1) condensation at top of tube (1)  
 splint flashes / flame at top of tube (1) max 2 [2]  
 (ii) effervescence / bubbles / fizz (1)  
 splint extinguished owtte (1) [2]
- (e) vinegar / pungent / sharp / strong / sour / bitter smell (1) [1]
- (f) copper (1) ethanoate / organic (1) [2]
- (g) carbonate (forms on heating) (1)  
 carbon dioxide (forms) (1)  
 organic / flammable gas given off when heated (1)  
 ethanoate (1) max 2 [2]