CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2013 series

0620 CHEMISTRY

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

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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

CAMBRIDGE
International Examinations

1 **(a)** **(i)** arrow / label underneath solid in tube (1)

(ii) arrow / label in U-tube below level of ice (1) [2]

(b) red / brown (1) [1]

(c) water collected only from the reaction / owtte (1) [1]

(d) test anhydrous / white copper sulfate / cobalt chloride (paper) (1)

result turns blue / pink (1) **note:** do not allow physical tests [2]

2 **(a)** fizz / bubbles / effervescense (1) [1]

(b) carbon / graphite (1) [1]

(c) electrolysis (1) [1]

(d) **(i)** alkali formed (1) sodium hydroxide formed (2) [2]

(ii) colourless / red (1)

chlorine bleaches / chlorine is an acidic gas / acid produced (1) [2]

© Cambridge International Examinations 2013

3 **(b)** table of results

initial readings completed correctly (1) 0.0, 9.0

final readings completed correctly (1) 39.0, 22.0

all readings to 1 decimal place (1)

differences completed correctly (1) 39.0, 13.0 [4]

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

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

(e) Experiment 2 (1) **allow:** ecf [1]

(f) **(i)** three times as much used in Experiment 1 (1) **not:** ecf [1]

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

(g) twice value from table result for experiment 2 / 26 (1) cm^3 (1) [2]

(h) use a pipette/burette [1]

(i) to remove acid **F** / clean (1) water would dilute acid **G** / owtte (1) [2]

(j) effect none / owtte (1)

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

© Cambridge International Examinations 2013

(k) any correct method that would work- precise details not needed

using same method with different bases = 0

reagents (1) method (1) result (1) [3]
not: method using indicators

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

measure temperature change (1)

largest change = strongest / more concentrated solution (1)

* to hydrochloric acid add sodium hydroxide solution (1)

measure temperature change (1)

largest change = strongest solution (1)

* rate experiment

add acid to appropriate reagent (1)

method of rate measurement, e.g. volume of gas (1)

conclusion (1)

4 tests on solid **H**

(a) blue / green (1) [1]

(b) blue (1) precipitate (1) [2]

(c) blue (1) precipitate (1) [2]

with excess deep blue (1) solution / clear / dissolves (1) [2]

(d) forms a carbonate on heating / carbon dioxide present (1)

organic / ethanoate (1) [2]

© Cambridge International Examinations 2013

5 **(a)** volumes completed correctly in table (2), –1 each incorrect

0, 38, 59, 73, 78, 79, 79 [2]

(b) appropriate scale for *y*-axis (1)

points plotted correctly including origin (2)

smooth curve (1) [4]

(c) 90 s (1) indication (1) [2]

(d) sketch to right of graph (1) levelling out at 39–40 cm^3 (1) [2]

(e) particles moving slower / have less energy (1) fewer collisions (1) [2]

6 variety of ways that could be used

generally appropriate solvent for named solid (1)

evaporate off solvent (1)

mention of these three terms at least once

filter (1) wash (1) dry (1)

appropriate solvent for second named solid (1) and filter

lastly wash and dry remaining solid (1)

example; add cyclohexane to the mixture to dissolve **W** (1)

filter (1) wash (1)

evaporate off cyclohexane (1)

to residue add cold water to dissolve **Y** (1) evaporate off water (1)

wash (1) dry (1) residue is **X** (1)

max 6 [6]

© Cambridge International Examinations 2013