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Cambridge International General Certificate of Secondary Education

MARK SCHEME for the March 2015 series

0620 CHEMISTRY

0620/62 Paper 6 (Alternative to Practical), maximum raw mark 60

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1 (a) thermometer (1)

condenser (1) [2]

(b) (i) ethanoic acid (1)

lower boiling point / evaporates first (1) [2]

(ii) temperature reading will rise / gap in liquid coming over / no more collected at 118 °C (1) [1]

(c) larger surface area (1) [1]

(d) test: named indicator / pH meter / pH paper (1)

result: correct colour change / pH < 7 (1) [2]

2 (a) Table of results

volume boxes completed correctly (3),
all 7 correct (3)
6 correct (2)
5 correct (1)
4 or fewer correct (0)

0, 45, 48, 72, 74, 75, 75 [3]

(b) points plotted correctly, including origin (3),
all 7 correct (3)
6 correct (2)
5 correct (1)
4 or fewer correct (0)

Smooth line graph(1) [4]

(c) (i) point at 2 min / 3rd point / 48 cm^3 (1)

off curve (1) [2]

(ii) reading from graph, 62–64 (cm^3) (1)

indication (1) [2]

(d) curve to left of original (1)

to same level (1) [2]

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3 **(a)** electrolysis (1) [1]

(b) aluminium would react / platinum is inert / less reactive (1) [1]

(c) **(i)** chlorine (1)

(ii) colourless / bleached / pale yellow (1) [2]

4 **(d)** **Table of results**

total volume of water boxes completed correctly (1),

10, 12, 14, 18

temperature boxes completed (2)
all 4 correct (2)
3 correct (1)
2 or fewer correct (0)

91, 73, 65, 54 [3]

(e) appropriate scale for y axis (1)
note: must use at least 4 large squares vertically to plot points

all points correctly plotted (3),
all 4 correct (3)
3 correct (2)
2 correct (1)
1 or fewer correct (0)
note: origin should not be included

smooth line graph (1) [5]

(f) value from graph for 20 cm^3 water, 50–53 (1) ± half a small square

shown clearly by extrapolation (1)

unit, °C (1) [3]

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(g) clear / colourless liquid forms / no solid / crystals / salt visible (1) [1]

(h) salt would not all dissolve (1)

use of figures (1) [2]
e.g. only 5.7 g would dissolve in 10 cm^3 water at 100 °C

(i) sketch graph always above line (1)

label (1) [2]

(j) any **one** improvement from: (1)

do not remove thermometer from solution
use IT method / second person to note formation of crystals
repeat
do separate experiments
use smaller volumes of water
evaporation

linked explanation (1)

loss of solid on thermometer
observing formation of first crystals may vary
average
more results to plot on graph
method of avoiding evaporation e.g. separate experiments, lid [2]

5 tests on solution **E**

(a) yellow / green / any combination of yellow/green [1]

(b) white precipitate (1) [1]

(c) **(i)** green (1) precipitate (1) [2]

(ii) indicator paper turns blue (1)

pungent / sharp smell(1) [2]

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(d) brown precipitate (1) [1]

(g) hydrogen (1) [1]

(h) any **two** from:
transition metal (1)

different valencies / colours (1)

acidic solution (1) [2]

6 any **seven** from:

extraction

cut leaves up / small pieces / grind / crush (1)

use of pestle / mortar (1)

add water (1)

sand (1)

boil / heat / stir / mix / shake (1)

separation

decant / filter (1)

obtaining crystals

evaporate / heat solution (1)

to crystallising point / until crystals start to form (1)

leave to cool (1) [7]

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