UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

0620 CHEMISTRY

0620/62 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.

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1 **(a)** flask (1) pipette (1) burette (1)

(b) named indicator (1) colour change (1) [
not incorrect colour change

[Total: 5]

2 correct test (1) result (1)
examples given are not the only possible correct responses
note incorrect test means zero for result e.g. test for KC*l*, add sulfuric acid gives white ppt scores no marks. **Except** for NaOH, unnamed indicator turns blue or purple scores one mark for the result.

aqueous potassium chloride	(nitric acid) silver nitrate / lead nitrate (1) white precipitate (1)
ethanol	lighted splint (1) flame produced (1) **allow** dichromate / manganate and correct colour change **not** b.p.
sodium hydroxide solution	named indicator (1) correct colour change or pH (1) **allow** named metal salt solution and correct ppt. colour

[Total: 6]

3 **(a)** all points plotted correctly (2), –1 each incorrect
straight line (1) [3]

(b) gas / carbon dioxide given off [1]
not hydrogen gas given off

(c) prevent loss of acid / liquid [1]

(d) **(i)** Experiment 1 [1]

(ii) (in Experiment 2) the temperature of the acid was lower / converse [1]

(e) 18.5 minutes ±1/2 small square (1) extrapolation on grid (1) [2]

(f) sketched line to the left of Experiment 1 line [1]

[Total: 10]

4 **(a)** initial temperature boxes correctly completed 23 (1)
final temperature boxes completed (2) –1 each incorrect
21 20 19 17

(b) initial temperature boxes correctly completed 22 (1)
final temperature boxes correctly completed (1), –1 each incorrect
26 28 30 [2]

(c) points plotted correctly (3), –1 for each incorrect
best fit straight line graphs (2)
labels (1) [6]

(d) **(i)** value from graph 34 °C (1)
shown clearly on graph (1) [2]

(ii) value from graph 18 °C (1) shown clearly (1) [2]

(e) endothermic [1]

(f) temperature changes would be smaller / half owtte (1)
more water (1) [2]

(g) solid would dissolve slower / react slower or take longer to reach final temperature (1)
smaller surface area (1) [2]
allow converse e.g. dissolves faster or reaches final temperature faster
larger surface area

[Total: 20]

5 **(a)** yellow (1) precipitate (1) [2]

(b) effervescence / fizz / bubbles (1)
pungent smell (1)
pH paper blue / purple / >7 (1) [3]
ignore white ppt.

(d) carbon dioxide [1]

(e) zinc (1) carbonate (1) [2]

[Total: 8]

6 **(a)** electroplating

(b) **(i)** chromium (1)

(ii) any named chromium salt (1) [2]

(c) to stop corrosion owtte (1)
to look attractive owtte (1) [2]

[Total: 5]

7 specified number / mass of nails (1)
add x cm^3 sample of water (1)
in a test-tube / beaker (1)
leave until nails rust and note time (1)
not unrealistic time, must be at least one day
repeat with other water samples (1)
same volume water / number of nails (1)
compare / describe results (1) [max 6]

[Total: 6]