UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2004 question paper

0620 CHEMISTRY

0620/06 **Paper 6 (Alternative to Practical), maximum mark 60**

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

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Grade thresholds taken for Syllabus 0620 (Chemistry) in the November 2004 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 6	60	46	37	29	23

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

November 2004

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 60

SYLLABUS/COMPONENT: 0620/06

CHEMISTRY
Alternative to Practical

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1 **(a)** **A** measuring cylinder (1)

B flask (1) **(2)**

(b) boxes completed correctly, zinc and hydrochloric acid (1) **(1)**

(c) lighted splint (1) pops (1)

second mark consequential i.e. glowing splint = 0 **(2)**

2 **(a)** smooth line/curve (1) **(1)**

(b) result at 60s (1) not on curve or similar (1) **(2)**

(c) calcium carbonate is being used up/acid gets more dilute (1) **(1)**

3 **(a)** to absorb/hold/contain the liquid (1) **(1)**

(b) cracking (1) **(1)**

(c) bromine (water) (1) colourless (1) **(2)**

(d) remove the delivery tube from the water (1)

to prevent suck-back or similar effect (1) **(2)**

4 Table of results

initial temp.	24	23.5	24.5	23	22.5	23
final temp.	–	20.5	17.5	14	11	7.5

All 11 temperatures recorded correctly (5), -1 for each incorrect **(5)**

(a) Graph points plotted correctly (3), -1 for each incorrect

straight line (1) **(4)**

(b) **(i)** temperature from graph (1) e.g. 12.5°C ± 0.5 **(1)**

indication (1) °C (1) **(2)**

(ii) temperature from graph (1) e.g. 4°C ± 0.5

extrapolation shown (1) **(2)**

(c) endothermic (1) **(1)**

(d) temperature changes would be smaller (1)

more water (1) **(2)**

(e) larger surface area (1) reacts/dissolves faster/easier (1) **(2)**

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(f) 22 - 24°C/room temperature (1) reaction finished (1) **(2)**

(g) use a burette/pipette instead of measuring cylinder/insulation/lids/lags (1) **(1)**

5 **(a)** white (1) crystals/solid (1) **(2)**

(c) **(i)** white (1) precipitate (1) **(2)**

(ii) white (1) precipitate (1) **(2)**

(iii) reference to smell (1) alkaline/blue (1) pH 9 → 12 (1) **2 max (2)**

(d) ammonia (1) **(1)**

(e) alkaline gas/ammonia given off (1)

acid gas/hydrogen chloride given off (1) **(2)**

6 **(a)** litmus/indicator (1)

bleached in chlorine, no effect with sodium chloride (1) **(2)**

(b) sodium hydroxide (1)

green (precipitate) with iron(II), brown (precipitate) with iron(III) (1) **(2)**

(c) add hydrochloric acid (1)

fizz/bubbles with carbonate, no reaction with sulphate (1) **(2)**

alternative with HC*l* and barium chloride (1)

white precipitate with sulphate, not carbonate (1)

7 chromatography (1) apply inks/spots to paper (1)

organic solvent/water (1) rises up paper (1)

check heights/positions of spots (1) compare to find ink from banknote (1) **(6)**

N.B. all marks can be obtained from a diagram

Total marks for paper 60

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