UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2009 question paper

for the guidance of teachers

0620 CHEMISTRY

0620/06 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)** balance (1) stirring/(glass) rod/stirrer (1) not thermometer
beaker (1)

(b) **(i)** excess (1) not residue [1]

(ii) filtration/decant (1)
not sieve/strain/centrifuge [1]

(c) heat/evaporate (1) to crystallising point or description e.g. using glass rod (1) [2]

2 **(a)** to reach room temperature/be at same temperature owtte (1) [1]

(b) insulator/to minimise heat loss (1) [1]

(c) exothermic (1) [1]

(d) **(i)** 40 cm^3 volume of acid (1) [1]

(ii) two straight lines, missing error point (1) extended to intersect (1) [2]

(iii) 22.5 +/- 0.5 (1) or read from graph cm^3 (1) [2]

3 **(a)** add dilute acid (1) fizz, no fizz (1) or correct chloride test [2]

(b) litmus paper/named indicator (1) turns blue (1) bleached (1) [3]

(c) sodium hydroxide/ammonia (solution) (1) green (precipitate) (1)
brown (precipitate) (1) [3]

4 **(a)** Table of results

initial temperature boxes completed correctly (2)	24	33	40	51	60
final temperature boxes correctly completed (2)	24	31	38	47	54
average temperature boxes correctly completed (1)	24	32	39	49	57

[5]

(b) 5 points correctly plotted (3), –1 for any incorrect
smooth line graph (1) [4]

(c) **(i)** experiment 5 (1) [1]

(ii) more energy owtte (1) particles move faster (1) more kinetic energy = 2
more collisions (1) [3]

(d) idea of a fair test/to compare effect of changing the temperature (1)

(e) **(i)** value from graph approx 20 (1) unit (1)
extrapolation shown (1) [3]

(ii) curve sketched on grid below original curve (1) [1]

(f) change e.g. use of data logger/colourimeter (1) or use of lagging/insulation /repeat experiments or more values/use a burette or pipette

explanation e.g. timing of reaction more accurate (1) to reduce heat losses /average readings for times/volumes more accurate [2]

5 tests on solid **S**

(c) **(i)** blue precipitate (1) [1]

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

dissolves/clears (1) deep/royal blue (1) [2]

(iii) white (1) precipitate (1) [2]

(f) **(i)** **V** is more reactive or converse (1) [1]

(ii) oxygen (1) [1]

(g) catalyst/transition metal/manganese oxide any two points (2)
V is a better catalyst = 2 [2]

6 **(a)** add water (1)
crush/mix/warm (1)
filter/decant or pipette off liquid/sieve (1) [3]

(b) add indicator solution to acid (and note colour) (1)
add indicator solution to alkali or named alkali (and note colour) (1) not base
conclusion e.g. colours should be different owtte (1) [3]