UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2006 question paper

0620 CHEMISTRY

0620/06 Paper 6, maximum raw mark 60

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do 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*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

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International Examinations

1 **(a)** Boxes completed tubes (1)
hydrochloric acid (1)
electrodes (1) **[3]**

(b) Electrolysis (1) **[1]**

(c) Litmus paper (1), bleaches/white (1) **[2]**

2 **(a)** To extract the colour owtte (1) **[1]**

(b) To remove solid/insoluble impurities (1) **[1]**

(c) Heating/evaporation (1) **[1]**

(d) Diagram showing spots (1) 3 at different levels (1) **[2]**

3 Maximum temperatures reached

22 34 46 48 44 40 (2) **[2]**

-1 for any incorrect

(a) So that the solutions are at same/lab/room temperature (1) **[1]**

(b) 22°C (1) **[1]**

(c) Good insulator owtte (1) **[1]**

(d) Graph all points correct (2) -1 for any incorrect

2 straight lines (1) **[3]**

(e) **(i)** 50°C (1) **[1]**

(ii) Indication where lines intersect (1) **[1]**

(iii) 24 cm^3 or from graph (1) **[1]**

(f) Exothermic (1) **[1]**

4 Volumes from cylinder diagrams

Experiment 2

0 16 31 39 all correct (2) **[2]**

-1 for any incorrect

Experiment 3

0 9 17 21 all correct (2) **[2]**

Experiment 4

0 6 11 14 all correct (2) **[2]**

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

smooth curves (1), labels (1) **[5]**

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

(ii) Most concentrated solution (1), more collisions (1) **[2]**

(c) **(i)** Two errors (2)

e.g. amount of catalyst/timing/volume of solution **[2]**

(ii) Two improvements (2)

e.g. measure mass of catalyst/use burette or pipette/data logging **[2]**

(d) Filter (1), same mass of catalyst before and after (1)/repeat experiment and compare volumes of gas collected **[2]**

5 **(b)** **(i)** white (1), precipitate (1), dissolves/soluble (1) **[3]**

(ii) white (1), precipitate (1), dissolves/soluble (1) **[3]**

(d) reference to water (1) e.g. hydrated salt **[1]**

(e) sulphate (1), not a chloride (1) **[2]**

(f) carbon dioxide (1), from a carbonate (1) **[2]**

6 Measured volume of oven cleaner (1)
Add indicator/named indicator (1)
Add named acid (1), from a burette/pipette (1)
Until colour change/end point (1), measure/record volume of acid (1)
Repeat with other cleaner (1), compare (1)

Max 6 **[6]**

Total for paper = 60