MARK SCHEME for the October/November 2006 question paper

0620 CHEMISTRY

0620/06 Paper 6 (Alternative to Practical), maximum raw 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 instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began.

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 grade thresholds for various grades are published in the report on the examination for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2006 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1 (a) Boxes filled in correctly to show

        tongs(1)

        watch glass/evaporating basin/dish(1)

        beaker(1) **[3]**

  (b) oxidation/combustion/exothermic/redox(1) **[1]**

  (c) > 7(1) **[1]**

2 (a) brown/orange(1) **[1]**

  (b) oxygen used in rusting(1) <u>not</u> air **[1]**

  (c) $\dfrac{25}{150} \times 100$ (1) = 17%/ 16.6 → 17%(1) 2 for correct answer **[2]**

  (d) more rust/quicker to rust/water further up tube/tube fills up(1) **[1]**

3   table of results

  all volumes correct (2) 0, 9, 35, 62, 81, 88, 89 **[2]**

  -1 for any incorrect

  (a) graph

    points (2) S-shaped curve joining all points(1) **[3]**

  (b) exothermic/displacement/oxidation/redox(1) **[1]**

  (c) (i) slow at start/speeds up/slows down at end max 2 **[2]**

     (ii) surface dirty owtte at start/then clean/calcium being used up/warms up

       max 2 **[2]**

4   table of results

(a) temperatures correctly completed(3) differences(1)

zinc   24   56   32

iron   25   41   16

magnesium 23   69   46

-1 for each incorrect   **[4]**

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

       (ii)   gas evolved rapidly/reacts(1) greatest (temperature) difference(1)   **[2]**

       (iii)   hydrogen(1)   **[1]**

(c) Table of results temperatures correct (6)   **[6]**

Time /s	zinc	magnesium
0	24	26
10	27	54
20	29	62
30	33	67
40	37	68
50	40	67
60	43	65

(d) Graph. Points plotted correctly(2) - 1 for each incorrect

Smooth lines(1) labels(1)   **[4]**

(e) temperature after 5s/ 25-26°C ± 0.5°C(1) indication on grid(1)   **[2]**

(f) sketch line for Mg below powder Mg(1)

sketch line for iron powder below zinc/ any line below top curve(1)   **[2]**

(g) prevent heat loss/insulation(1)   **[1]**

(h) one improvement e.g. use a burette/pipette to measure solution/ lid(1)   **[1]**

5 (a) (ii)   red(1) litmus turns blue(1) reference to smell(1) max 2   **[2]**

    (c) weak(1) acid(1)   **[2]**

    (d) ammonia(1)   **[1]**

    (e) ammonium chloride(1)   **[1]**

    (f) potassium iodide(1)   **[1]**

6 (a) paint sample + water(1) filter(1) solid residue(1) max 2   **[2]**

    (b) solid + organic solvent(1) add to paper(1)

chromatography(1) use of solvent(1) description of spots(1)

max 4 NB use of water = max 1 for chromatography   **[4]**

    (c) (i)   apply paint, start timer(1) method of checking dry, note time(1)

             no painting = 0   **[2]**

       (ii)   correct method(1) e.g. hair drier/wind/fan/increase temperature.

             <u>NOT</u> catalyst.   **[1]**

[Total 60]