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

0652 PHYSICAL SCIENCE

0652/06   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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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

CIE is publishing the mark schemes for the October/November 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

UNIVERSITY *of* CAMBRIDGE
International Examinations

1 (a) (i) 36.5 ; [1]

(ii) 29.5 (+/– 0.1) ; [1]

(iii) 29.5 – 25 = 4.5 (cm^3) (ecf) ; [1]

(iv) 36.5 / 4.5 = 8.1 (g / cm^3) ; (allow 8) [1]

(b) (i) apply a light spill / flame ;
result – pop (owtte) ; [2]

(ii) Mg, Zn, A*l*, Fe, Sn (name or symbol) ; (do not allow alkali metal or alkaline earth metal) [1]

(c) (i) blue precipitate (formed) ; [1]

(ii) precipitate dissolves / soluble / forms solution ;
(dark) blue ; [2]

[Total: 10]

2 (a) (i) 1.55 ; 1.6(0) (no tolerance) ; (allow 1 mark if reversed) [2]

(ii) 1.55 × 0.25 = 0.39 (ecf) ;
1.6 × 0.12 = 0.19(2) (ecf) ; [2]

(iii) Watt(s) / W ; [1]

(b) (i) diagram shows 2 lamps in parallel ; [1]

(ii) 0.48 (+/– 0.01) ; [1]

(iii) 0.48 × 1.5 = 0.72 (allow 0.705 to 0.74) (ecf); [1]

(c) both statements are true / statement 1 is true and statement 2 is true but not as accurate ;
(allow statement(s) is / are false if justified) [1]

(d) clock / watch / timer ; [1]

[Total: 10]

3 (a) blue ;
ammonia ;
ammonium (accept NH_4) ; [3]

(b) (i) iron(II) ;
iron(III) ; (allow 1 mark if oxidation state missing or reversed)
oxidation ; [3]

(ii) barium chloride (nitrate) ;
<u>white</u> precipitate / ppt. / solid / residue ; [2]

(iii) nitric ; (**must** score before award of next mark)
silver nitrate / lead nitrate ; [2]

[Total: 10]

4 (a) 23.2 °C ;
44.8 °C ; (no tolerance) [2]

(b) 95.8 g ;
97.9 g ; (no tolerance) [2]

(c) 97.9 – 95.8 = 2.1 g (ecf) ; [1]

(d) 44.8 – 23.2 = 21.6 °C (ecf) ; [1]

(e) (i) condensation / condensing ; [1]

(ii) molecules (particles) / gas lose energy / move more slowly / forms bonds ;
on changing from gas to liquid / owtte ;
(**not** molecules / particles come closer together)
(e.g. gas molecules lose energy when they become liquid = 2 marks) [2]

(f) some (2.1 g) water / steam cools (from 100 °C to 44.8 °C); [1]

[Total: 10]

5 (a) (i) 4.7, 5.5, 6.3 (newtons) (no tolerance) ;;; [3]

(ii) 2, 4, 6, 8, 10, 12, newtons (all correct) ; [1]

(b) (i) sensible scale chosen and axes labelled, units (newtons) given on one axis ;
points plotted (allow one error) ;
straight line drawn **NOT** passing through (0,0) ; [3]

(ii) e.g. $\dfrac{6-0}{3.8-1.5} = \dfrac{6}{2.3}$ (choice of data shown on graph) ;
= 2.6 (no units) ; [2]

(c) $\dfrac{400 \times 10}{2.6}$ = 1538 N (ecf from part **(b)(ii)**) ; (allow 1540) [1]

[Total: 10]

6 (a) (i) (dark) red or red-brown (**do not** accept 'brown' on its own) ; [1]

(ii) black ; [1]

(b) litmus (turns red and then) is bleached / loses colour ; [1]

(c) (i) blue-black colour (accept 'blue' or 'black') ; [1]

(ii) $Cl_2 + 2KI \rightarrow 2KCl + I_2$
all formulae correct ;
balanced ; [2]

(d) (i) ethene ; [1]

(ii) unsaturated / (molecules) contain a double bond / C=C ; [1]

(e) (i) purple ; [1]

(ii) sublimation / subliming ; (ignore reverse) [1]

[Total: 10]