

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the November 2005 question paper

0652 PHYSICAL SCIENCE

0652/06

Paper 6

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 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*.

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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- 1
- (a) floats, moves around, dissolves, fizzing, rise in temperature (any 2) [2]
- (b) turns purple/mauve (NOT blue) [1]
- (c) (i) sodium hydroxide or NaOH
- (ii) sodium chloride or NaCl
- (iii) silver chloride or AgCl [3]
- (d) ammonium chloride [1]
- (e) (i) shows filter funnel with paper (1) and precipitate in the paper (1) [2]
- (ii) turns dark/black-blue [1]

Total 10 marks

- 2
- (a) (i) 1.8, 0.6, 1.2 (no tolerance) [3]
- (ii) any one switch any two switches (columns 2 and 3 may be reversed) [2]
- (iii) $R = V/I$, $3/0.6 = 5$ ohms (OR $3.0/2 \times 1.2$, OR $3.0/1.8 \times 3$) [1]
- (b) all three lamps in series (1) with other components (1) [2]
- (c) (i) greater resistance (of whole circuit) OWTTE but resistance must be mentioned [1]
- (ii) lamp in the parallel circuit is brighter OWTTE [1]

Total 10 marks

- 3
- (a) (i) 102.7
- (ii) 98.4
- (iii) 4.3 (ecf) (no tolerance) [3]
- (b) (i) bubbling or effervescence or fizzing
- (ii) bubbling stops
- (iii) pink or brown or red [3]
- (c) (i) 101.5 (no tolerance)
- (ii) $101.5 - 98.4 = 3.1$ (ecf) [2]

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(d) $3.1 \times 100/4.3$ (1) = 72% (ecf) (1) [2]

Total 10 marks

4 (a) $20^\circ, 30^\circ$. +/- 1° [2]

(b) 0.18, 0.39, 0.69, 1.03
0.25, 0.56, 1.00 (accept 1.0 but not "1"), 1.56 m
all +/- 0.02 m
7 or 8 correct (4), 5 or 6 correct (3)
3 or 4 correct (2), 2 or 1 correct (1) [4]

(c) Any use of the data to show a greater distance in the same time interval. [2]

(d) The ball, has a greater force acting on it in the direction of the slope OR there is a greater acceleration OWTTE

REJECT the force of gravity is increased [1]

(e) Change in friction [1]

Total 10 marks

5 (a) (ii) acid gas (1)

(iii) turned cloudy/milky (1) [2]

(b) (i) water (of crystallisation) given off (1)

(iii) no oxygen (1)

(iv) turned red (1) [3]

(c) test-tube with solid, red litmus in mouth of tube
(essential) [1]

(d) light splint and blow out, hold in gas at mouth of tube [1]

(e) dissolve in water and add (aqueous) sodium hydroxide (1)
green ppt (turning brown) = iron(II) (1)
brown ppt = iron(III)(1) [3]

Total 10 marks

6 (a) (i) 76, 64g: 38, 36 s (no tolerance) [4]

(ii) 1.9, 1.8 s (both correct) [1]

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- (b) axes correctly labelled and suitable scale chosen (1)
all points plotted accurately (1)
straight line drawn, best fit, not joining points (1)
(-1 mark if axes reversed) [3]
- (c) no effect OWTTE [1]
- (d) length of pendulum (string) increased
change in gravitational acceleration (e.g. on the moon) [1]

Total 10 marks