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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2010 question paper for the guidance of teachers

0653 COMBINED SCIENCE

0653/61

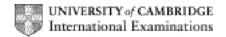
Paper 61 (Alternative to Practical), maximum raw mark 60

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.

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(i)	test B column: 1, 7, 1, 1; test C column: 2, 8, 0, 0;	[2]
(ii)	average column: 1.6, 7.0, 1.0, 0.3;; (3 or 4 correct, 2 marks, 2 correct, 1 mark)	[2]
hor	rizontal axis shows label for each bar ;	[3]
(i)	damp and dark ;	[1]
(ii)	EITHER dark; woodlice hide from predators; OR damp; prevents desiccation (of woodlice);	
	(allow damp and dark as the condition)	[max 2]
		[Total: 10]
(i)	current / electron flow changes direction or polarity changes / OWTTE;	[1]
(ii)	current causes a (changing) magnetic field; alternately attracts and repels permanent magnet OWTTE;	[2]
(i)	9.4 cm, 12.4 cm, 15.6 ± 1 mm ;;;	[3]
(ii)	0.094, 0.124, 0.156 (e.c.f.);	[1]
(iii)	(data from Fig. 2.2 used to show that) successive distances in the same interval are greater OWTTE	e time [1]
	,	.0)
		[Total: 10]
red	I, orange (in this order) ;	[1]
(i)	X ;	[1]
	(ii) ver hor all (i) (ii) (ii) (iii) e.g (1)	(i) test B column: 1, 7, 1, 1; test C column: 2, 8, 0, 0; (ii) average column: 1.6, 7.0, 1.0, 0.3;; (3 or 4 correct, 2 marks, 2 correct, 1 mark) vertical axis correctly labelled; horizontal axis shows label for each bar; all bars at correct height; (i) damp and dark; (ii) EITHER dark; woodlice hide from predators; OR damp; prevents desiccation (of woodlice); (allow damp and dark as the condition) (i) current / electron flow changes direction or polarity changes / OWTTE; (ii) current causes a (changing) magnetic field; alternately attracts and repels permanent magnet OWTTE; (i) 9.4 cm, 12.4 cm, 15.6 ± 1 mm;;; (ii) 0.094, 0.124, 0.156 (e.c.f.); (iii) (data from Fig. 2.2 used to show that) successive distances in the same interval are greater OWTTE e.g. $\mathbf{g} = \frac{2 \times 0.0156}{(0.18)^2}$; = 9.63; (1 mark only if no calculation is shown but value of \mathbf{g} is between 8.6 and 10. red, orange (in this order);

Mark Scheme: Teachers' version

Syllabus

Paper

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	(c)) to wash out the pipette and / or beaker (OWTTE) ;									
	(d)	lithium, sodium, potassium or ammonium hydroxide (ammonia solution) ; (reject calcium hydroxide)									
	(e)	(i)	silve	er chloride / AgC1;		[1]					
		(ii) hydrochloric acid / HCl;									
	(f)	reference to: equal amounts (lengths) of magnesium ribbon; same reaction temperature; same volume of acid; measure amount of hydrogen given off in given time / rate of bubbling or measure time taken to dissolve magnesium;									
				ee points including the last one);		[max 3]					
						[Total: 10]					
4	(a)	(i)		is refracted (bent) at curved surface / beaker (and v TTE ;	vater) act as a lens /	[1]					
		(ii)	= 6.5 (± 1	5 – 12 ; 5 cm (65 mm) (correctly recorded) ; mm)							
			(allo	w correct answer for 2 marks even if no calculation	shown)	[2]					
		(iii)		[1]							
	(b)	at least 2 points correctly plotted (e.c.f.); straight line drawn passing through (0,0);				[2]					
	(c)	graph shows clearly the vertical and horizontal distances ; calculation to give result (e.c.f. depends on candidate's graph but should be 1.2 \pm 0.1) ;									
	(d)) measure known volume of liquid into (weighed) beaker and weigh to find mass of liquid; divide mass by volume;									
		GIVI	40 111 6	add by voiding ,		[2] [Total: 10]					
5	(a)	(i)	shac	leaf 59 mm ; de leaf 72 mm ; w 1 mm tolerance)		[2]					
		(ii)	grea	iter capture of sunlight (for photosynthesis);		[1]					
						- -					

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	(b)	correct c	or vice versa) ; /1 layer) ;	[4]			
	(c)	feature		eature and linked explanation. e.g. two rows of palisade cells ; greater amount of photosynthesis ;		[2]	
	(d)	prevents	too	much water (vapour) loss due to transpiration /	evaporation ;	[1]	
6	(a)	a named	acid	oonate (allow marble, limestone) ; ; ate and an acid' give 1 mark only)		[2]	

(c) 1. the bulb lights up;

(b) $CO_2 + C$ (both correct);

2. there is a reading on the ammeter (1 and 2 in any order); [2] (no mark for 'a reading on the voltmeter');

(d) (i) 42.3 (no tolerance); [1]

(ii) 43.9 - 35.9 = 8.0 (accept '8') [1]

(iii) 43.9 - 42.3 = 1.6; [1]

(iv) reduction; [1]

(e) carbon monoxide is poisonous / harmful / dangerous; [1]

[Total: 10]

[1]