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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2009 question paper for the guidance of teachers

0654 CO-ORDINATED SCIENCES

0654/06

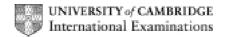
Paper 6 (Alternative to Practical), maximum raw mark 60

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.

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	Page 2			Mark Scheme: Teachers' version	Syllabus	Paper	
				IGCSE – October/November 2009	0654	06	
1	(a)	(i)) blue-black or chlorophyll area labelled in line A of Fig.1.3				[1]
		(ii)]	[1]		
	(b)	mai leaf leaf	A B	three lines together light, carbon dioxide present; chlorophyll present; carbon dioxide absent light absent		[[2] [1] [1]
	(c)	(i)	as a	a control / same volume (amount) of water in all three	e tubes	(1)	
		(ii)	to so	often the cuticle / break down cell walls / allow alcoh	ol to penetrate	(1) [[2]
						[Total:	8]
2	(a) 11.5 V +/- 0.1 V; 1.55 A +/- 0.05 A;					[[2]
	(b)	(i)	R = '	V/I		[[1]
		(ii)	11.9	/ 0.72 = 16.5 ohms (ecf from (a) and (b) (i))		[[1]
		(iii)		orrect method used in parts (ii) and (iii) but calculation	on wrong, allow 1		[1]
	(c)	the bec	filame ause	ent melted / fused OWTTE; the voltage was too high / resistance too low / curre	nt too great;	[[2]
	(d)	(i)	curre	ent was too low / the voltage was too low / resistance	e was too high	[[1]
		(ii)		5 × 1.55 = power in watts; 7.8 W; (ecf)		[:	[2]
						Total: 1	
3	(a)	(i)	use	the same volume (amount) of solution each time		[[1]
		(ii)	shak	ce / stir / mix		[[1]
		(iii)	the r	mixture becomes colourless / colour changes]	[1]
		(iv)	solu	tion B		[[1]

	(b)	fill the pipette more than once and deliver into the measuring cylinder / place in the cylinder enough liquid to be measured OWTTE;				
			de volume by the number of drops;	[2]		
	(c)	(i)	white / cloudy / milky / (precipitate)	[1]		
		(ii)	(light) green (precipitate)	[1]		
	(d)	(i)	iron(III) hydroxide / ferric hydroxide (allow mark for correct formula Fe(OH) ₃	[1]		
		(ii)	iron (II) is oxidised / oxidation number increased / changed to iron(III) / loses an electron	[1]		
				[Total: 10]		
4	(a)	67°,	, 75° (no tolerance)	[2]		
	(b)	all points plotted for beaker A (allow 2 errors); smooth curve drawn and labelled A ; all points plotted for beaker B (allow 2 errors); smooth curve drawn and labelled B ; (if no curve labelled, deduct only 1 mark)				
	(c)	(i)	beaker B , shows a greater drop in temperature OWTTE / the curve is steeper (both corre	ect) [1]		
		(ii)	heat conducted by the copper OWTTE (mention of conduction essential)	[1]		
	(d)	large area loses heat more quickly; by radiation; hot conditions in Africa; helps control body temperature OWTTE; (reject: elephants lose heat by flapping ears / shading body)				
	(e)	tem	ne starting temperature; perature taken at same time (periods); ne volume of water used;			
			ne containers;	[max 2]		
				[Total: 12]		

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5	(a) (i) correct path drawn showing three straight lines, meeting at boundaries of gla		
	(i	i) line at right angle to block where line AB meets glass	[1]
	(ii	i) i and r labelled correctly at change of direction of line (even if diagram not cor	rect) [1]
	(iv	 30; 20; +/- 2 (give marks for <u>any</u> labelled angles correctly measured) 	[2]
	p s	xes labelled and sensible scale chosen; oints correctly plotted (allow one error); mooth line drawn; –1 mark if axes reversed)	[3]
		ne or point shown on graph; 2° +/- 1 degree (depends on candidates's graph);	[2]
		2 ·/ racgree (acpoints on candidates o graph),	[Total: 10]
			[1014 10]
6	(a) (the black deposit is carbon; not enough oxygen / air for complete combustion OWTTE; 	[2]
	(i	 the centre of the flame contains gas that is not burning; but the outside ring of the flame scorches the paper OWTTE; 	[2]
	(b) (i) melts / liquefies	[1]
	(i	i) decomposes	[1]
		glowing splint; ekindles OWTTE;	[2]
		nere is enough air (oxygen) mixing with the butane for complete combustion /	
		o burn efficiently OWTTE; o more heat (energy) is given out OWTTE;	[2]
			[Total: 10]

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