MARK SCHEME for the October/November 2009 question paper

for the guidance of teachers

0653 COMBINED SCIENCE

0653/06

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

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

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UNIVERSITY of CAMBRIDGE International Examinations

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				IGCSE – October/November 2009	0653	06	
1	(a)	(i)	blue	[[1]		
		(ii)	[1]			
	(b)	mar leaf	k all t A	three lines together light, carbon dioxide present; chlorophyll present;		[[2]
		leaf leaf	B C	carbon dioxide absent light absent		[[1] 1]
	(c)	(i)	as a	a control / same volume (amount) of water in all thre	e tubes	(1)	
		(ii)	to se	often the cuticle / break down cell walls / allow alcol	hol to penetrate	(1) [[2]
						[Total:	8]
2	(a)	11.8 1.58	5 V +/ 5 A +/	/- 0.1 V; /- 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)	11.5 (if co	/ 1.55 = 7.4 ohms (ecf) prrect method used in parts (ii) and (iii) but calculate	ion wrong, allow 1	[mark total)	[1]
	(c)	the bec	filame ause	ent melted / fused OWTTE; the voltage was too high / resistance too low / curre	ent too great;	[[2]
	(d)	(i)	curre	ent was too low / the voltage was too low / resistand	ce was too high	[1]
		(ii)	11.5 = 17	× 1.55 = power in watts; .8 W; (ecf)		[[2]
						[Total: 1	0]
3	(a)	(i)	use	the same volume (amount) of solution each time		[[1]
		(ii)	shak	ke / stir / mix		[1]
		(iii)	the r	nixture becomes colourless / colour changes		[[1]
		(iv)	solut	tion B		[1]

Page 3			Mark Scheme: Teachers' version	Syllabus	Paper		
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(b	(b) fill the pipette more than once and deliver into the measuring cylinder / place in the cylinder enough liquid to be measured OWTTE;						
	divide volume by the number of drops;						
(c)) (i)	white	e / cloudy / milky / (precipitate)		[1]		
	(ii)	(ligh	nt) green (precipitate)		[1]		
(c	l) (i)	iron (allo	n(III) hydroxide / ferric hydroxide ow mark for correct formula Fe(OH) ₃		[1]		
	(ii)	iron chai	n (II) is oxidised / oxidation number increased / nged to iron(III) / loses an electron		[1]		
					[Total: 10]		
4 (a)) 67°,	, 75°	(no tolerance)		[2]		
(b) all p smc all p smc (if n	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) (ii)	beak shov heat	ker B , ws a greater drop in temperature OWTTE / the curve t conducted by the copper OWTTE (mention of condu	is steeper (both uction essential)	correct) [1] [1]		
(d) larg by r hot help (reje	e are adiati condi os cor ect: e	ea loses heat more quickly; tion; litions in Africa; ntrol body temperature OWTTE; elephants lose heat by flapping ears / shading body)		[max 2]		
(e)) sam tem sam	ne sta perat ne vol	arting temperature; ture taken at same time (periods); lume of water used;				
	sam	ne col	ntainers;		[max 2]		
					[Total: 12]		

Page 4				Mark Scheme: Teachers' version Syllabus		Paper	
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5	(a)	(i)	corr	ect path drawn showing three <u>straight</u> lines, meeting	at boundaries o	f glass block	[1]
	((ii)	line	at right angle to block where line AB meets glass			[1]
	(i	iii)	i an	d r labelled correctly at change of direction of line (e	ven if diagram no	ot correct)	[1]
	(i	iv)	30; : (give	20; +/- 2 e marks for <u>any</u> labelled angles correctly measured)			[2]
	(b) a !	axes poin smo	s labe its co ioth li	elled and sensible scale chosen; prrectly plotted (allow one error); ine drawn;			
		(—1	mark	if axes reversed)			[3]
	(c)	line	or po	bint shown on graph;			101
	4	42°	+/- 1	degree (depends on candidates's graph);			[2]
						[Total:	10]
	(a)	(i)	the t not e	black deposit is carbon; enough oxygen / air for complete combustion OWTT	E;		[2]
	((ii)	the o but t	centre of the flame contains gas that is not burning; he outside ring of the flame scorches the paper OW	/TTE;		[2]
	(b)	(i)	melt	s / liquefies			[1]
	((ii)	deco	omposes			[1]
	(c) a	a glo	owing	g splint;			
	I	rekiı	ndles	OWTTE;			[2]
	(d) 1	there is e		enough air (oxygen) mixing with the butane for complete	lete combustion	1	
	1	to di so n	urn e nore	fficiently OWTTE; heat (energy) is given out OWTTE;			[2]
						[Total:	10]

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