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

0653 COMBINED SCIENCE

0653/02

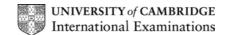
Paper 2 (Core Theory), maximum raw mark 80

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.

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		IGCSE - October/November 2009	0000 02
1		contains starch ; contains protein ;	[2]
	(b) (i)	protein ; in living organisms ; that acts as a catalyst ;	[max 2]
	(ii)	cannot digest / breakdown starch; (reject food) cannot absorb, starch / sugar / glucose; into the blood; cells do not get sugar; cannot use (starch / sugar) for respiration;	[max 3]
	(iii)	genes / chromosomes / DNA / mutation ; (reject references to inheritance or blood)	[1]
	(iv)	no starch in their food / starch not present in meat;	[1]
			[Total: 9]
2	(a) (i)	hydrogen;	[1]
	(ii)	sulfur dioxide; reacts with / dissolves in rainwater / forms sulfurous / sulfur (allow one mark for reference to CO ₂ and carbonic acid)	ric acid ; [2]
	(b) (i)	covalent;	[1]
	(ii)	two oxygen atoms shown joined to central carbon; by double bonds;	[2]
			[Total: 6]
3	(a) D t	o C to A to B	[2]
	(b) alp	ha radiation completely absorbed by / cannot penetrate pape	er; [1]
		tates (cells);	
		uses cancer ; liation burns ;	[max 2]
		elding (e.g. gloves, lead lined clothes etc.); nitoring (radiation badges etc.);	
		ited exposure time ;	[max 2]
			[Total: 7]

IGCSE - October/November 2009

Syllabus

0653

Paper

02

Page 2

	Page	ა	Mark Scheme: Teachers' Version	Syllabus	Paper
			IGCSE – October/November 2009	0653	02
4	(a) (i)	soil :	ease (soil erosion) ; not protected from rain by leaves ; not held by roots ; ly washed away ;		[max 2]
	(ii)	loss loss	rease (species diversity) ; of habitats ; of food supplies / disrupts food chains ; e hunting (by humans) ;		[max 2]
	(b) (i)		alm ——→ rats ——→ owls ; ; organisms and energy transfer)		[2]
	(ii)		alm is producer, rats and owls are consumers ; organisms required, ignore references to the Sun)		[1]
					[Total: 7]
5	(a) (i)		alt;+ water; w H ₂ O)		[2]
	(ii)	hydr	rogen / H / H⁺;		[1]
	(iii)		DH ; w NaHO)		[1]
	(b) (i)	iron (allo	; w Fe)		[1]
	(ii)	whic	arrier of zinc / zinc plated onto the steel / covered with z th prevents (the steel from) rusting / keeps air / oxygen steel;		from [2]
	(iii)		als react with acid / the container would soon react and w corroded / dissolved)	l break ;	[1]
	(c) (i)	9;			[1]
	(ii)	cont	ains (only) hydrogen and carbon / is made of hydroger	n and carbon ;	[1]
	(iii)	(mai link t	ds and/or diagram which conveys ny) small molecules / molecules of propene join togeth together ; orm a (long) chain (molecule) ;	er / propene mor	nomers
			ore mistakes in displayed formulae if meaning is clear)		رحا
					[Total: 12]

Syllabus

Paper

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	Page 4			Mark Scheme: Teachers' version	Syllabus	Paper
				IGCSE – October/November 2009	0653	02
6	(a)	(i)	15 s	;		[1]
		(ii)	30 s	;		[1]
		(iii) CI		and GH / 60 – 80 (s) and 140 – 160 (s) ;		[1]
	(b)			speed / constant velocity ; e to balanced forces / equal and opposite forces ;		[2]
	(c)	(i) may contain carbon monoxide / (products of) incomplete combustion; poisonous;		[2]		
		(ii)	heat	mical ; t / thermal ; tic / movement / sound / light ;		[max 3]
7	(a)	(i)	labe	l to palisade cell ;		[1]
		(ii)	labe	l to stoma ;		[1]
	(b)	(i)	cont			
			cont	ch is inherited; crols activity of the cell (by controlling enzymes present e genes on chromosomes;	t);	[max 2]
		(ii)		rols what enters / leaves the cell ; not allow direct references to oxygen, water, carbon di	oxide)	[1]
	(c)	(c) (i) for photosynthesis;				
				which) water is combined with carbon dioxide; rovide turgor / support / hold shape;		[max 2]
		(ii)	xyleı	m (vessel);		[1]
	(d)	(i)	gas	•		[1]
		(ii)		sion / (evapo)transpiration ; ect evaporation)		[1]
						[Total: 10]

			IGCSE – October/November 2009	0653	02
8	(a)	(i)	conduction;		[1]
		(ii)	(plastic is) good insulator / poor conductor;		[1]
	(b)	(i)	A, because it is a (diagram of a) solid / close (packed) and regular;		[1]
		(ii)	B , because it is a (diagram of a) liquid / close (packed) and	d random ;	[1]
	(c)	(i)	(density =) <u>mass</u> ÷ volume (reject unconventional symbols or units in formula) (volume is) 200 (cm³);		ro1
			= 540 ÷ 200 / 2.7 (g / cm³); (allow ecf for incorrect volume)		[3]
		(ii)	5.4 N;		[1]
					[Total: 8]
9	(a)	(i)	W and Y (both needed); (carbonates react with acid to produce) carbon dioxide;		[2]
		(ii)	Y; transition metal compounds are (often) coloured (other than	nn white) ;	[2]
	(b)	(i)	(strong) heat ;		[1]
		(ii)	(copper oxide +) carbon; → (copper +) carbon dioxide; (allow carbon monoxide and carbon oxide)		[2]
		(iii)	oxidation / reduction / redox ; carbon gains oxygen / copper oxide loses oxygen ;		[2]
		(iv)	complete circuit in which the copper forms a part; circuit would indicate that copper is a conductor i.e. copsource and a current indicator;	oper is in series	with a power [2]

Syllabus

Paper

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[Total: 11]