CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0654 CO-ORDINATED SCIENCES

0654/62 Paper 6 (Alternative 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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

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Page 2		2	Mark Scheme		Paper
			Cambridge IGCSE – October/November 2014	0654	62
1	(a)	(i)	iodine (solution)/ I_2 ;		[1]
		(ii)	changes from blue-black to brown; starch is broken down/no longer present/digested; broken down/digested by the amylase;		[3]
	(b)	(i)	starch/it is still present;		[1]
		(ii)	amylase/enzyme is denatured/not working/inactive;		[1]
	(c) difficulty in distinguishing colours by eye; drops not all the same size/pipette has no volume; both tubes not tested at the same time; cross contamination with dropping pipette used/uses same dropping pipet wells not labelled/mixing up results/owtte; doesn't measure amount amylase/tubes C and D;				[max 1]
	(d)		east three temperatures (in a suitable range);		
		(co	boiled amylase; mpare) time for samples to become brown; eping other factors constant/a named factor constant;		[max 3]
					[Total: 10]
2	(a)	ens	sure rapid solution/dissolves quickly/owtte;		[1]
	(b)	(i)	29.2 ; 16.8 ;		[2]
		(ii)	-1.1, +7.2, -4.9 (ecf) all numbers correct; all signs correct;		[2]
	(c)		exothermic; endothermic;		[2]
	(d)		use insulated container/use plastic stirrer/cover the beaker/more accu digital thermometer ;		[max 1]
	(e)	tha <i>(all</i>	re energy given out (when bonds are formed); n is taken in (when ions are pulled apart); ow 1 mark max temperature increases because energy given out/overgy is given out)		[2] [Total: 10]

Page 3		3	Mark Scheme		Paper
			Cambridge IGCSE – October/November 2014	0654	62
3	(a)	(i)	10.3 ; 20.5 ;		[2]
		(ii)	the extension is proportional to the load ; OR		
			the load is proportional to the extension;		[max 1]
	(b)	3.7 2.2			[2]
	(c)	(i)	$\frac{3.7}{3.7 - 2.2} = \frac{3.7}{1.5} = 2.5 (\text{g/cm}^3);$		[1]
		(ii)	mass;		[1]
		(iii)	volume;		[1]
		wire sto spr poi sto	wire may have a different density; e adds to the volume; e adds to the mass; ne not fully immersed; ing could be in the water; nter hitting the side of the beaker; ne touching the beaker; er sensible answer explained;		[max 2] [Total: 10]
4	(a)	(i)	to confirm all the carbon dioxide has been removed from the air/to carbon dioxide still in air/to test for CO_2 ;	see if	[1]
		(ii)	colourless;		[1]
	(b)	(i)	to see if carbon dioxide has been produced;		[1]
		(ii)	milky;		[1]
	(c)	flas	k 3 would have no insect/empty;		[1]
	(d)	(i)	red/orange/yellow;		[1]
		(ii)	carbon dioxide; dissolves; production of acid (changes colour of the indicator)/owtte;		[3]

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	(e)	res	spiration;	<u> </u>	<u>-</u> [1]
				[Tota	ıl: 10]
5	(a)	(i)	hydrogen ;		[1]
		(ii)	apply a lighted splint ; 'pop' or gas burns with a small explosion ;		[2]
	(b)	(i)	calcium carbonate ;		[1]
		(ii)	calcium hydroxide ;		[1]
	(c)	me	etal A is magnesium ;		[1]
	(d)	(i)	white precipitate/solid/deposit; which re-dissolves (when more NaOH is added);		[2]
		(ii)	Fe(OH) ₂ ;		[1]
	(e)	wh	ite precipitate/solid/deposit (of silver chloride);		[1]
				[Tota	ıl: 10]
6	(a)	(i)	(angle of incidence =) 55 (degrees); (angle of reflection =) 65 (degrees);		[2]
		(ii)	the normal is not at 90°/perpendicular (to the mirror line);		[1]
		(iii)	not obeyed because they should be equal/because angles of incidence reflection not measured (because the normal is incorrect);	and	[1]
	(b)	(i)	both rays drawn correctly, touching the marks and meeting at the junctio the mirror line and the normal;	n of	[1]
		(ii)	(incidence =) 35 (degrees); (reflected =) 31 (degrees);		[2]
		(iii)	the mirror was not exactly in line with the mirror line/owtte; the pencil mark(s) were in the wrong place/not in the centre of the beam	;	[2]
	(c)	ele	ectrons ;		[1]
				[Tota	ıl: 10]