

MARK SCHEME for the May/June 2013 series

0653 COMBINED SCIENCE

0653/61

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

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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.

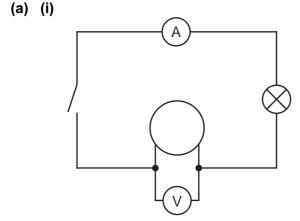
Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.



Page 2			Mark Scheme	Syllabus	Paper	
			IGCSE – May/June 2013	0653	61	
1 (a	a) (i)	large (at least half of the area) neat pencil drawing ; allow any orientation (i.e. horizontal or vertical) drawing clearly shows petals, stamens, carpel ;				
	(ii)	stamen and carpel correctly labelled ; drawing of stamen marked as male, drawing of carpel marked as female ;				
(I	b) (i)	 i) (add Benedict's solution and) heat/warm/boil etc ; (do not award mark if ar other reagent mentioned) 				
	(ii)	to at	tract insects/bees/pollinators;		[1]	
	(iii)		urs make the flower more easily visible/ <u>more</u> attrac s guide insects (towards nectar) ;	ctive (to insects) ;	[2]	
	(iv)		ar/nectar present at the base/bottom (of the petals cts(will visit flower/petal to)collect sugar/ <u>suc</u> cts;		ict [2]	



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(ignore orange) to include ammeter in series and voltmeter in parallel, (allow two lamps OR two switches) correct symbols ;; (4 correct = 2 marks, 3 correct = 1 mark) no gaps or short circuits ;

(ii) reading on ammeter/voltmeter AND lamp lights ; [1]

[3]

(iii) 1.39 ; 1.53 ; (both answers ± 0.01) [2]

Page 3	Mark Scheme	Syllabus	Paper
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(b)

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electrodes	Voltage/PD/V
Mg and Cu	1.80
Mg and A <i>l</i>	1.26
Mg and Fe	1.39
Mg and Pb	1.53

(allow any other table layout, accept names or symbols) (four sets of data for 1 mark, headings and units (mentioned somewhere in the table) for 1 mark) ;; [2] (c) greater <u>difference</u> between reactivity greater V/PD; magnesium, aluminium, iron, lead, copper ; (must be in this order, but check their answer to (a) (iii)) [2] [Total: 10] [2] (a) stopclock readings in table <u>17</u>; 65; (b) (i) 0.059, 0.015 (either or both to 3 decimal places); (ecf) [1] (ii) axis – correct and labelled with units for volume; scale - uniform and numbered for both axes ; points - points plotted correctly by eye; [4] line - best straight line through origin ; (c) (i) rate depends on (or increases with) amount (or volume) of potassium iodate/proportional/positive correlation; [1] (ii) blue/black colour (with starch); [1] (iii) to keep the volume/amount of liquid constant/10 cm³/to vary concentration ; [1] [Total: 10]

	Page 4			Mark Scheme	Syllabus	Paper
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4	(a)	(i)	6.8 (5.2 ((cm³) ; (cm³) ;		[2]
		(ii)	smo pH7	ing correct by eye ; oth curve drawn not drawn with a ruler, (ignore b ;) ; s correctly labelled ;	efore pH3 and a	ifter [3]
			aves			[0]
	((iii)	рН а	around 5 (from student's graph) ; (if no graph allow 5)	[1]
	((iv)		num could occur <u>between</u> measured values/pH 4 to und' 5 ; (ignore 'has not tried all pHs' or 'only tested l		
	(b)			riment without enzyme/denatured enzyme/use t stead of pectinase/enzyme ;	he same volume	e of [1]
	(c)	 (c) increase temperature/heat/warm/use 37 °C; increases <u>collision</u> (rate between enzyme and substrate)/reference to activation energy; OR increase enzyme concentration; increases <u>collision</u> (rate between enzyme and substrate); OR make pieces of apple smaller; increases <u>surface area</u> (for enzyme to act); 				
				ion and explanation <u>must match</u> for 2 marks)		[max 2]
5	•	•	ns m ^f pres	ust be the 'correct idea' before labelling can sco sent)	re, ignore any o	ther
	(a)	-	-	to show filter funnel, filter paper and receiving vesse vant labels ;	əl ;	[2]
	(b)	pap	er dip	to show filter paper with concentric circles with drop oped in solvent and some form of separation ; vant labels ;	pper/chromatogra	phy [2]
	(c)			of reaction vessel connected to a syringe ; vant labels (allow labels if collected over water) ;		[2]
	(d)			simple distillation (condenser or cooled receiver) an vant labels ;	d receiving vesse	l ; [2]

Pa	Page 5		Mark Scheme	Syllabus	Paper	
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(e)	 (e) <u>fractional</u> distillation ; heat the mixture until one liquid boils off ; cool vapour/gas/condense vapour ; 					
					[Total: 10]	
(a)	(i)	27.9	; 25.5 ;		[2]	
		0.02				
		0.03 0.03				
		0.03	9			
		0.04 all re	4 corded to 3 decimal places ;			
			two correct ;		[2]	
(b)	(i)	point	s correct by eye ;			
		strai	ght line of best fit ;		[2]	
	(ii)	arad	ient 2353 (allow between 2000 to 2600) ;			
	• •	-	nod clearly shown on graph ;		[2]	
(c)	М =	2353	3/45 = 52(g) ; (ecf)		[1]	
(d)	rule	not l	e will break (if mass very large) ; ong enough (for large mass) ;			
			ult to achieve a balance ; all (or large) to measure ; (ignore 'difficult to measu	re')	[max 1]	
	A 100	. 0111		,		
					[Total: 10]	

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