CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0654 CO-ORDINATED SCIENCES

0654/52

Paper 5 (Practical), maximum raw mark 45

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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 October/November 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 – October/November 2013	0654	52	
1	(a) (i)	barle	ey grains drawn in both dishes ;		[1]	
	(ii)	 drawings of both dishes ; dish A shows brown/orange/yellow and blue/black areas labelled AND 			[2]	
		no b	no brown in dish B ;			
	(iii)	(iii) brown/orange/yellow colour around where the barley grains were ; (allow no starch where grains were)				
	(iv)	 (iv) (enzyme from the) barley grains breaking down/digesting the starch; (allow area below grains no longer contains starch) 				
	(v)	cont	rol/shows that breakdown depends on living barley	grains;	[1]	
	(b) (i)		our sections of the table filled in ; row shows Benedict's solution blue ;		[2]	
	(ii)		B: (reducing) sugar present/not present ; (con	nclusion must mate	ch	
		beca	ervation) ause starch digested to sugar/sugar absorbed anation ; (reason must match conclusion)	by seed/other goo	od [2]	
			D : (reducing) sugar not present ; ause seeds are dead / starch not digested ;		[2]	
	(c) imp	oroveo	d reliability/because one seed might not be active/o	owtte ;	[1]	
	(d) (i)	large	er brown areas/less starch present ;		[1]	
	(ii)	sma	ller brown areas/more starch present ;		[1]	
					[Total: 15]	

	Page 3			Mark Scheme	Syllabus 0654	Paper
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2	(a)	(i)	read	ing for x when $d = 55 \mathrm{cm}$ to nearest mm ;		[1]
		(ii)		reading on either side of mass and find the mean divide by 2 to find centre mark;	value/measure n	nass [1]
		(iii)		plete set of <i>x</i> values ; lues increasing down the table ;		[2]
	sui at l		suita at le	a labelled with units ; able choice of scales (points use at least 8 cm × 8 cn ast 4 points correct to half a small square ; d best fit straight line judgement ;	n of grid) ;	[4]
		(ii)	AND at lea	ation <u>on graph</u> of how data obtained ast half of line used ; act calculation from triangle method using data inificant figures) ;	from graph (at I	east [2]
	(c)	 (c) correct calculation of <i>m</i> (from candidate's gradient value, to 2/3 significant figures) AND 				
		cori	rect ro	ounding required ;		[1]
	(d)	(i)		values present, and realistic ; values to nearest millimetre ;		[2]
		(ii)	2 sig	ect calculation of density (from candidate's v inificant figures) ;		
			accu	rracy mark: value within ± 0.1 of Supervisor's value	-	[2]
						[Total: 15]

Page 4	Mark Scheme	Syllabus	Paper
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3 Table 3.1

test	observation	conclusion	
(a) (i) dilute nitric acid	no reaction/nothing/paler solution ;	no carbonate/no CO ₃ ²⁻ ;	
(ii) barium chloride solution	ppt of stated colour ;	sulfate / SO_4^{2-} ;	
(iii) silver nitrate solution	white ppt ;	chloride/Cl ⁻ ;	
		[6]	

Table 3.2

test		observation	conclusion
(b) (i) sodium hyd solution		/n / orange / red-brown / w-brown AND ppt/residue ;	iron(III) / Fe ³⁺ ;
	colo	urless filtrate ;	
(ii) ammonia s		/n / orange / red-brown / w-brown AND ppt residue ;	iron(III)/Fe ³⁺ ;
	dark	blue filtrate ;	copper(II)/Cu ²⁺ ;
(iii) sodium car solution	bonate brow	/n ppt ;	

[8]

[1]

(c) iron(III) chloride AND copper(II) sulfate / iron(III) sulfate AND copper(II) chloride ; (allow any three or all four compounds but not a list of the ions)

[Total: 15]