CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0653 COMBINED SCIENCE

0653/52 Paper 5 (Practical Test), maximum raw mark 30

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.

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CAMBRIDGE
International Examinations

1 (a) (i) barley grains drawn in both dishes ; [1]

(ii) drawings of both dishes ;
dish **A** shows brown / orange / yellow and blue / black areas labelled
AND
no brown in dish **B** ; [2]

(iii) brown / orange / yellow colour around where the barley grains were ;
(allow no starch where grains were) [1]

(iv) (enzyme from the) barley grains breaking down / digesting the starch ;
(allow area below grains no longer contains starch) [1]

(v) control / shows that breakdown depends on living barley grains ; [1]

(b) improved reliability / because one seed might not be active / owtte ; [1]

(c) smaller brown areas / more starch ; [1]

(d) use different varieties on different dishes or on different parts of the same dish ;
keep (named) conditions constant ;
compare diameters or sizes of brown areas ; [max 2]

[Total: 10]

2 (a) (i) reading for x when $d = 55$ cm ; [1]

(ii) note reading on either side of mass and find the mean value ; [1]

(iii) complete set of x values ;
x values increasing down the table ; [2]

(b) (i) suitable choice of scales (points use at least 8 cm × 8 cm of grid) ;
at least 4 points correct to half a small square ;
good best fit line judgement ; [3]

(ii) indication on graph of how data obtained
AND
at least half of line used ;
correct calculation from triangle method using data from graph (at least 2 significant figures) ; [2]

(c) correct calculation of m (from candidate's gradient value) 2 / 3 significant figures
AND
correct rounding required ; [1]

[Total: 10]

3

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

[5]

(b)

test	*observation*	*conclusion*
ammonia solution	brown / orange / red-brown / yellow-brown **AND** ppt / residue ;	iron(III) / Fe^{3+} ;
	dark blue filtrate ;	copper(II) / Cu^{2+} ;

[4]

(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) [1]

[Total: 10]