

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0653 COMBINED SCIENCE

0653/51

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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- 1 (a) both temperatures recorded to nearest °C and within range for each water-bath ; [1]
- (b) at least 4 pairs of results recorded ; (*do not allow $h = 0$*)
all pairs of results recorded in mm and not greater than 200 ;
height generally higher in **B** than **A** ; [3]
- (c) linear vertical axis labelled with height and units ;
at least 5 correct plots to $\pm \frac{1}{2}$ small square for **B** (for **A** if **B** not plotted) ;
points plotted for **A** and **B** and both labelled ;
best fit curve or straight lines for **A and B** ; [4]
- (d) carbon dioxide ; [1]
- (e) higher yeast activity with higher temperature / it increases with temperature / it is faster at higher temperature ;
(*mark may only be awarded if there are results in the table*) [1]
- [Total: 10]**
- 2 (a) *filtrate*: colourless ;
residue: brown / black / grey ;
(*colours reversed 1 mark max*) [2]
- (b) (i) white ppt. / ppt. disappears to form colourless solution / ppt. soluble in excess (NaOH) ; [1]
- (ii) white ppt. / ppt. disappears to form colourless solution / ppt. soluble in excess (ammonia solution) ; [1]
- (iii) Zn^{2+} / zinc ; (**not Zn**)
(*mark is linked to a correct observation in (b)(i) or (b)(ii)*) [1]
- (c) (i) bubbles / effervescence (*ignore colours*) ; [1]
- (ii) *filtrate*: green / turquoise / blue ;
residue: brown / black / grey ;
(*colours reversed 1 mark max*) [2]
- (d) *observation*: (pale) blue ppt. ;
 Cu^{2+} / copper ; (**not Cu**) (*independent mark*) [2]
- [Total: 10]**

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- 3 (a) (i)** all three values present with $l=10$ cm and I less than 1 ; [1]
- (ii)** R value correct for $l=10$ cm and minimum of two significant figures ; [1]
- (iii)** V values increasing (for increasing length) ;
 R values correct for $l=40$ cm onwards ;
consistent two to three significant figures for R ; [3]
- (iv)** so that the wire does not become hot / because resistance of wire may increase / as battery or cell may run down ; [1]
- (b)** suitable choice of linear scales and use of at least 50% of each axis ;
(no marks may be awarded in (b) for a non-linear scale)
at least three plots correct to $\pm \frac{1}{2}$ small square;
good best fit straight line judgement ; [3]
- (c)** proportional ; [1]

[Total: 10]