CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0652 PHYSICAL SCIENCE

0652/51 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.

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.

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International Examinations

1 (a) (i) all recorded *v* values are to the nearest 0.1 cm ; [1]

(ii) three r *v* values present ;
four or five *v* values present ;
v values increasing down the table for all recorded readings ; [3]

(iii) *v* / *u* values correct to at least 2 significant figures ; [1]

(b) move lens slowly to and fro until sharpest focus obtained ;
object / lens / screen perpendicular to bench ;
object and lens same height above the bench ;
carry out experiment away from other bright light sources / in a darkened room ; [max 1]

(c) (i) axes labelled with units ;
suitable choice of scales (points should be in an area at least 6 cm × 6 cm) ;
at least 4 points plotted correctly to half a small square ;
good best fit straight line judgement ; [4]

(ii) indication on graph of how data obtained **AND** use of at least half of line drawn ;
correct calculation to at least 2 significant figures using data from the graph ; [2]

(iii) correct calculation for *f* to at least 2 significant figures ;
accuracy mark: if *f* is in the range given in the marking table which is based on *v* reading for *u* = 30 cm ; [2]

(d) image will not fit on the screen / is too far away from the object / not formed / not sharp ;
(allow any reasonable interpretation of results from graph) [1]

[Total: 15]

2 **(a)** (green to) black / brown – black (powder) ; [1]

(b) **(i)** *observations:*
green / green – blue (solution) ;
limewater turns milky / chalky / white ppt (not cloudy) ;

name of gas = carbon dioxide / CO_2 ;
(dependant on limewater or effervescence observation)

name of anion = carbonate / CO_3^{2-} ; [4]

(ii) *observations:*
blue ppt;
name of metal cation:
copper / Cu^{2+} (dependant on 'blue' observation) ; [2]

(c) **(i)** blue ; [1]

(ii) *observations:*
blue ppt (not dark blue ppt) ;
deep blue solution/dark blue solution ;
formula of cation:
Cu^{2+} (dependant on 'blue' observation) ; [3]

(iii) colour of solution fades / bubbles / effervescence / gets hotter ;
magnesium darkens / goes brown / goes black ; [2]

(iv) displacement / redox (dependant on any observation in **(iii)**)
OR
exothermic (dependant on 'gets hotter' in **(iii)**) ; [1]

(d) copper carbonate / copper(II) carbonate / $CuCO_3$; [1]

[Total: 15]