CAMBRIDGE INTERNATIONAL EXAMINATIONS
Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0653 COMBINED SCIENCE

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

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1 (a) (i) full set of results recorded for experiment **1** ;   [1]

(ii) full set of results recorded for experiment **2** ;
correct trend in both experiments (time taken decreases down column) ;   [2]
(**ALLOW** trend mark if only 4 results in column or if 5 results with two
consecutive ones the same)

(b) averages calculated correctly ;   [1]

(c) suitable choice of scale using at least half of each axis (**IGNORE** (0,0)) ;
at least 4 plots correct ± half small square ;
best-fit straight line **through the origin** (± half small square) ;   [3]

(d) at least one line on graph **and** correct reading from graph ;   [1]

(e) (i) same concentration of hydrogen peroxide each time / hydrogen peroxide used
up in experiment **1** ;   [1]

(ii) experiment **2** has similar results so not necessary / experiment **2** has greater
times so it is necessary / experiment **2** greater time but similar trend so not
necessary ;   [1]

(Answer should match candidate's results)

2 (a) Table 2.1

	A	B	C	D
observations	no change	(limewater) white ppt. / milky / cloudy white	no change	no change
carbonate present? (yes / no)	no	yes	no	no

(limewater) white ppt. / milky / cloudy white for **B** ;
no change for **A**, **C** and **D** ;
carbonate present row all correct (**allow ecf** from incorrect results) ;

(**note**: all results present but interchange of letters = max 2)   [3]

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(b) Table 2.2

Note: (i), (ii) and (iii) will not necessarily be in order A, C and D.

	(i)	**(ii)**	**(iii)**
test	**A**	**C**	**D**
barium chloride solution	no reaction	white ppt.	white ppt. (allow pale blue ppt.)
silver nitrate solution	white ppt.	no or slight ppt.	no or slight ppt.
ammonia solution	no reaction	white ppt. (dissolves to form colourless solution)	blue ppt. dissolves to form dark blue solution

ALLOW nothing / – / no visible reaction for no ppt.

(i)   **(for A)** white ppt. with silver nitrate and nothing with other test on **A** ;   [1]

(ii) **(for C)** white ppt. with barium chloride ;
white ppt. with ammonia solution
(**note**: do not award this mark if white ppt. with silver nitrate although allow
slight ppt. with silver nitrate) ;   [2]

(iii) **(for D)** white ppt. with barium chloride ;
blue ppt. / dark blue solution with ammonia solution
(**note**: do not award this mark if white ppt. with silver nitrate although allow slight ppt.
with silver nitrate) ;   [2]

[**note**: If **B** appears in Table 2.2 then mark **B** results as follows depending on which
substance **B** has replaced

B instead of **A**: white ppt. with barium chloride ;

B instead of **C**: white ppt. with barium chloride ;
brown ppt. with silver nitrate ;

B instead of **D**: white ppt. with barium chloride ;
brown ppt. with silver nitrate ;

(c) (i) A ;   [1]
(**note**: A must be present and correct in Table 2.2)

(ii) copper sulfate is **D and** zinc sulfate is **C** ;   [1]
(**note**: **C** and **D** must be present and correct in Table 2.2)

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3 **(a)** *H* recorded to the nearest millimetre (15–19 or SV$\pm$2) ; [1]

(b) **(i)** value of *v* recorded for *u* = 25 ; [1]

(ii) value of *h* recorded for *u* = 25 ; [1]

(iii) table complete for v and *h* ; values of *v* decreasing down table ; [2]

(iv) all ratios calculated correctly to at least 2 sig. fig. ; [1]

(c) **(i)** at least 4 points plotted correctly $\pm$ half small square ;
good best-fit straight line judgment ; [2]

(ii) indication on graph of how data obtained **AND** use of at least half of line drawn ;
focal length correctly calculated from candidate's to 2/3 sig. fig. ; [2]