



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMBINED SCIENCE

0653/51

Paper 5 Practical Test

October/November 2016

MARK SCHEME

Maximum Mark: 30

Published

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1 (a) cation

add sodium hydroxide solution / NaOH **AND** green ppt ;
(ALLOW gas changes red litmus to blue)

iron(II) / Fe^{2+} ;

anion

add barium nitrate (solution) / $\text{Ba}(\text{NO}_3)_2$ **AND** white ppt ;

sulfate / SO_4^{2-} ; [4]

(b) (i) colourless solution ;

fizzing / bubbles / effervescence ;

lighted splint pops ;

hydrogen / H_2 (depends on use of splint) ; [4]

(ii) white ppt. ;

(element **L** is) zinc / Zn ; [2]

2 (a) time / minutes ;

(beaker) **A** and (beaker) **B** / water and iodine solution ; [2]

(b) (i) initial observation for **both** as cloudy / colourless / milky / white ; [1]

(ii) full set of results for both beakers ;
beaker **A** – no change to observation ;

beaker **B** – observation changes to blue-black / black ;
note: if all observations are black then **(b)(i)** not scored but award this ecf [3]

(c) iodine (molecules) move into bag ;

by diffusion / because molecules are small enough ;

starch and iodine produce blue-black / black / darker colour ; [3]

(d) (blue-black) colour goes / colour fades / goes brown / goes orange /
goes yellow ; [1]

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- 3 (a) (i)** sensible time = $31\text{s} \pm 0.5$ (accuracy mark) ; [1]
- (ii)** time recorded and less than that in **(i)** ; [1]
- (iii)** all time values recorded with pattern of decreasing values ; [1]
- (b) (i)** T values calculated correctly (ignore no. of decimal places) ; [1]
- (ii)** complete set of T^2 values recorded correctly rounded to 1 decimal place ; [1]
- (c) (i)** at least four plots correct to $\frac{1}{2}$ small square ;
- good best-fit line judgement ; [2]
- (ii)** (triangle method used) at least half of the line and indication on graph of how data obtained ;
- correct calculation using graph ; [2]
- (d)** 9.8 ± 0.3 (accuracy mark) ; [1]