



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

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 2016 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

This document consists of **3** printed pages.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0653	51

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]

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2016	0653	51

- 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]