

**MARK SCHEME for the October/November 2012 series**

**0653 COMBINED SCIENCE**

**0653/52**

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 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus	Paper
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- 1 (a) (i) all four spaces filled in with appropriate observations (i.e. referring to bubbles forming or appearing on leaf surfaces) ;  
leaf **A** – more bubbles from lower surface than from upper surface ;  
leaf **B** – no difference between surfaces/less difference between surfaces than with leaf **A** [3]
- (ii) faster diffusion of CO<sub>2</sub>/CO<sub>2</sub> present inside leaf/CO<sub>2</sub> needed and is in air ; [1]
- (iii) stomata/stoma/pores ; [1]
- (iv) more stomata/pores on lower surface ; [1]
- (v) lower surface less exposed to sun/heat ;  
so less transpiration/evaporation (from this surface) ; [2]
- (b) green colour, to absorb light/shows chlorophyll present ;  
broad flat shape, for large surface area/to absorb light/to absorb CO<sub>2</sub> ;  
thin, for short diffusion distance of CO<sub>2</sub>/O<sub>2</sub> ;  
veins, to support leaf in sunlight/transport water in/transport sugar out ; [max 2]

**[Total: 10]**

Page 3	Mark Scheme	Syllabus	Paper
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- 2 (a) (i) angle for 20 g ; [1]
- (ii) angle for all masses ;  
 angles for all masses less than 90° ;  
 angles increase with increasing mass ; [3]
- (iii) sine values ; [1]
- (b) (i) points: 4 points other than origin plotted to within ½ square ;  
 best straight line ;  
 line passes through origin ; [3]
- (ii) appropriate extension ;  
*(allow extension off the grid or from a curve but not from a zig-zag line)*  
 correct reading of **m** ;  
*(only allow off grid if grid has been extended and measured accurately)* [2]

**[Total: 10]**

Page 4	Mark Scheme	Syllabus	Paper
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- 3 (a) (i) bubbles / colourless solution ;  
pop / explosion ; [2]
- (ii) A is magnesium / aluminium / zinc / iron ; [1]
- (b) (i) brown ppt. / orange ppt. ; [1]
- (ii) iron(III) /  $\text{Fe}^{3+}$  / Fe(III) ; (do not accept Fe)  
*[dependant on brown / orange in (b)(i)]* [1]
- (c) (i) liquid goes pale yellow / green / grey / colourless / lighter ; [1]
- (ii) green ppt. ; (accept grey / black) [1]
- (iii) iron(II) /  $\text{Fe}^{2+}$  / Fe(II) ; (do not accept Fe)  
*[dependant on green / grey / black in (c)(ii)]* [1]
- (d) (i) white ppt. ; [1]
- (ii) chloride /  $\text{Cl}^-$  ;  
*[dependant on white ppt in (d)(i)]* [1]

**[Total: 10]**