

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0652 PHYSICAL SCIENCE

0652/62

Paper 6 (Alternative to Practical), maximum raw mark 60

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 2014 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.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0652	62

- 1 (a) (i) 22.0 (s) ;
27.5 (s) ; [2]
- (ii) (200/22 =) 9.1 (m/s) ;
(200/27.5 =) 7.3 (m/s) ; [2]
- (iii) (car 4 =) 33 (km/hr) ;
(car 5 =) 26 (km/hr) ; [2]
- (iv) the car travels downhill so it may accelerate, speed changes /owtte ; [1]
- (v) there is a reaction time before the second student starts the timer /owtte ; [1]
- (b) (i) (160 + 103 + 116 = 379) 379/3 = 126 km/hr ; [1]
- (ii) cars travel too fast on the road, so unsafe for students /traffic fumes bad for health /other suggestion ; [1]
- [Total: 10]**
- 2 (a) ensure rapid solution /dissolves quickly /owtte ; [1]
- (b) (i) 29.2 ;
16.8 ; [2]
- (ii) -1.1, +7.2, -4.9 (ecf)
all numbers correct ;
all signs correct ; [2]
- (c) exothermic ;
endothermic ; [2]
- (d) use insulated container /use plastic stirrer /cover the beaker /more accurate or digital thermometer ; [max 1]
- (e) more energy given out (when bonds are formed) ;
than is taken in (when ions are pulled apart) ;
(allow 1 mark max temperature increases because energy given out /overall energy is given out) [2]
- [Total: 10]**

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0652	62

- 3 (a) (i) 10.3 ;
20.5 ; [2]
- (ii) the extension is proportional to the load ;
OR
the load is proportional to the extension ; [max 1]
- (b) 3.7 ;
2.2 ; [2]
- (c) (i) $\frac{3.7}{3.7 - 2.2} = \frac{3.7}{1.5} = 2.5 \text{ (g/cm}^3\text{)} ;$ [1]
- (ii) mass ; [1]
- (iii) volume ; [1]
- (d) *any two from:*
the wire may have a different density ;
wire adds to the volume ;
wire adds to the mass ;
stone not fully immersed ;
spring could be in the water ;
pointer hitting the side of the beaker ;
stone touching the beaker ;
other sensible answer explained ; [max 2]

[Total: 10]

- 4 (a) (i) 11.5 ;
14.0 ; [2]
- (ii) 160 ;
195 ; [2]
- (b) (i) all points plotted $\pm 5 \text{ cm}^3 / 0.5 \text{ cm}$;
suitable straight line drawn ; [2]
- (ii) y/x values calculated ;
shown on graph ; [2]
- (c) measure magnesium ribbon more accurately / owtte ;
use measuring cylinder with more graduation lines ;
stopper the flask before the Mg ribbon meets acid ; [max 1]
- (d) use acid of greater concentration / warm the mixture / cut into smaller pieces ; [max 1]

[Total: 10]

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0652	62

- 5 (a) (i) hydrogen ; [1]
- (ii) apply a lighted splint ;
'pop' or gas burns with a small explosion ; [2]
- (b) (i) calcium carbonate ; [1]
- (ii) calcium hydroxide ; [1]
- (c) metal **A** is magnesium ; [1]
- (d) (i) white precipitate / solid / deposit ;
which re-dissolves (when more NaOH is added) ; [2]
- (ii) $\text{Fe}(\text{OH})_2$; [1]
- (e) white precipitate / solid / deposit (of silver chloride) ; [1]
- [Total: 10]**

- 6 (a) (i) (angle of incidence =) 55 (degrees) ;
(angle of reflection =) 65 (degrees) ; [2]
- (ii) the normal is not at 90° / perpendicular (to the mirror line) ; [1]
- (iii) not obeyed because they should be equal / because angles of incidence and reflection not measured (because the normal is incorrect) ; [1]
- (b) (i) both rays drawn correctly, touching the marks and meeting at the junction of the mirror line and the normal ; [1]
- (ii) (incidence =) 35 (degrees) ;
(reflected =) 31 (degrees) ; [2]
- (iii) the mirror was not exactly in line with the mirror line / owtte ;
the pencil mark(s) were in the wrong place / not in the centre of the beam ; [2]
- (c) electrons ; [1]
- [Total: 10]**