

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the October/November 2014 series**

### **0652 PHYSICAL SCIENCE**

**0652/61**

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<sup>®</sup>, 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	60

- 1 (a) (i) evaporation/evaporates/vaporisation ; [1]  
(ii) condensation/condenses/liquefies ; [1]
- (b) 130 (cm<sup>3</sup>) ; [1]
- (c) (i) rust/rusting/rusted/rusty [1]  
(ii) For **A**: 85 ; 45 ; (ecf) [4]  
For **B**: 103 to 104.5 ; 26 ; (ecf)
- (d) (i) there is more oxygen in boiled-out air (than in normal air) ; (ecf) [1]  
(ii)  $\frac{45 \times 100}{130} = 34.6\%$  ; [1]

[Total: 10]

- 2 (a) image shows filter paper and collecting vessel ; [2]  
filtrate and residue labelled in correct places ;
- (b) white precipitate/solid/deposit ; [2]  
which dissolves/(colourless) solution formed (when more ammonia is added) ;
- (c) (i) (pass gas into) limewater ; [2]  
(to give) white precipitate/milky/cloudy ;
- (ii) (light) blue **AND** precipitate/solid ; [2]  
(re-dissolves to give) dark blue solution ;
- (d) brown/yellow solution ; [2]  
brown/red-brown precipitate ;  
**OR**  
brown/red-brown precipitate ;  
insoluble in excess ; [max 2]

[Total: 10]

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0652	60

- 3 (a) 0.5 ;  
0.8 ; [2]
- (b) (0.5/0.32 =) 1.6 ; (ecf)  
(0.8/0.32 =) 2.5 ; (ecf) [2]
- (c) (i) linear scales, vertical 0 to 6 AND horizontal 0 to 120, **AND both** axes correctly labelled with variable AND at least one with a unit ;  
4 out of 5 points plotted correctly  $\pm \frac{1}{2}$  square ;  
straight line drawn must pass through  $0,0 \pm \frac{1}{2}$  square ; [3]
- (ii) resistance is proportional/directly proportional to length ; [1]
- (d) the wire heats up (and so change the resistance) ; [1]
- (e) resistance will be lower / current will be greater ; [1]
- [Total: 10]**
- 4 (a) **B** 13.5(g) ;  
**C** 16.5(g) ; [2]
- (b) **B** 29(s) ;  
**C** 38(s) ; [2]
- (c) (i) vertical lines drawn joining the plot at  $-13.5, -16.5$  ;  
two correct temperatures correctly recorded ; [2]
- (ii) fuel decreases in mass (when it is burned) ; [1]
- (d) molecules / particles gain energy / move faster / collide more frequently or energetically ;  
forces between particles get weaker ;  
molecules / particles move away from each other / occupy a larger space ; [max 2]
- (e) **C** / paper and wood are biodegradable ;  
**OR**  
**C** / not **A** and **B** because plastic and nylon are non-biodegradable ; [max 1]
- [Total: 10]**

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2014	0652	60

- 5 (a) (i) temperature is constant / stops increasing ; [1]
- (ii) (all) intermolecular forces broken/change from liquid to gas ;  
caused by thermal energy / as thermal energy absorbed ; [2]
- (iii) 118 °C ; [1]
- (iv) the molecules lose energy ;  
**AND any 1 from:**  
intermolecular forces form ;  
get stronger ;  
molecules get closer together ;  
turn to a liquid ; [max 2]
- b (i) solid / crystals appear ; [1]
- (ii) 16.5 ; [1]
- (iii) (thermal) energy is given out ;  
**AND any 1 from:**  
stops the temperature falling ;  
strengthens / more intermolecular forces ; [max 2]
- [Total: 10]**
- 6 (a) (i) 9.9 AND 13.2; [1]
- (ii) 6.5 AND 9.9 ; (ecf) [1]
- (iii) 3.4 ;  
3.3 ; (ecf) [2]
- (b) (i)  $9.8 \times \frac{(3.3)^2}{2}$  ;  
= 53.4 ; [1]
- (ii) errors ;  
**EITHER:**  
errors evened out/decreased effect of errors ;  
**or**  
increases reliability ; [max 2]
- (c) hear at same time / sound arrives at same time ;  
drop and timer happen together ;  
**OR**  
sound takes time to travel (from **A** to **B**) ;  
timer started late / time too small / drop before timer started ; [max 2]
- [Total: 10]**