

**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

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Page 2	Mark Scheme	Syllabus	Paper
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- 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)  
For **B**: 103 to 104.5 ; 26 ; (ecf) [4]
- (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 ;  
filtrate and residue labelled in correct places ; [2]
- (b) white precipitate/solid/deposit ;  
which dissolves/(colourless) solution formed (when more ammonia is added) ; [2]
- (c) (i) (pass gas into) limewater ;  
(to give) white precipitate/milky/cloudy ; [2]  
(ii) (light) blue **AND** precipitate/solid ;  
(re-dissolves to give) dark blue solution ; [2]
- (d) brown/yellow solution ;  
brown/red-brown precipitate ; [2]  
**OR**  
brown/red-brown precipitate ;  
insoluble in excess ; [max 2]

[Total: 10]

Page 3	Mark Scheme	Syllabus	Paper
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- 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
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- 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]**