

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2010 question paper**  
**for the guidance of teachers**

**0620 CHEMISTRY**

**0620/52**

Paper 52 (Practical), maximum raw mark 40

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.

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## 1 Table of results

- total volume of water boxes correctly completed (1)  
 temperature boxes completed (1)  
 values decreasing (1)  
 comparable to supervisor's results (2)  $\pm 10$  at  $10\text{ cm}^3$   $\pm 10$  at  $16\text{ cm}^3$  [5]
- (a) appropriate scale for y axis (1)  
 points plotted correctly(4), -1 for each incorrect  
 best fit straight line graph (1) [6]
- (b) clear liquid formed/no solid visible owtte (1) e.g. no salt left [1]
- (c) value from graph for  $9\text{ cm}^3$  of water (1)  $\pm 1/2$  small square  
 extrapolation of straight line shown (1) [2]
- (d) sketch graph below line (1)  
 label (1) [2]
- (e) temperatures at which crystals appear lower (1)  
 solution more dilute in same volume of water/less saturated owtte (1)  
 temperature halved as half as much solid = 2 [2]
- (f) one improvement from e.g.  
 don't use a beaker of cold water to cool solution/  
 do not remove thermometer from the solution/  
 use second person/or IT method to note formation of crystals  
 repeat
- linked explanation  
 different rate of heat losses/  
 loss of solid on thermometer/  
 observing formation of first crystals may vary  
 average [2]

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**2 (a)** Tests on solid W

yellow (1)  
precipitate (1) not solid [2]

**(b)** Tests on solution X

**(i)** blue (1) [1]  
pH of solution X approx 1–4 (1) [1]

**(ii)** blue (1)  
precipitate (1) [2]

**(iii)** blue precipitate (1)  
darker/deep/royal blue (1)  
solution (1) or precipitate dissolves/goes clear [3]

**(iv)** brown (liquid/solution) (1)  
cream/white (1)  
solid/precipitate (1) [3]

**(c)** Tests on solution Y

**(i)** pH 1–3 (1) [1]

**(ii)** white (1)  
precipitate (1) [2]

**(d)** iodide or I<sup>-</sup>(1) not iodine [1]

**(e)** copper (1)  
acidic (1) [2]

**(f)** sulfate only (1)  
acid only (1)  
sulfuric acid (2) max [2] [2]

**[Total: 40]**