MARK SCHEME for the March 2015 series

0620 CHEMISTRY

0620/52 Paper 5 (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.

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 March 2015 series for most Cambridge IGCSE® components.
1  (d)  Table of results

   total volume of water boxes completed correctly (1),
   10, 12, 14, 18
   temperature boxes completed (1)
   values decreasing (1)
   comparable to supervisor’s results (2) ±10°C

(e)  appropriate scale for y axis (1)
   note: must use at least 4 large squares vertically to plot points
   all points correctly plotted (3),
   all 4 correct (3)
   3 correct (2)
   2 correct (1)
   1 or fewer correct (0)
   note: origin should not be included
   smooth line graph (1)

(f)  value from graph for 20 cm$^3$ water (1) ± half a small square
   shown clearly by extrapolation(1)

(g)  clear / colourless liquid forms / no solid / crystals / salt visible owtte (1)

(h)  salt would not all dissolve (1)
   use of figures (1)
   e.g. only 5.7 g would dissolve in 10 cm$^3$ water at 100 °C

(i)  sketch graph above line (1)
   label (1)
(j) any one improvement from: (1)

- do not remove thermometer from solution
- use IT method/second person to note formation of crystals
- repeat
- do separate experiments
- use smaller volumes of water
- loss of water through boiling/evaporation

linked explanation (1)

- loss of solid on thermometer
- observing formation of first crystals may vary
- average
- more results to plot on graph
- method of avoiding evaporation

2 tests on solution E

(a) yellow/green/colourless, [1]

(b) white (1) precipitate (1) [2]

(c) green precipitate (1)
- indicator paper turns blue (1)
- pungent smell (1) [2]
- turns brown (1) [1]

(d) appearance pink to colourless/pale yellow (1) [1]
- brown (1) precipitate (1) [2]
- tests on solution F

(e) (i) yellow solution (1) [1]
- (ii) pH 1–3 (1) [1]

(f) any three from:
- green (1) blue (1) lavender/purple/lilac (1)
- effervescence (1) [3]
(g) iron (I) (II) (1)
    ammonium (1) sulfate(1) [4]

(h) any two from:
    transition metal (1)
    different valencies (1)
    acidic solution(1) [2]