MARK SCHEME for the October/November 2010 question paper
for the guidance of teachers

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Mark schemes must be read in conjunction with the question papers and the report on the examination.

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1 (a) Table of results for *Experiment 1*
   volume of acid box completed correctly (1)
   comparable to supervisors (1)

(b) Table of results for *Experiment 2*
   volume of acid box completed correctly (1)
   comparable to supervisors (1) –1 if not 1 decimal place

(c) pink (1) to colourless (1) **not** clear

(d) (i) hydroxide
    (ii) neutralisation

(e) (i) experiment 2
    (ii) experiment 2 2× volume experiment 1
    (iii) alkaline solution G more concentrated/stronger (1) or converse
      2× as concentrated (2)

(f) half value from table result for experiment 2 (1) cm³ (1)
   half volume of G used (1) max 2

(g) (i) two sources of error
    e.g. using a measuring cylinder to measure alkalis/going past end point owtte

   (ii) two meaningful improvements related to above
    e.g. use a pipette/burette/repeat experiment or use different indicator

[Total: 18]

2 (a) white/colourless crystals

(b) melts/turns into a liquid owtte (1)
   crackles (1)
   pH paper turns blue/ pH > 7 (1)
   smell (1) max 2

(c) (i) white (1) precipitate (1)
    (ii) no change/no reaction owtte
    (iii) pungent/smelly (gas) (1)
      indicator paper turns blue or pH > 7 (1)
(d) solid turns white/colour fades (1)  
condensation at top of tube (1)  
acidic gas (1)  max 2  [2]

(e) (i) green (1) precipitate (1)  [2]
(ii) white precipitate  [1]
(iii) (manganate) turns colourless/yellow/orange/brown  [1]

(f) steam (1)  
heat given off (1)  
solid turns green/brown/yellow/orange (1)  max 2  [2]

(g) ammonia  [1]

(h) ammonium (1) sulfate (1)  [2]

(i) iron (1) (II) (1) sulfate (1)  [3]

[Total: 22]