Chemical Equations

Question 1 (2016 - Question 4 - Part h)

(*h*) HOW: **add barium chloride {barium nitrate, $BaCl_2$, $Ba(NO_3)_2$}** solution / **add barium ions (Ba^{2+})** solution //
white precipitate dissolves (disappears, clears) in (on addition of) dilute **hydrochloric acid (HCl)** (2 × 3)

Question 2 (2013 - Section B - Question 4 - Part (g))

(g) WHAT: freshly-prepared **iron(II) sulfate ($FeSO_4$)** soln // **conc sulfuric acid (H_2SO_4)** (2 × 3)
[Accept "ferrous sulfate."]
[Accept formula: H_2SO_4 as conc.]

Question 3 (2012 - Section B - Question 7 - Part (d))

(d) TEST: **add silver nitrate ($AgNO_3$)** and dilute nitric acid //
white precipitate (ppt) formed (2 × 3)
[white ppt linked to correct reagent]

Question 4 (2007 - Section B - Question 4 - Part (f))

(f) NAME: **iron(II) sulfate / ferrous sulphate / $FeSO_4$** [Accept ammonium iron(II) sulfate] //
concentrated **sulphuric acid / H_2SO_4** (2 x 3)

(f) NAME: **iron(II) sulfate / ferrous sulphate / $FeSO_4$** [Accept ammonium iron(II) sulfate] //
concentrated **sulphuric acid / H_2SO_4** (2 x 3)

(g) USED: **name // structure** (2 x 3)

ethanoic (acetic) acid // CH_3COOH

Question 5 (2004 - Section B - Question 4 - Part (j))

(j) white **precipitate (cloudiness) with barium chloride (barium nitrate, barium ions)** solution (3)
which **dissolves (disappears) in** dilute **hydrochloric acid (HCl)** [*Given independently of reagent used*] (3)

Question 6 (2003 - Section B - Question 10 - Part (c))

(c) (i) Test: **flame** test / **atomic absorption spectrometry (AAS)** (4)

Obs: flame test: sodium: **yellow / orange** (*Accept 'amber'*) (3) potassium: **lilac / violet** (***not 'purple'***) (3)
OR AAS: sodium: **yellow /orange** (*Accept 'amber'*) / characteristic **absorption spectrum of sodium** (3)
potassium: **lilac / violet** (***not 'purple'***) / characteristic **absorption spectrum of potassium** (3)

(ii) add **barium chloride {$BaCl_2$} / barium nitrate {$Ba(NO_3)_2$}** soln / soluble source of **barium ions (Ba^{2+})** (3)
white precipitate with both sulfite and sulfate (3) *[linked to first (3) – not given if reagent incorrect]*
add dilute **hydrochloric acid {HCl}** (3) *[Last three (3)s can be given even if first (3) not got.]*
precipitate dissolves indicating sulfite (3) / *Note: if barium reagent & HCl are added at*
precipitate remains (does not dissolve) indicates sulfate (3) *the same time, the second (3) is not available.*
[Note: if either one of the last two points is given, the other can be inferred]
(maximum = 12)

Question 7 (2013 - Section B - Question 4 - Part (f))

⇒ empirical formula = CuO (3)

(f) COMPLETE: $C_2H_5OH + Na \rightarrow C_2H_5ONa + ½H_2$ / $2C_2H_5OH + 2Na \rightarrow 2C_2H_5ONa + H_2$
[Full equation required] FORMULAS: (3) BALANCING: (3)

Question 8 (2011 - Section B - Question 4 - Part (f))

(f) EQUAT: $3Cu^{2+} + 2Al \rightarrow 3Cu + 2Al^{3+}$ FORMULAS // BALANCING: (2 × 3)