AQA AS/A-level Year 1 Chemistry exam practice answers

**9 The periodic table**

**1 (a)** KCl + H2SO4 → HCl + KHSO4 [1]

 KI + H2SO4 → HI + KHSO4

 then 6HI + H2SO4 → 3I2 + S + 4H2O [1]

 **(b)** Pungent smell/dark-grey solid formed/yellow solid formed — any two for [1] each

 **(c) (i)** Decrease [1]; outer bonding electrons are further from the nucleus [1]

 **(ii)** Increase [1]; more electrons, so strength of van der Waals’ forces increases [1]

 **(iii)** Increase [1]; more electron energy levels [1]

 **(d) (i)** 2K + F2 → 2KF [1] all correct formulae

 **(ii)** 2NaBr + Cl2 → 2NaCl + Br2 [1] all correct formulae

 **(iii)** Cl2 + H2O → HCl + HOCl [1] all correct formulae

 **(iv)** NaCl + AgNO3 → NaNO3 + AgCl [1] all correct formulae

**2 (a) (i)** Agriculture (for neutralising excess acid in soil) [1]

 **(ii)** Antacid — a stomach indigestion remedy [1]

 **(iii)** Purifying water for drinking/making antiseptics/PVC [1]

 **(iv)** Barium ‘meal’ for investigating stomach ailments [1]

 **(b) (i)** Add dilute nitric acid and then silver nitrate solution [1]; yellow precipitate with potassium iodide [1]; cream precipitate with potassium bromide [1]

 **(ii)** Add dilute hydrochloric acid and then barium chloride solution [1]; white precipitate formed with copper(ii) sulfate [1]; no reaction with copper(ii) chloride [1]

 Or same chemical test as in part (i): white precipitate with copper(ii) chloride [1]; no reaction with copper(ii) sulfate [1]

**3** Decrease [1]; ions get bigger/more (energy) shells [1]; weaker attraction of ion to lost electron [1]

**4** A [1]