

## Year 4 Revision

1. (a) Write the formulae for the following compounds:  
Gold (III) iodate (V)  
Hydrobromic acid  
Ammonium sulphite  
Aluminium thiosulphate  
(b) Name the following compounds:  
 $\text{Mg}_3(\text{PO}_4)_2$   
 $\text{Li}_2\text{Cr}_2\text{O}_7$   
 $\text{HClO}_2$   
 $\text{S}_2\text{Cl}_2$
2. How many nitrate ions are in 60g of iron (III) nitrate?
3. A 5mg sample of a compound contained 1mg of carbon, 2.34mg of nitrogen, 1.33mg of oxygen and the rest was hydrogen. The RMM was found to be 120.  
(a) Find the empirical formula of the compound.  
(b) Find the molecular formula of the compound.
4. 15g of calcium reacts quickly with nitrous acid producing a salt and a quantity of gas.  
(a) What volume of 2.5M acid would be required to fully react with the calcium?  
(b) What volume of what gas would be produced by this reaction at standard temperature and pressure?
5. 25g of ethane ( $\text{C}_2\text{H}_6$ ) is reacted with 132g of oxygen, producing only carbon dioxide and water. Which of the reactants is in excess and what volume of it, measured at  $20^\circ\text{C}$ , is left over when the reaction ends?
6. An element Pm consists of 3 isotopes:  
 $6\% \text{}^{57}\text{Pm}$ ;  $27\% \text{}^{58}\text{Pm}$ ;  $67\% \text{}^{63}\text{Pm}$ .  
Calculate the RAM of Pm.
7. Balance these redox equations:  
(a)  $\text{Cr}_2(\text{SO}_4)_3 + \text{NaOH} + \text{Cl}_2 \rightarrow \text{Na}_2\text{CrO}_4 + \text{NaCl} + \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$   
(b)  $\text{As}_4\text{O}_6 + \text{KHCO}_3 + \text{I}_2 \rightarrow \text{As}_4\text{O}_{10} + \text{KI} + \text{CO}_2 + \text{H}_2\text{O}$