## HW 11 – January 16

1. Replace the question marks below to obtain correct chemical equations:

Ca + 2HCl = Ca"?" + H<sub>2</sub> 
$$\uparrow$$
  
2Mg + "?" = 2MgO  
2H<sub>2</sub>"?" + 3O<sub>2</sub> = 2H<sub>2</sub>O + 2SO<sub>2</sub>  
Fe<sub>2</sub>O<sub>3</sub> + 3H<sub>2</sub> = 2Fe + 3"?"O  
CaCl<sub>2</sub> + 2NaOH = Ca(OH)<sub>2</sub> + 2Na"?"

 For the reactions shown below a) identify reactions of combination, decomposition, single and double replacement and write them down in 4 columns (2 reactions of each type in each column); b) balance the equations; c) underline <u>redox</u> reactions and indicate the oxidation states of atoms in reactants and products.

 $H_2 + O_2 = H_2O$  (reaction proceeds with explosion)

 $NH_3 = N_2 + H_2$  (reaction takes place upon heating in gas phase)

Cu + S = CuS (reaction proceeds upon heating of Cu and S powders)

AgF + NaCl = AgCl (s) + NaF (reaction takes place in a solution with precipitation of silver chloride)

 $CaCO_3 = CaO + CO_2$  (gas) (reaction takes place upon heating)

 $CuBr_2 + NaOH = Cu(OH)_2$  (s) + NaBr (reaction takes place in solution)

Fe +  $H_2O = H_2$  (gas) +  $Fe_2O_3$  (reaction takes place upon heating)