HW 11 – January 10

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

$$Ca + 2HCl = Ca"?" + H_2 \uparrow$$

$$2Mg + "?" = 2MgO$$

 $2H_2$ "?" + $3O_2 = 2H_2O + 2SO_2$

$$Fe_2O_3 + 3H_2 = 2Fe + 3$$
"?"O

 $CaCl_2 + 2NaOH = Ca(OH)_2 + 2Na"?"$

 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)

CuBr₂ + 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)