HW 24

Classes of chemical compounds - 2

A. Reactions where acids and bases react with each other are called <u>reactions of neutralization</u>. In these reactions a salt and water are formed. E.g. below is a neutralization reaction between hydrochloric acid (HCl – acid) and sodium hydroxide (NaOH – base) with formation of salt (sodium chloride, NaCl) and water:

 $HCI + NaOH \rightarrow NaCI + H_2O$

 $H_2SO_4 + 2NaOH \rightarrow Na_2SO_4 + 2H_2O$

B. When acidic oxides react with water, they form acids. E.g.:

 $SO_3 + H_2O \rightarrow H_2SO_4$

C. When basic oxides react with water, they form bases. E.g.:

$$CaO + H_2O \rightarrow Ca(OH)_2$$

- Using Periodic Table of Elements write chemical formulas of oxides for the following elements: K, Ba, Fe(II), Cr(III), Cl(VII), Si(IV). Underline formulas of acidic oxides.
- 2. Write chemical equations for the following transformations:

 $Ca \rightarrow CaO \rightarrow Ca(OH)_2 \rightarrow CaSO_4$ $S \rightarrow SO_2 \rightarrow SO_3 \rightarrow H_2SO_4 \rightarrow CaSO_4$

3. How many grams of concentrated sulfuric acid (H₂SO₄) will be necessary to neutralize water solution containing 4 g of NaOH? Assume 100% sulfuric acid concentration.