HW 26

## Classes of chemical compounds - 4

A. Reactions where acids and bases react with each other are called reactions of neutralization. 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:

$$
\begin{gathered}
\mathrm{HCl}+\mathrm{NaOH} \rightarrow \mathrm{NaCl}+\mathrm{H}_{2} \mathrm{O} \\
\mathrm{H}_{2} \mathrm{SO}_{4}+2 \mathrm{NaOH} \rightarrow \mathrm{Na}_{2} \mathrm{SO}_{4}+2 \mathrm{H}_{2} \mathrm{O}
\end{gathered}
$$

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

$$
\mathrm{SO}_{3}+\mathrm{H}_{2} \mathrm{O} \rightarrow \mathrm{H}_{2} \mathrm{SO}_{4}
$$

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

$$
\mathrm{CaO}+\mathrm{H}_{2} \mathrm{O} \rightarrow \mathrm{Ca}(\mathrm{OH})_{2}
$$

D. Reactions of bases:


1. Write chemical equations for the following transformations (you can look up formulas of necessary reactants in the last lecture and above):
$\mathrm{Ca} \rightarrow \mathrm{Ca}(\mathrm{OH})_{2} \rightarrow \mathrm{CaO} \rightarrow \mathrm{CaSO}_{4}$
2. Basic CaO reacts with hydrochloric acid ( HCl ) forming the salt of calcium chloride $\mathrm{CaCl}_{2}$ and water. Write the chemical reaction, balance the equation, and calculate how many grams of this salt will form from 73 g HCl .
