Name BETH "KEY" Period _____

Review Worksheet

REDOX

1. Complete and balance the following redox reactions.

a. $2Rb + MnSO_4 \rightarrow Rb_2SO_4 + Mn$

Single Replacement

b. $Ag + H_2SO4 \rightarrow$ NR (SEE ACTIVITY SERIES)

SINGLE REPLACEMENT

c. $F_2 + 2NaCl \rightarrow 2NaF + Cl_2$

SINGLE REPLACEMENT

d. $2C_6H_{14} + 19O_2 \rightarrow 12CO_2 + 14H_2O +$ Energy

Combustion

e. $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O +$ Energy

COMBUSTION

f. $2Na + Cl_2 \rightarrow 2NaCl$

SYNTHESIS

g. $2H_2O \rightarrow 2H_2 + O_2$

DECOMPOSITION

h. $Ca + Br_2 \rightarrow CaBr_2$

SYNTHESIS

i. $CO_2 \rightarrow C + O_2$

DECOMPOSITION

2. For the above redox reactions indicate if they are synthesis, decomposition, combustion, or single replacement.

3. Assign oxidation numbers to the following:

a. $\overset{+2}{Mn^{2+}}$ b. $\overset{+1\ +5\ -2}{NaBiO_3}$ c. $\overset{+7\ -2}{MnO_4^-}$ d. $\overset{0}{Cl_2}$

e. $\overset{+5\ -2}{IO_3^-}$ f. $\overset{-3\ +1}{NH_3}$ g. $\overset{+2\ +6\ -2}{CuSO_4}$ h. $\overset{-3\ +1\ 0\ +1\ -2}{NH_4C_2H_3O_2}$

one carbon is +4
The other carbon is -4
→ Don't worry – not on test!! ☺

4. Complete the following equations for redox reactions. Assign oxidations numbers. Indicate the substance oxidized and reduced in each reaction. Write the half-reactions for each equation.

a. $3\overset{0}{Zn} + 2\overset{+3\ +5\ -2}{Ni(NO_3)_3} \rightarrow 3\overset{+2\ +5\ -2}{Zn(NO_3)_2} + 2\overset{0}{Ni}$

OXID: $3Zn \rightarrow 3Zn^{2+} + 6e^-$

RED: $2Ni^{3+} + 6e^- \rightarrow 2Ni$

b. $2\overset{0}{Li} + \overset{+2\ +5\ -2}{Ba(NO_3)_2} \rightarrow 2\overset{+1\ +5\ -2}{LiNO_3} + \overset{0}{Ba}$

OXID: $2Li \rightarrow 2Li^+ + 2e^-$

RED: $Ba^{2+} + 2e^- \rightarrow Ba$

c. $2\overset{0}{Na} + \overset{0}{Cl_2} \rightarrow 2\overset{+1\ -1}{NaCl}$

OXID: $2Na \rightarrow 2Na^+ + 2e^-$

RED: $Cl_2 + 2e^- \rightarrow 2Cl^-$

d. $2\overset{-3\ +1}{NH_3} \rightarrow \overset{0}{N_2} + 3\overset{0}{H_2}$

OXID: $2NH_3 \rightarrow N_2 + 6e^-$

RED: $2NH_3 + 6e^- \rightarrow 3H_2$