## **CHEMICAL REACTIONS - SET I**

- 1. What is a characteristic of every synthesis reaction?
- 2. Complete and balance each of the following synthesis reactions:
  - (a) Ca + Br<sub>2</sub>  $\rightarrow$
  - (b) Mg +  $N_2 \rightarrow$
- 3. What is a distinguishing feature of every
  - (a) decomposition reaction?
  - (b) double replacement reaction?
- 4. Complete and balance these decomposition reactions.
  - (a)  $H_2O \rightarrow$
  - (b) HI  $\rightarrow$
  - (c)  $Fe_2O_3 \rightarrow$
- 5. How can you tell if a metal can replace a metal ion from an ionic compound in an aqueous solution?
- 6. Complete and balance the following single replacement reactions.
  - (a) Al + CuSO<sub>4</sub>  $\rightarrow$
  - (b) Ca +  $H_2O \rightarrow$
  - (c) Zn +  $Pb(NO_3)_2 \rightarrow$
  - (d)  $F_2$  + NaCl  $\rightarrow$
- 7. Using your activity series, give an example of a single replacement reaction that will **not** take place.
- 8. Write a balanced equation for each of following acid-base neutralization reactions:
  - (a)  $H_2SO_4 + Al(OH)_3 \rightarrow$
  - (b) HI +  $Mg(OH)_2 \rightarrow$

| q  | Ralance  | each of  | these | equations. | <b>Identify</b> | , each | as to | tyne  |
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| (a) | $HCI + Fe_2O_3 \rightarrow FeCl_3 + H_2O$                             |
|-----|-----------------------------------------------------------------------|
| (b) | $Li  +  O_2  \rightarrow   Li_2O$                                     |
| (c) | $MgCO_3 \rightarrow MgO + CO_2$                                       |
| (d) | $HNO_3$ + $RbOH$ $\rightarrow$ $RbNO_3$ + $H_2O$                      |
| (e) | $CH_4 + O_2 \rightarrow CO_2 + H_2O$                                  |
| (f) | $KCIO_4 \rightarrow KCI + O_2$                                        |
| (g) | $AgNO_3  +  H_2S \qquad \rightarrow \qquad Ag_2S \qquad +  HNO_3$     |
| (h) | $\text{Cl}_2$ + $\text{KI}$ $ ightarrow$ $\text{NaCl}$ + $\text{I}_2$ |
| (i) | $FeCl_3$ + NaOH $\rightarrow$ $Fe(OH)_3$ + NaCl                       |

## 10. Write balanced molecular, ionic, and net ionic equations for the following double replacement reactions:

(a) 
$$CoCl_2 + H_2S$$
  $\rightarrow$ 

(b) 
$$Fe(NO_3)_3 + LiOH \rightarrow$$

(c) 
$$BaCl_2 + H_3PO_4 \rightarrow$$