**CHAPTER 6: CHEMICAL REACTIONS OUTLINE QUIZ #3**

\* From discussion #3 on chemical reactions

1. What do chemical reactions allow living things to accomplish?
2. A \_\_\_\_\_\_\_\_ occurs when atoms or groups of atoms in a substance are reorganized into different substances
3. Chemical bonds are \_\_a\_\_ and \_\_\_b\_\_ during chemical reactions.
4. In a chemical \_\_a\_\_, the \_\_\_b\_\_\_ are the starting substances and the \_\_\_c\_\_\_ are the substances being formed.
5. An arrow indicates the process of \_\_\_a\_\_\_ in a reaction the \_\_b \_\_ are found on the left side and the \_\_\_c\_\_\_ are found on the right side of the arrow.
6. In the following example what are the reactants and what are the products?

HCl + NaOH ---> NaCl + H2O

1. \_\_\_a\_\_\_ cannot be created nor destroyed according to the law of conservation of \_\_\_b\_\_\_.
2. What must be equal in all chemical reactions?
3. In the following equations list the type of atoms present and how many of each is on the reactants side and on the products side?
   1. 2HCl + Zn ---> ZnCl2 + H2
   2. 4Fe + 3O2 ---> 2Fe2O3
   3. Challenge: 2HNO3 + Ca(OH)2 ---> Ca(NO3)2 + 2H2O
4. What is the minimum amount of energy needed in a chemical reaction?
5. A reaction that *absorbs* heat energy is known as \_\_a\_\_ and therefore the energy of the \_\_b\_\_ is ***higher*** than that of the \_\_\_c\_\_\_.
6. A reaction that *releases* heat energy is known as \_\_a\_\_ and therefore the energy of the \_\_b\_\_ is ***higher*** than that of the \_\_c\_\_.
7. Enzymes are special \_\_\_a\_\_\_ that act as \_\_\_b\_\_\_ catalyst.
8. What is the function of a catalyst?
9. Enzymes speed up \_\_\_a\_\_\_ however they do not increase how much \_\_\_b\_\_\_ is made and they \_\_\_c\_\_\_ get used up.
10. Substrates are the \_\_\_a\_\_\_ that bind to the enzyme at the location referred to as the \_\_\_b\_\_\_ which have shapes that are \_\_\_c\_\_\_.
11. The \_\_\_a\_\_\_ forms when the substrate binds and the active site changes shape, chemical bonds in the \_\_\_b\_\_ are broken and now bonds form the \_\_\_c\_\_\_ which are then \_\_\_d\_\_\_.

Balance the following equations.

1) \_\_\_\_ N2 + \_\_\_\_ H2 🡪 \_\_\_\_ NH3

2) \_\_\_\_ KClO3 🡪 \_\_\_\_ KCl + \_\_\_\_ O2

3) \_\_\_\_ NaCl + \_\_\_\_ F2 🡪 \_\_\_\_ NaF + \_\_\_\_ Cl2

4) \_\_\_\_ H2 + \_\_\_\_ O2 🡪 \_\_\_\_ H2O

5) \_\_\_\_ Pb(OH)2 + \_\_\_\_ HCl 🡪 \_\_\_\_ H2O + \_\_\_\_ PbCl2

6) \_\_\_\_ AlBr3 + \_\_\_\_ K2SO4 🡪 \_\_\_\_ KBr + \_\_\_\_ Al2(SO4)3

7) \_\_\_\_ CH4 + \_\_\_\_ O2 🡪 \_\_\_\_ CO2 + \_\_\_\_ H2O

8) \_\_\_\_ C3H8 + \_\_\_\_ O2 🡪 \_\_\_\_ CO2 + \_\_\_\_ H2O

9) \_\_\_\_ C8H18 + \_\_\_\_ O2 🡪 \_\_\_\_ CO2 + \_\_\_\_ H2O

10) \_\_\_\_ FeCl3 + \_\_\_\_ NaOH 🡪 \_\_\_\_ Fe(OH)3 + \_\_\_\_NaCl

11) \_\_\_\_ P + \_\_\_\_O2 🡪 \_\_\_\_P2O5

12) \_\_\_\_ Na + \_\_\_\_ H2O 🡪 \_\_\_\_ NaOH + ­­­\_\_\_\_H2

13) \_\_\_\_ Ag2O 🡪 \_\_\_\_ Ag + \_\_\_\_O2

14) \_\_\_\_ S8­ + \_\_\_\_O2 🡪 \_\_\_\_ SO3

15) \_\_\_\_ CO2 + \_\_\_\_ H2O 🡪 \_\_\_\_ C6H12O6 + \_\_\_\_O2

16) \_\_\_\_ K + \_\_\_\_ MgBr 🡪 \_\_\_\_ KBr + \_\_\_\_ Mg

17) \_\_\_\_ HCl + \_\_\_\_ CaCO3 🡪 \_\_\_\_ CaCl2 + \_\_\_\_H2O + \_\_\_\_ CO2

18) \_\_\_\_ HNO3 + \_\_\_\_ NaHCO3 🡪 \_\_\_\_ NaNO3 + \_\_\_\_ H2O + \_\_\_\_ CO2

19) \_\_\_\_ H2O + \_\_\_\_ O2 🡪 \_\_\_\_ H2O2

20) \_\_\_\_ NaBr + \_\_\_\_ CaF2 🡪 \_\_\_\_ NaF + \_\_\_\_ CaBr2

21) \_\_\_\_ H2SO4 + \_\_\_\_ NaNO2 🡪 \_\_\_\_ HNO2 + \_\_\_\_ Na2SO­4