Chemistry I Name _____

Chemical Reactions Test Warm-Up

I. Classifying Reaction Types: List the five types of reactions and their general form:

i. Type: _____ General Form: _____

ii. Type: _____ General Form: _____

iii. Type: _____ General Form: _____

iv. Type: _____ General Form: _____

v. Type: _____ (focusing on hydrocarbons)

Reactants consist of compounds made of _____, _____, and sometimes _____ and the gas _____. Products are always _____ and _____

II. Give the formula (including the charge) for each of the following:

_____1. ammonium

_____2. peroxide

_____3. chlorate

_____4. acetate

_____5. oxide

_____6. hydroxide

_____7. cyanide

_____8. chloride

_____9. sulfate

_____10. persulfate

_____ 11. phosphate

_____12. carbonate

_____13. perchlorate

_____14. dichromate

_____15. nitrate

_____16. manganite

_____17. chromate

_____18. permanganate

_____19. sulfide

_____20. hypochlorite

_____21. nitrite

List the seven diatomic molecules and show which state they are in at room temperature (s, l, or g)

22. _____ 23. _____24. _____25. _____ 26. _____ 27. _____ 28. _____

III. Write the formulas for the following compounds. Make sure you balance the charges.

_____ sodium chloride

_____ ammonium carbonate

_____ lithium nitride

_____ lead (IV) sulfide

_____ calcium permanganate

_____ aluminum chlorate

_____ ammonium nitride

_____ lithium dichromate

_____ copper (I) nitrate

_____ zinc (II) acetate

_____ silver (I) nitrite

_____ aluminum oxide

_____strontium phosphate

_____ potassium sulfate

_____ magnesium manganate

_____ silver (I) cyanide

IV. Balancing Equations. Remember the goal it to get the same number of each kind of atom on each side of the arrow. The rule is you can only put numbers in front of the compounds.

Ex: To balance ___N_2 + ___H_2 ----> ___NH_3 , you would put a 2 in front of the NH_3 and a 3 in front of the H_2.

Reaction Type:

1. ___ H_2O----> ___ H_2 + ___ O_2 _____
2. ___ NaCl + ___ F_2 ----> ___ NaF + ___ Cl_2 _____
3. ___ H_2 + ___ O_2 ----> ___ H_2O _____
4. ___ $KClO_3$ ----> ___ KCl + ___ O_2 _____
5. ___ $AgNO_3$ + ___ $MgCl_2$ ----> ___ AgCl + ___ $Mg(NO_3)_2$ _____
6. ___ $AlBr_3$ + ___ K_2SO_4 ----> ___ KBr + ___ $Al_2(SO_4)_3$ _____
7. ___ C_3H_8 + ___ O_2 ----> ___ CO_2 + ___ H_2O _____
8. ___ $FeCl_3$ + ___ NaOH ----> ___ $Fe(OH)_3$ + ___ NaCl _____
9. ___ P + ___ O_2 ----> ___ P_2O_5 _____
10. ___ K + ___ $MgBr_2$ ----> ___ KBr + ___ Mg _____
11. ___ CH_4 + ___ O_2 ----> ___ CO_2 + ___ H_2O _____
12. ___ S_8 + ___ O_2 ----> ___ SO_3 _____
13. ___ Na + ___ H_2O ----> ___ NaOH + ___ H_2 _____
14. ___ Ag_2O ----> ___ Ag + ___ O_2 _____
15. ___ $Ca(OH)_2$ + ____H_2SO_4 -----> ___ $CaSO_4$ + ___ H_2O _____

V. The Labs:

1. Write the two synthesis reactions that happened when you heated the magnesium.

_____

_____

2. How did you prove nitrogen gas had reacted with the magnesium?

_____

3. Write the balanced equation for the zinc and sulfur demo.

_____

4. Write the equation for what happened to the sugar.

_____

5. Write the balanced equation for what happens when you put zinc in copper (II) sulfate. (s,l,aq,g)

_____

6. Write the balanced equation for what happens when you put copper in silver nitrate. (s,l,aq,g)

_____

7. Write the balanced equation for the double displacement reaction you did with lead. Include the states of all four compounds. (s, l, aq, g)

_____

VI. Single Displacement Product Predictions: For each of the following write the balanced chemical equation that will result from these combinations.

1. Zinc + silver (I) nitrate [Zinc ion is always +2, by the way.]

_____

2. Fluorine gas + strontium chloride

_____

3. Aluminum + lead (II) acetate

_____

4. Silver + calcium nitride [silver ion will be +1. It always is.]

_____

5. Magnesium + tin (II) chloride

_____

VII. Double Displacement Product Predictions: For each of the following write the balanced chemical equation that will result from these combinations. (Don't forget to balance the equations!)

1. Barium acetate + tin (IV) sulfate

_____

2. Lithium chloride + sodium nitrate

_____

3. Ammonium hydroxide + aluminum bromide

_____

4. Magnesium sulfate + potassium carbonate

_____

5. Aluminum chloride + strontium oxide

_____

VII. Complete and balance a few combustion reactions:

1. _____C_6H_6 + ____O_2 ----> ____ _____ + _____ _____

2. _____$C_2H_8O_2$ + ____O_2 ----> ____ _____ + _____ _____

3. _____$C_5H_{11}OH$ + ____O_2 ----> ____ _____ + _____ _____

VII. FInally, count to 4 in chemical terms:

1 carbon = _____ 2 carbons = _____

3 carbons = _____ 4 carbons = _____

That's it - study well, and good luck!