FRQ #4 Practice! Name Key

Directions: Choose from the list below in order to classify each reaction. Place the correct letter on the blanks at left. Write a balanced net ionic equation for each. Place final your equation in the box. Finally, answer the question that follows.

A- Redox
B- Neutralization
C- Synthesis
D- Precipitation
E- Combustion
F- Complex Ion Formation
G- Gas Forming Reaction
H- Decomposition

A 1. A solution of copper(II) sulfate is spilled onto a sheet of freshly polished aluminum metal.

$$3Cu^{2+} + 2Al \rightarrow 2Al^{3+} + 3Cu$$

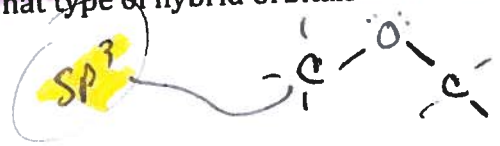
How many electrons are transferred during this process?

6 mole of e⁻

E 2. Dimethyl ether is burned in air.

$$C_2H_6O + 2O_2 \rightarrow 2CO_2 + 3H_2O$$

What type of hybrid orbitals are used by the carbon atom atoms in the reactant?
What type of hybrid orbitals are used by the carbon atom atoms in the product?



O=C=O
SP

B 3. A 0.10 M nitrous acid solution is added to the same volume of a 0.10 M solution of sodium hydroxide.

$$HNO_2(aq) + OH^- \rightarrow NO_2^- + H_2O$$

Is the pH of the resulting solution less than 7, greater than 7, or equal to 7? Explain.

greater than 7 since you are adding a WA & SB w/ = [ ]

H 4. Hydrogen iodide gas is bubbled through a solution of lithium carbonate.

$$2\,HI + CO_3^{2-} \rightarrow 2\,I^- + CO_2 + H_2O$$

What is the flame test color of the product? the Li^+ are red in a flame!

F 5. Excess concentrated aqueous ammonia is added to a solution of nickel(II) bromide.

$$4\,NH_3(aq) + Ni^{2+} \rightarrow Ni(NH_3)_4^{2+}(aq)$$

omit!!

~~What is the shape and the name of the product formed?~~ omit!

What is the color of the solution!

Green

D 6. Solutions of silver nitrate and sodium chloride are combined.

$$Ag^+ + Cl^- \rightarrow AgCl$$

Describe the color change that occurs as you observe this reaction. Colorless solutions Forming a white

C 7. Solid barium oxide is mixed with water.

$$BaO + H_2O \rightarrow Ba^{2+} + 2OH^-$$

Would the resulting solution conduct an electrical current? Explain. yes ... Forms a Strong Base

C 8. Magnesium ribbon is burned in air.

$$Mg + O_2 \rightarrow MgO$$

What are the signs for ΔH and ΔS for this reaction?

$\Delta H = -$ (Exo) $\Delta S = -$ (More organized)