CH 221 Name: **Chemical Reactions Worksheet** Directions: Balance the following chemical reactions using the given information. In addition, classify each chemical reaction. Answers appear immediately following the problems. 1. Hypochlorous acid decomposes into water and dichlorine monoxide. Reaction classification: 2. Acetic acid is burned. Reaction classification: 3. Solid magnesium fluoride appears upon mixing magnesium chloride and sodium fluoride. Reaction classification: 4. Phosphorus (P₄) and oxygen produce tetraphosphorus decaoxide. Reaction classification: 5. Calcium and hydrochloric acid create a gas. Identify the gas through the balanced equation.

6. Calcium hydroxide is added to perchloric acid..

Reaction classification:

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Answers to the Chemical Reactions Worksheet:

1. Hypochlorous acid decomposes into water and dichlorine monoxide.

$$2 \text{ HClO(aq)} \rightarrow \text{H}_2\text{O(l)} + \text{Cl}_2\text{O(aq)}$$

Classification: Decomposition

2. Acetic acid is burned.

$$HC_2H_3O_2(aq) + 2 O_2(g) \rightarrow 2 CO_2(g) + 2 H_2O(l)$$

Classification: Combustion / Burning

3. Solid magnesium fluoride appears upon mixing magnesium chloride and sodium fluoride.

$$MgCl_2(aq) + 2 NaF(aq) \rightarrow MgF_2(s) + 2 NaCl(aq)$$

Classification: Precipitation

4. Phosphorus (P₄) and oxygen produce tetraphosphorus decaoxide.

$$P_4(s) + 5 O_2(g) \rightarrow P_4O_{10}(s)$$

Classification: Combination

5. Calcium and hydrochloric acid create a gas. Identify the gas through the balanced equation.

$$Ca(s) + 2 HBr(aq) \rightarrow CaBr_2(aq) + H_2(g)$$

Classification: Single Replacement

6. Calcium hydroxide is added to perchloric acid..

$$Ca(OH)_2(aq) + 2 HClO_4(aq) \rightarrow Ca(ClO_4)_2(aq) + 2 H_2O(l)$$

Classification: Acid/Base