Chemistry 141 Name key

Dr. Cary Willard

Quiz 2a (20 points) September 4, 2013

1. (5 points) Give the proper name or formula as appropriate below:

|  |  |
| --- | --- |
| IUPAC name | Chemical Formula |
| Sodium acetate | NaC2H3O2 |
| Iron(II) phosphate | Fe3(PO4)2 |
| heptane | C7H16 |
| sodium perchlorate | NaClO4 |
| manganese(II) sulfate | MnSO4 |

1. (5 points) The chloride of an unknown metal is believed to have the formula MCl3. A 2.543 g sample of the compound is found to contain 4.850 x 10-2 mol Cl. Find the atomic mass of M and predict its identity.
2. (7 points) Combustion analysis of a 13.42 g sample of equilin (which contains only carbon, hydrogen, and oxygen) produces 39.61 g CO2 and 9.01 g H2O. The molar mass of equilin is 268.34 g/mol. Find its molecular formula.
3. (3 points) In a popular classroom demonstration, solid sodium is added to liquid water and reacts to produce hydrogen gas and aqueous sodium hydroxide. Write a balanced chemical equation for this reaction.

2 Na(s) + 2 H2O(l) 🡪 H2(g) + 2 NaOH(aq)

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Quiz 2b (20 points) September 4, 2013

1. (5 points) Give the proper name or formula as appropriate below:

|  |  |
| --- | --- |
| IUPAC name | Chemical Formula |
| Ammonium sulfide | (NH4)2S |
| Chromium(III) carbonate | Cr2(CO3)3 |
| nonane | C9H20 |
| sodium hypobromite | NaBrO |
| nickel(III) borate | NiBO3 |

1. (5 points) The chloride of an unknown metal is believed to have the formula MCl3. A 2.543 g sample of the compound is found to contain 3.771 x 10-2 mol Cl. Find the atomic mass of M and predict its identity.
2. (7 points) Combustion analysis of a 13.42 g sample of equilin (which contains only carbon, hydrogen, and oxygen) produces 39.61 g CO2 and 9.01 g H2O. The molar mass of equilin is 268.34 g/mol. Find its molecular formula.
3. (3 points) Sulfuric acid is a component of acid rain formed when gaseous sulfur dioxide pollutant reacts with gaseous oxygen and liquid water to form aqueous sulfuric acid. Write a balanced chemical equation for this reaction.

2 SO2(g) + O2(g) + 2 H2O(l) 🡪 2 H2SO4 (aq)