Chemistry 115 Name key

Dr. Cary Willard

Quiz 5a (20 points) October 10, 2012

All work must be shown to receive credit. Give answers to the correct number of significant figures. Avogadro’s number = 6.022 x 1023/mol

1. (6 points) Complete the following table with the correct name or formula for each compound.

|  |  |
| --- | --- |
| IUPAC name | Chemical formula |
| calcium carbonate | CaCO3 |
| lead(IV) iodide | PbI4 |
| nitrogen trichloride | NCl3 |
| silver nitrite | AgNO2 |
| aluminum perchlorate | Al(ClO4)3 |
| cupric oxide | CuO |

1. (3 points) How many atoms of oxygen are in 6.17 grams of oxalic acid (H2C2O4)?

$$?atoms O=6.17 g H\_{2}C\_{2}O\_{4}×\frac{1 mol H\_{2}C\_{2}O\_{4}}{90.04 g H\_{2}C\_{2}O\_{4} }×\frac{4 mol O}{1 mol H\_{2}C\_{2}O\_{4}}×\frac{6.022×10^{23}atoms O}{1 mol O}=$$

1. (3 points) If a sample of oxalic acid (H2C2O4) contains 51.8 grams of carbon, how many grams of hydrogen does it contain?

$$?g H=51.8 g C×\frac{1 mol C}{12.01 g C}×\frac{2 mol H}{2 mol C}×\frac{1.008 g H}{1 mol H}=4.35 g H$$

1. (4 points) Balance the following chemical reactions and identify the type of reaction in each case.
	1. BaSO4 + Al(NO3)3 🡪 Ba(NO3)2 + Al2(SO4)3
	2. C4H10 + O2 🡪 CO2 + H2O

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All work must be shown to receive credit. Give answers to the correct number of significant figures. Avogadro’s number = 6.022 x 1023/mol

1. (6 points) Complete the following table with the correct name or formula for each compound.

|  |  |
| --- | --- |
| IUPAC name | Chemical formula |
| magnesium sulfite | MgSO3 |
| nickel(III) bromide | NiBr3 |
| carbon tetraiodide | CI4 |
| zinc nitrate | Zn(NO3)2 |
| calcium hypochlorite | Ca(ClO)2 |
| ferrous sulfide | FeS |

1. (3 points) How many atoms of oxygen are in 4.25 grams of oxalic acid (H2C2O4)?

$$?atoms O=4.25 g H\_{2}C\_{2}O\_{4}×\frac{1 mol H\_{2}C\_{2}O\_{4}}{90.04 g H\_{2}C\_{2}O\_{4} }×\frac{4 mol O}{1 mol H\_{2}C\_{2}O\_{4}}×\frac{6.022×10^{23}atoms O}{1 mol O}=$$

1. (3 points) If a sample of oxalic acid (H2C2O4) contains 37.1 grams of carbon, how many grams of hydrogen does it contain?

$$?g H=37.1 g C×\frac{1 mol C}{12.01 g C}×\frac{2 mol H}{2 mol C}×\frac{1.008 g H}{1 mol H}=3.11 g H$$

1. (4 points) Balance the following chemical reactions.
	1. MnC2O4 + Fe(BrO3)3 🡪 Mn(BrO3)2 + Fe2(C2O4)3
	2. C6H14 + O2 🡪 CO2 + H2O

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Quiz 5c (20 points) October 10, 2012

All work must be shown to receive credit. Give answers to the correct number of significant figures. Avogadro’s number = 6.022 x 1023/mol

1. (6 points) Complete the following table with the correct name or formula for each compound.

|  |  |
| --- | --- |
| IUPAC name | Chemical formula |
| Magnesium carbonate | MgCO3 |
| cobalt(III) iodide | CoI3 |
| nitrogen trifluoride | NF3 |
| cadmium nitrite | Cd(NO2)2 |
| calcium perbromate | Ca(BrO4)2 |
| cuprous oxide | Cu2O |

1. (3 points) How many atoms of hydrogen are in 4.25 grams of oxalic acid (H2C2O4)?

$$?atoms H=4.25 g H\_{2}C\_{2}O\_{4}×\frac{1 mol H\_{2}C\_{2}O\_{4}}{90.04 g H\_{2}C\_{2}O\_{4} }×\frac{2 mol H}{1 mol H\_{2}C\_{2}O\_{4}}×\frac{6.022×10^{23}atoms H}{1 mol H}=$$

1. (3 points) If a sample of oxalic acid (H2C2O4) contains 67.5 grams of carbon, how many grams of oxygen does it contain?

$$?g H=67.5 g C×\frac{1 mol C}{12.01 g C}×\frac{4 mol O}{2 mol C}×\frac{16.00 g O}{1 mol O}=180. g O$$

1. (4 points) Balance the following chemical reactions and identify the type of reaction in each case.
	1. BaSO4 + Al(NO3)3 🡪 Ba(NO3)2 + Al2(SO4)3
	2. C4H10 + O2 🡪 CO2 + H2O

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Quiz 5d (20 points) October 10, 2012

All work must be shown to receive credit. Give answers to the correct number of significant figures. Avogadro’s number = 6.022 x 1023/mol

1. (6 points) Complete the following table with the correct name or formula for each compound.

|  |  |
| --- | --- |
| IUPAC name | Chemical formula |
| Calcium sulfite | CaSO3 |
| titanium(II) fluoride | TiF2 |
| carbon tetrachloride | CCl4 |
| zinc nitrate | Zn(NO3)2 |
| barium hypochlorite | Ca(ClO)2 |
| ferric sulfide | Fe2S3 |

1. (3 points) How many atoms of hydrogen are in 6.17 grams of oxalic acid (H2C2O4)?

$$?atoms H=6.17 g H\_{2}C\_{2}O\_{4}×\frac{1 mol H\_{2}C\_{2}O\_{4}}{90.04 g H\_{2}C\_{2}O\_{4} }×\frac{2 mol H}{1 mol H\_{2}C\_{2}O\_{4}}×\frac{6.022×10^{23}atoms H}{1 mol H}=$$

1. (3 points) If a sample of oxalic acid (H2C2O4) contains 52.4 grams of carbon, how many grams of oxygen does it contain?

$$?g H=52.4 g C×\frac{1 mol C}{12.01 g C}×\frac{4 mol O}{2 mol C}×\frac{16.00 g O}{1 mol O}=140. g H$$

1. (4 points) Balance the following chemical reactions and identify the type of reaction in each case.
2. MnC2O4 + Fe(BrO3)3 🡪 Mn(BrO3)2 + Fe2(C2O4)3
3. C6H14 + O2 🡪 CO2 + H2O