Chemistry 115 Name key

Dr. Cary Willard

Quiz 5a (20 points) October 5, 2010

All work must be shown to receive credit. NA = 6.022 x 1023/mol

1. (6 points) Give the proper name for each of the following compounds
	1. K2SO4 potassium sulfate
	2. V3N2 vanadium(II) nitride
	3. SF6 sulfur hexafluoride
	4. Mg(ClO)2 magnesium hypochlorite
2. (6 points) Write the correct formula for each of the following compounds
	1. Lithium phosphate Li3PO4
	2. Carbon tetraiodide CI4
	3. Ferrous oxide FeO
	4. Aluminum nitrite Al(NO2)3
3. (2 points) Calculate the molar mass of ethyl alcohol or ethanol (C2H6O).

$$Molar mass=2\left(C\right)+ 6\left(H\right)+O=2\left(12.01\right)+6\left(1.008\right)+ 16.00=24.02+6.05+16.00=46.07 g/mol$$

1. (2 points) Calculate the number of moles of ethanol in a 3.65 g sample of ethanol.

$$?mol C\_{2}H\_{6}O=3.65 g C\_{2}H\_{6}O×\frac{1 mol C\_{2}H\_{6}O}{46.07 g C\_{2}H\_{6}O}=0.0792 mol C\_{2}H\_{6}O$$

1. (2 points) Calculate the number of molecules of ethanol in a 8.25 mol sample of ethanol.

$$?molecules C\_{2}H\_{6}O=8.25 mol C\_{2}H\_{6}O×\frac{6.022×10^{23}molec C\_{2}H\_{6}O}{1 mol C\_{2}H\_{6}O}=4.97×10^{24}molec C\_{2}H\_{6}O$$

1. (2 points)Calculate the number of moles of carbon in a 4.22 mol sample of ethanol.

$$?mol C=4.22 mol C\_{2}H\_{6}O×\frac{2 mol C}{1 mol C\_{2}H\_{6}O}=8.44 mol C$$

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Quiz 5b (20 points) October 5, 2010

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1. (6 points) Give the proper name for each of the following compounds
	1. Na2CO3 sodium carbonate
	2. Ti2O3 titanium(III) oxide
	3. PCl5 phosphorus pentachloride
	4. Ca(BrO4)2 calcium perbromate
2. (6 points) Write the correct formula for each of the following compounds
	1. Silver sulfate Ag2SO4
	2. Boron triiodide BI3
	3. Ferric phosphide FeP
	4. Beryllium chlorite Be(ClO2)2
3. (2 points) Calculate the molar mass of ethyl alcohol or ethanol (C2H6O).

$$Molar mass=2\left(C\right)+ 6\left(H\right)+O=2\left(12.01\right)+6\left(1.008\right)+ 16.00=24.02+6.05+16.00=46.07 g/mol$$

1. (2 points) Calculate the number of moles of ethanol in a 4.92 g sample of ethanol.

$$?mol C\_{2}H\_{6}O=4.92 g C\_{2}H\_{6}O×\frac{1 mol C\_{2}H\_{6}O}{46.07 g C\_{2}H\_{6}O}=0.107 mol C\_{2}H\_{6}O$$

1. (2 points) Calculate the number of molecules of ethanol in a 7.17 mol sample of ethanol.

$$?molecules C\_{2}H\_{6}O=8.25 mol C\_{2}H\_{6}O×\frac{6.022×10^{23}molec C\_{2}H\_{6}O}{1 mol C\_{2}H\_{6}O}=4.32×10^{24}molec C\_{2}H\_{6}O$$

(2 points)Calculate the number of moles of carbon in a 6.40 mol sample of ethanol.

$$?mol C=6.40 mol C\_{2}H\_{6}O×\frac{2 mol C}{1 mol C\_{2}H\_{6}O}=12.8 mol C$$

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Quiz 5c (20 points) October 7, 2010

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1. (6 points) Give the proper name for each of the following compounds
	1. BaSO4 barium sulfate
	2. Cr3N2 chromium(II) nitride
	3. BCl3 boron trichloride
	4. Zn(IO4)2 zinc periodate
2. (6 points) Write the correct formula for each of the following compounds
	1. Magnesium nitrite Mg(NO2)2
	2. Sulfur hexaiodide SI6
	3. Silver oxide Ag2O
	4. Cuprous phosphate Cu3PO4
3. (2 points) Calculate the molar mass of ethane thiol (C2H6S).

$$Molar mass=2\left(C\right)+ 6\left(H\right)+S=2\left(12.01\right)+6\left(1.008\right)+ 32.07=24.02+6.05+16.00=62.14 g/mol$$

1. (2 points) Calculate the mass of a 3.75 mol sample of ethane thiol.

$$?g C\_{2}H\_{6}S=3.75 mol C\_{2}H\_{6}S×\frac{62.14 g C\_{2}H\_{6}S}{1 mol C\_{2}H\_{6}S}=233 g C\_{2}H\_{6}S$$

1. (2 points) A sample of ethane thiol contains 3.82 x 1021 molecules, how many moles of ethane thiol are in the sample?

$$?mole C\_{2}H\_{6}S=3.82×10^{21}molec C\_{2}H\_{6}S ×\frac{1 mol C\_{2}H\_{6}S}{6.022×10^{23}molec C\_{2}H\_{6}S}=0.00634 mol C\_{2}H\_{6}S=6.34×10^{-3}mol C\_{2}H\_{6}S$$

1. (2 points)Calculate the number of moles of hydrogen in a 6.40 mol sample of ethane thiol.

$?mol H=6.40 mol C\_{2}H\_{6}S×\frac{6 mol H}{1 mol C\_{2}H\_{6}S}=38.4 mol H$

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Quiz 5c (20 points) October 7, 2010

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1. (6 points) Give the proper name for each of the following compounds
	1. AlBO3 aluminum borate
	2. Hg3N2 mercury(II) nitride
	3. SCl6 sulfur hexachloride
	4. Ca(IO)2 calcium hypoiodite
2. (6 points) Write the correct formula for each of the following compounds
	1. Barium sulfite BaSO3
	2. Carbon tetrafluoride CF4
	3. Silver phosphide Ag3P
	4. Cupric nitrate Cu(NO3)2
3. (2 points) Calculate the molar mass of ethane thiol (C2H6S).

$$Molar mass=2\left(C\right)+ 6\left(H\right)+S=2\left(12.01\right)+6\left(1.008\right)+ 32.07=24.02+6.05+16.00=62.14 g/mol$$

1. (2 points) Calculate the mass of a 7.55mol sample of ethane thiol.

$$?g C\_{2}H\_{6}S=7.55 mol C\_{2}H\_{6}S×\frac{62.14 g C\_{2}H\_{6}S}{1 mol C\_{2}H\_{6}S}=469 g C\_{2}H\_{6}S$$

1. (2 points) A sample of ethane thiol contains 4.88 x 1021 molecules, how many moles of ethane thiol are in the sample?

$$?mole C\_{2}H\_{6}S=4.88×10^{21}molec C\_{2}H\_{6}S ×\frac{1 mol C\_{2}H\_{6}S}{6.022×10^{23}molec C\_{2}H\_{6}S}=0.00810 mol C\_{2}H\_{6}S=8.10×10^{-3}mol C\_{2}H\_{6}S$$

1. (2 points)Calculate the number of moles of hydrogen in a 2.17 mol sample of ethane thiol.

$$?mol H=2.17 mol C\_{2}H\_{6}S×\frac{6 mol H}{1 mol C\_{2}H\_{6}S}=13.0 mol H$$