**Homework #4: Chemistry 1013 Spring 2014**

**22 pts**

**ANSWERS**

**4.1. Draw the best Lewis structure for COCl2 (mustard gas) using the Lewis rules and the 2 rules of thumb. (2 pts)**



**4.2. Draw the best Lewis structure for SiO2 (sand) using the Lewis rules and the 2 rules of thumb.**

**(2 pts)**

**.. ..**

**:O=Si=O:**

**4.3. Draw the best Lewis structure for H2SO3 (sulfurous acid) [ assume the S is in center of molecule surrounded by an O and two O-H (2 pts)**

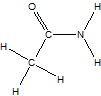




**4.4. Draw a reasonable organic compound that follows the HONC rules for the compound formulas below (more than one may be possible) 2 pts each / 8 pts total**

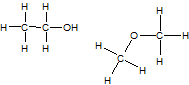
1. **C2H6O b) C2H4 c) C3H6O d) C2H5NO**

Other structures accepted that satisfied HONC rules







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**4.5. Determine the formal charges on each atom in the compounds drawn below:**

**(1 pt per charge/ 8 pts total )**

**-1 +1**

1. **:C≡O: formal charge on C and O ?**

**-1 +1 0**

**.. .. ..**

1. **:O-S=O: formal charge on O1, S and O2 ?**

**..**

**(O1) (O2)**

**0 0 -1**

**.. .. ..**

1. **: O=N-O: formal charge on O1, N and O2 ? (note: this molecule has a net**

**.. charge of -1)**

**(O1) (O2)**