**Homework #4: Chemistry 1013 Spring 2013**

 **Due Wednesday 20 February 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)**

 **.. ..**

**:Cl -C=O:**

 **..**

**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)**

 **.. ..**

**H-O-S=O:**

 **.. |**

**HO:**

 **..**

**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**







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Other structures accepted that satisfied HONC rules

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

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

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

 **.. .. ..**

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

 **.. -1 +1 0**

 **(O1) (O2)**

 **.. .. ..**

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

 **.. 0 0 -1 charge of -1)**

 **(O1) (O2)**