

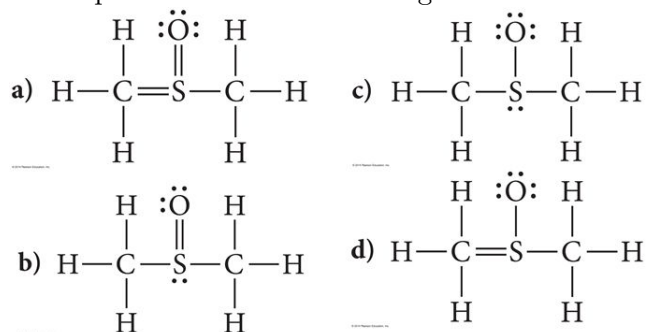
Name: \_\_\_\_\_

Date: \_\_\_\_\_

- [5 pt] 1. Define the term 'Resonance Structure'. Why are they important? Draw the resonance structures and the hybrid structure for  $\text{CO}_3^{-2}$ .

- [5 pt] 2. Define the term 'Formal Charge'. Why are they important? What is the mathematical formula used to determine the formal charge on an atom? What are the 4 rules for using formal charges?

- [4 pt] 3. Which of the following is the best Lewis Structure for  $\text{CH}_3\text{SOCH}_3$ ? Show work to support your answer and explain the best choice using a sentence.



- [3 pt] 4. What are the 3 types of exceptions to the Octet Rule?

## CHE 111 - Homework - Ch 4f

- [43 pt] 5. Draw the Lewis Structure of the indicated molecule. List the number of Valence electrons. Predict the shape(s) and bond angles using VSEPR theory for all relevant atom(s) in the following molecules. Indicate if the molecule is Dipolar or Nonpolar. For ions, show on which atom(s) the formal charges reside.

1. $\text{ClO}_3^-$	2. $\text{HPO}_4^{-2}$
3. $\text{IO}_4^-$	4. $\text{PF}_6^-$
5. $\text{SbF}_5$	6. $\text{XeF}_3^{+1}$
7. $\text{KrCl}_4$	8. $\text{SeCl}_4$