

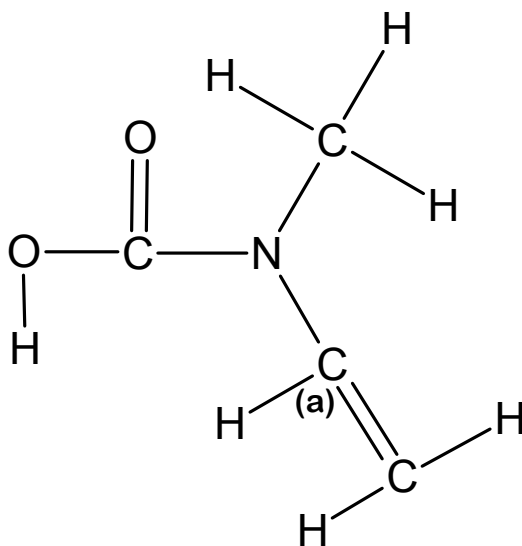
Honors Chemistry

Molecular Geometry Practice 2

hcmolgeo2prac11.doc

Name: _____ Date: _____ Period: _____

1. With regard to the structure below, answer the following questions a-h:



a. Draw in all implied nonbonding electron pairs.

b. What is the electronic geometry with respect to:

the nitrogen atom? _____

the oxygen with single bonds? _____

c. What is the molecular geometry with respect to:

the nitrogen atom? _____

the oxygen with single bonds? _____

d. What are the bond angle(s) around:

the nitrogen atom? _____

the carbon labeled with an "a" in the diagram? _____

e. Which atoms, if any, have a formal charge other than zero? _____

f. What is the hybridization with respect to:

the nitrogen atom? _____

the carbon labeled with an "a"? _____

g. Which atoms, if any, do not obey the octet rule (or the duet rule in the case of hydrogen)?

h. With respect to the whole molecule:

Total sigma bonds: _____ Total pi bonds: _____

2. Draw a reasonable Lewis dot structure for the **nitrite** polyatomic ion in the space below. If resonance exists, draw all resonant structures.

a. What is the bond order with respect to the central nitrogen atom? _____

b. What is the electronic geometry of the molecule? _____

c. What is the molecular geometry of the molecule? _____

3. What are two clues that a molecule might be polar? List any cautions that must be exercised when using these clues.

4. Draw a Lewis structure for each of the following molecules and indicate which ones should be polar. For each polar molecule, indicate the direction of the dipole using the arrow and delta +/- notation.

a. N_2O (The order of this molecule is NNO)

b. CS_2

c. PCl_3

d. XeF_2

5. Under what conditions can an element develop an expanded valence?

