

Chemistry 251
Worksheet 1

Name: _____

A. (2.0 pts.) For each of the following neutral atoms, give the ground state electron configuration by subshell and by orbitals.

1. ${}_{7}\text{N}$

2. ${}_{6}\text{C}$

B. (1.0 pts.) For each of the following, circle the best answer.

1. Circle the element with the greatest electronegativity.

a. C or N

b. Cl or C

2. Circle the atom that would be the negative(-) end of the bond moment.

a. C–O

b. H–N

C. (2.0 pts.) For each of the following molecules, draw the Lewis electron dot structure and indicate whether the molecule would be polar or nonpolar. Indicate the electronic geometry for the underlined atom.

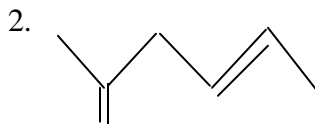
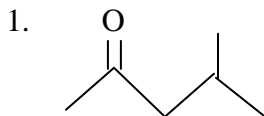
1. C_2H_4

2. H_2O

D. (2.0 pts.) Draw the important resonance contributing structures for the following molecule. Indicate the electron pushing using the curved arrow technique. Select one of the structures and calculate the formal charge on each atom in the structure.

1. SO_3

E. (2.0 pts.) Give the structural formula for each of the following. Indicate the type of hybrid on each C, O, and N atom. Label each bond in the molecule as σ or π and indicate the orbitals used to produce the bond.



F. (1.0 pts.) Calculate the formal charge on the underlined atom in each of the following:

