

## Quiz 1

1. (50 pts.) An empty MO diagram for NO is provided below. When elements with different electronegativities are involved in an MO diagram, the atomic orbitals for the more electronegative element are drawn lower on the page.

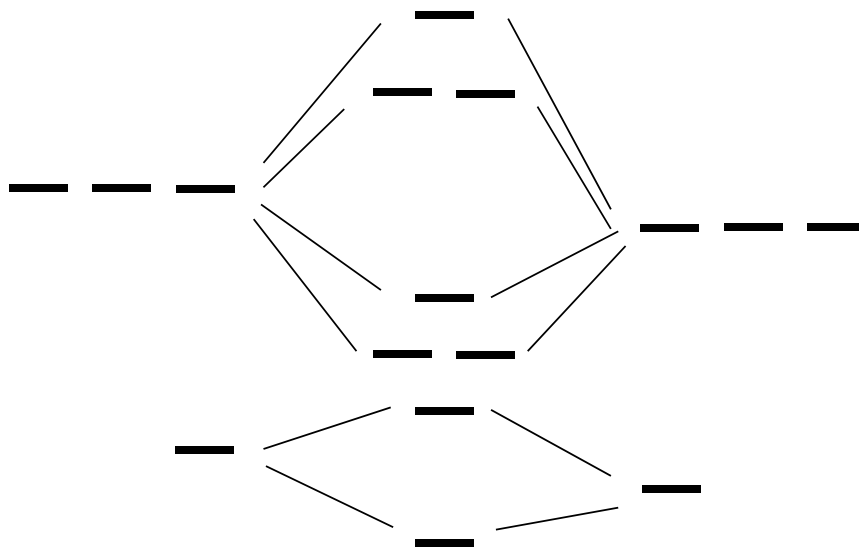
a. (8 pts.) Identify and label the atomic orbitals.

b. (8 pts.) Label the molecular orbitals

c. (8 pts.) Add the appropriate number of electrons to the atomic orbitals

d. (8 pts.) Add the appropriate number of electrons to the molecular orbitals.

e. (8 pts.) Determine the bond order for NO.



f. (10 pts.) If you remove an electron from the highest energy molecular orbital, would the bond order increase or decrease? Explain your response.

2. (25 pts) Draw a Lewis Structure for  $\text{CH}_3\text{C}(\text{O})\text{Cl}$

3. (25 pts.) Draw a Lewis structure for  $\text{CH}_2\text{CHCH}_2\text{OCH}_3$