Pre-Test 1 Name_____
PHYS 0201
(Organic)

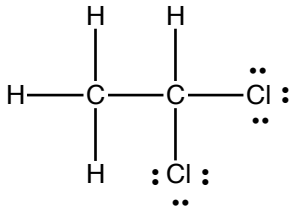
1. Write the ground state electron configuration for N.

$[He]\ 2s^2 2p^3$ or $1s^2\ 2s^2 2p^3$

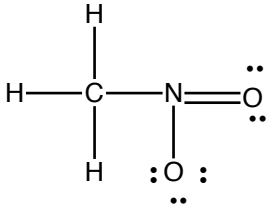
2. Draw an energy level diagram for the valence electrons of O.

3. Draw Lewis structures for the following molecules

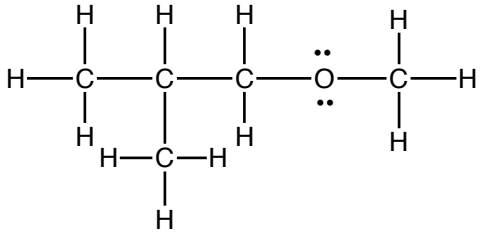
a. CH_3CCl_2H



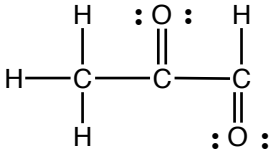
b. CH_3NO_2



c. $(CH_3)_2CHCH_2OCH_3$

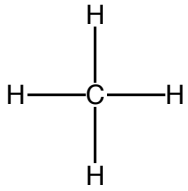


d. $CH_3C(O)C(O)H$

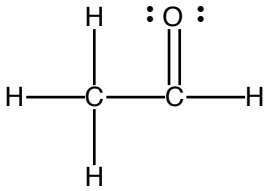


4. Draw three dimensional representations (wedge and dash bond drawings without electron dots) of the following Lewis Structures

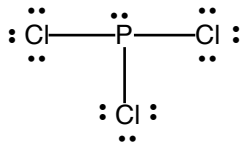
a.

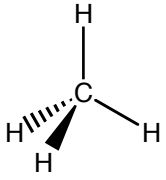


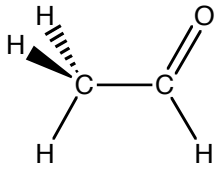
b.

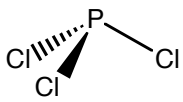


c.



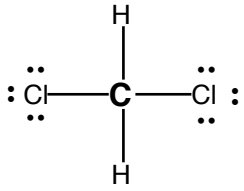






5. Indicate the hybridization of the emboldened atoms in the following Lewis structures

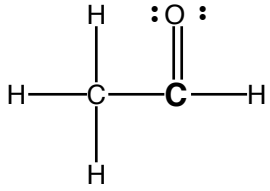
a.



4 σ bonds, so 4 hybrids

sp^3

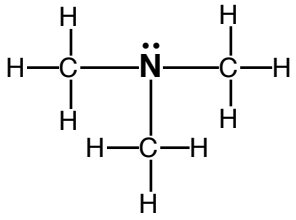
b.



3 σ bonds, so 3 hybrids

sp^2

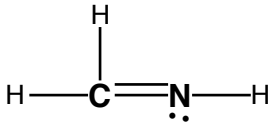
c.



3 σ bonds + 1 lp, so 4 hybrids

sp^3

d.



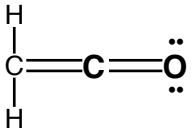
C: 3 σ bonds, so 3 hybrids

sp^2

N: 2 σ bonds + 1 lp, so 3 hybrids

sp^2

e.



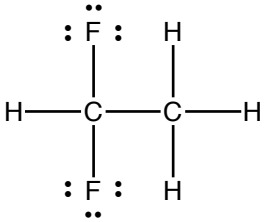
C: 2 σ bonds, so 2 hybrids

sp

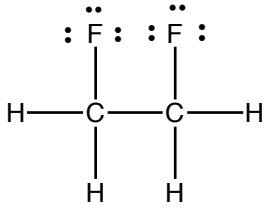
O: 1 σ bonds + 2 lp, so 3 hybrids

sp^2

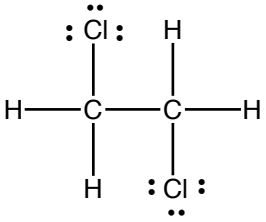
6. Several Lewis structures are drawn below. Circle the polar molecules.



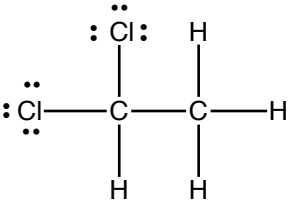
polar



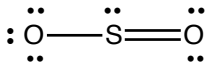
non-polar



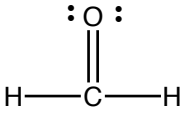
non-polar



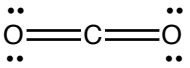
polar



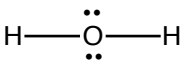
polar



polar



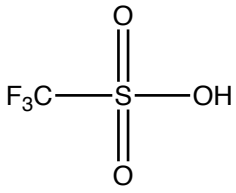
non-polar

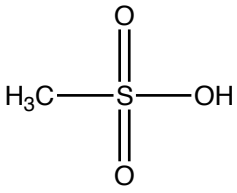


polar

7. For each pair of acids identify the stronger acid

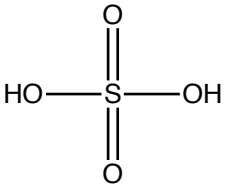
a.

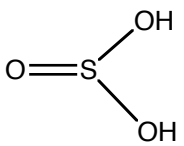




stronger due to the electronegativity of the F atoms

b.





stronger more electronegative O's and more resoance forms

c. H_2O H_2S

S bigger atom. spreads out charge better

d. HI HF

I bigger atom. spreads out charge better