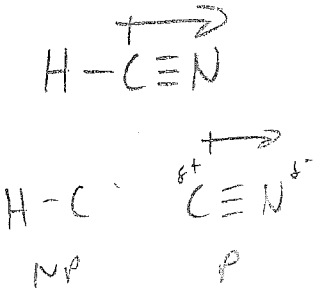
62 points

More Lewis Structures and Polarity

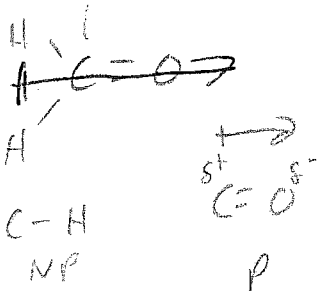
1. (24 pts) Draw Lewis structures that follow the Octet Rule. Show any bond polarity using your electronegativity table and dipole moments. Indicate if the overall molecule is polar. If you want to show-off you can include shape names and bond angles.

4@pts Ea

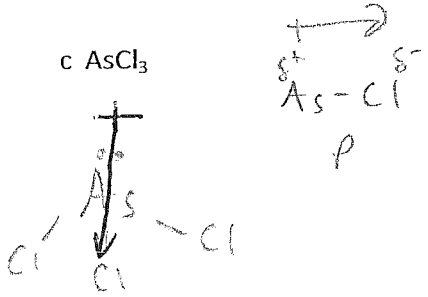
a HCN



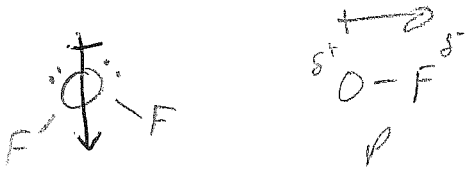
b H_2CO



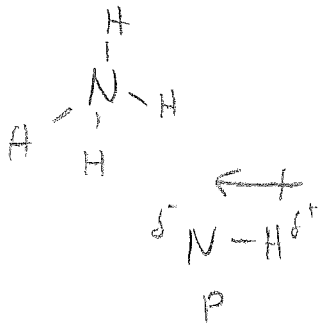
c $AsCl_3$



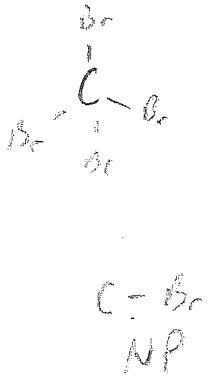
d OF_2



e NH_4^+

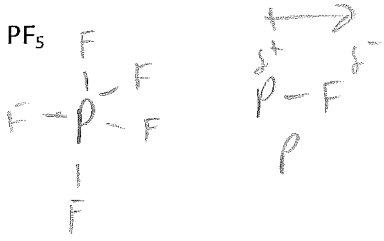


f CBr_4

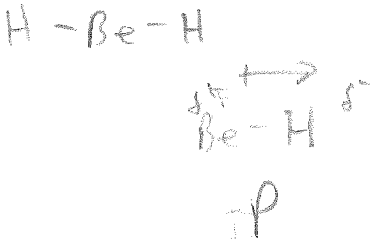


2. (28 pts) Draw Lewis Structures in which the central atom does not follow the octet rule. Show any bond polarity using your electronegativity table and dipole moments. Indicate if the overall molecule is polar. If you want to show-off you can include shape names and bond angles.

PF_5

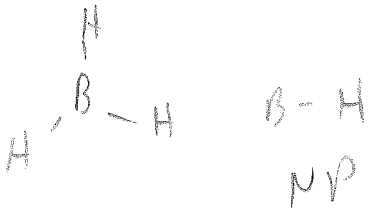


BeH_2

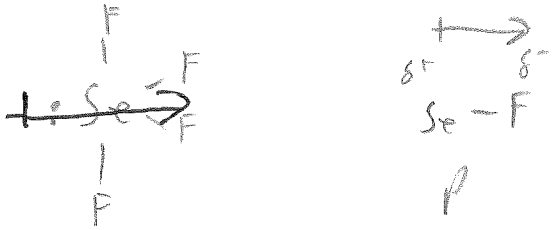


4 pts
Ea

BH_3

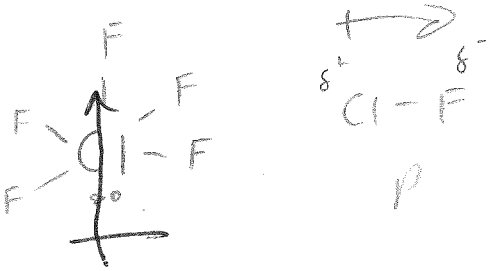


SeF_4



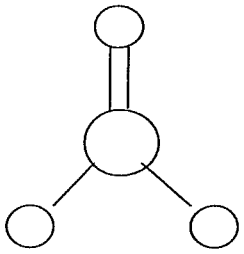
XeF_4

ClF_5

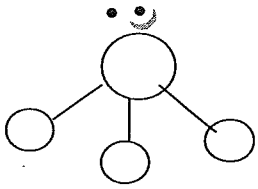


Br_3^{1-}

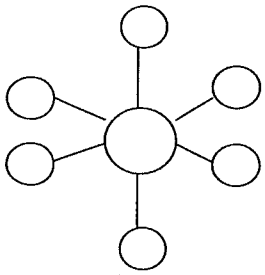
3. (6 pts) Predict the central atoms



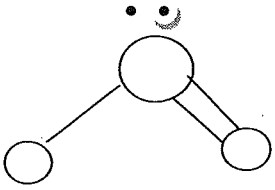
gp 14



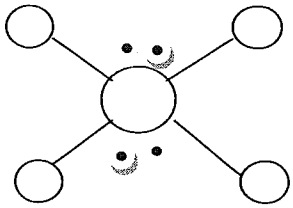
gp 15



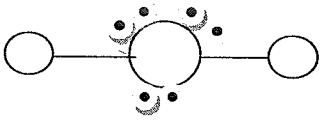
gp 16 S



grp 15

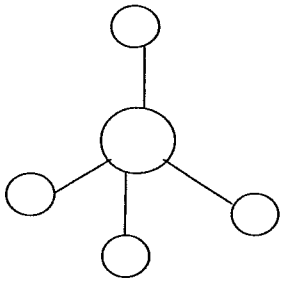


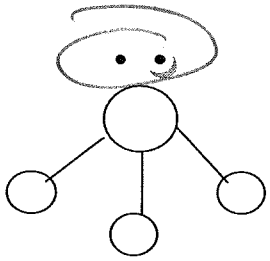
grp 18 Ar

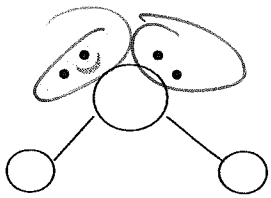


grp 18 Ar

4. (4 pts) Why do the shapes below have different bond angles even though the central atoms all have 8 electrons around them?







unshared pairs push the bonds closer together