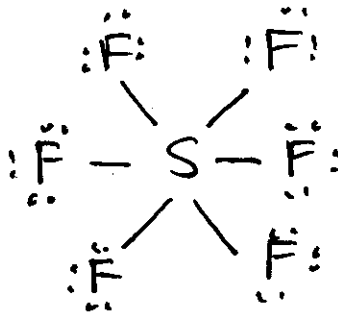
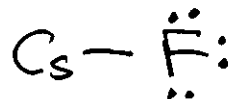
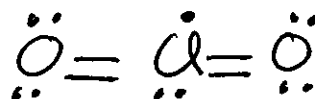
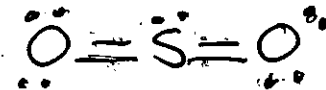
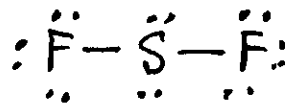
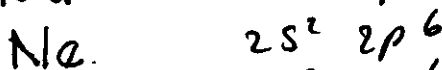
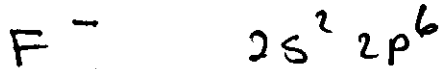


CHAPTER 2

P20



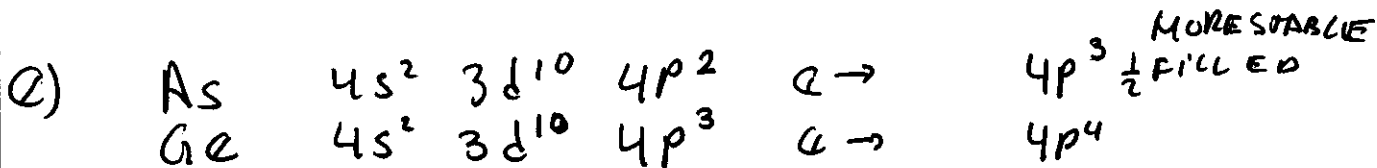
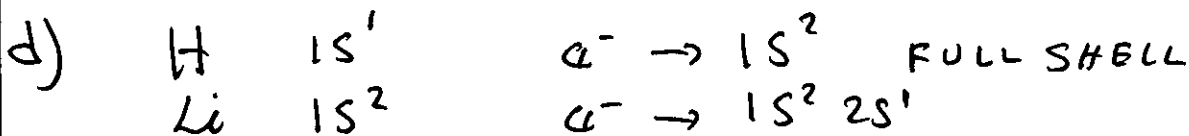
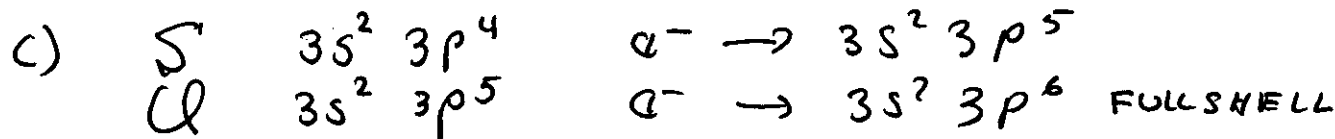
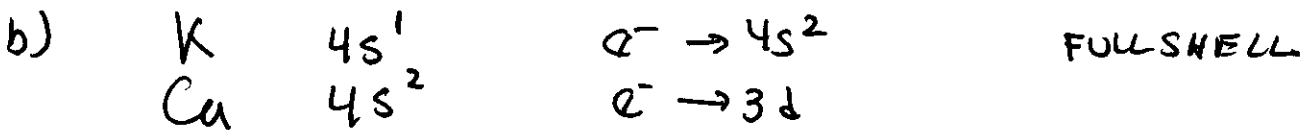
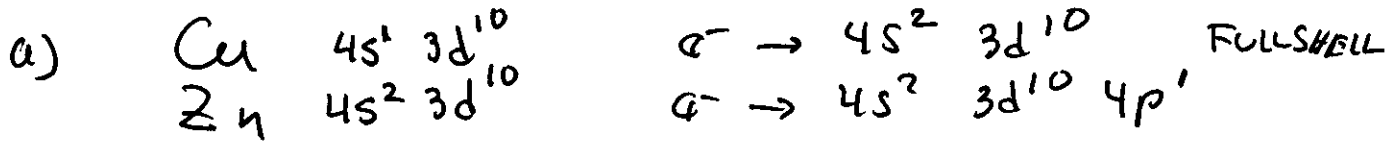
P23



SIZE Na⁺ < Ne < F⁻ < O²⁻ < N³⁻

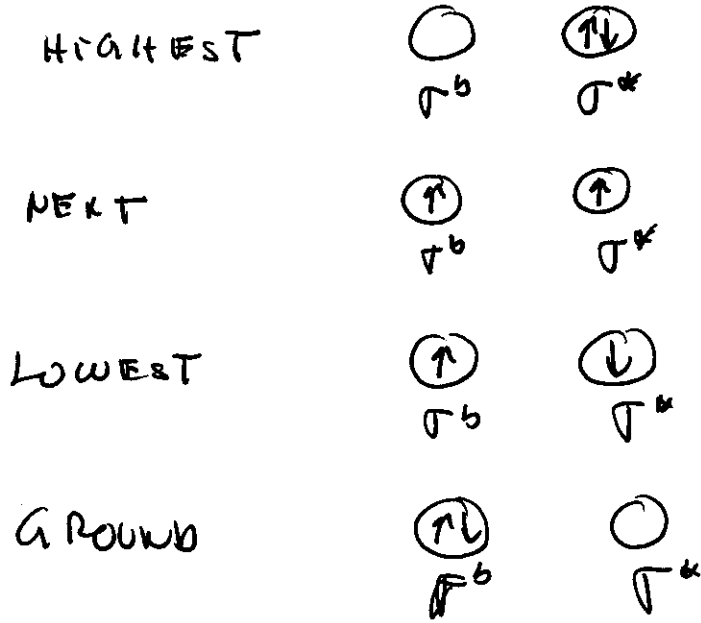
P24

E A



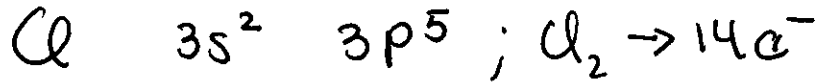
E A
 Cu > Zn
 K > Ca
 Cl > S
 H > Li
 As > Ge

CH3.- P3

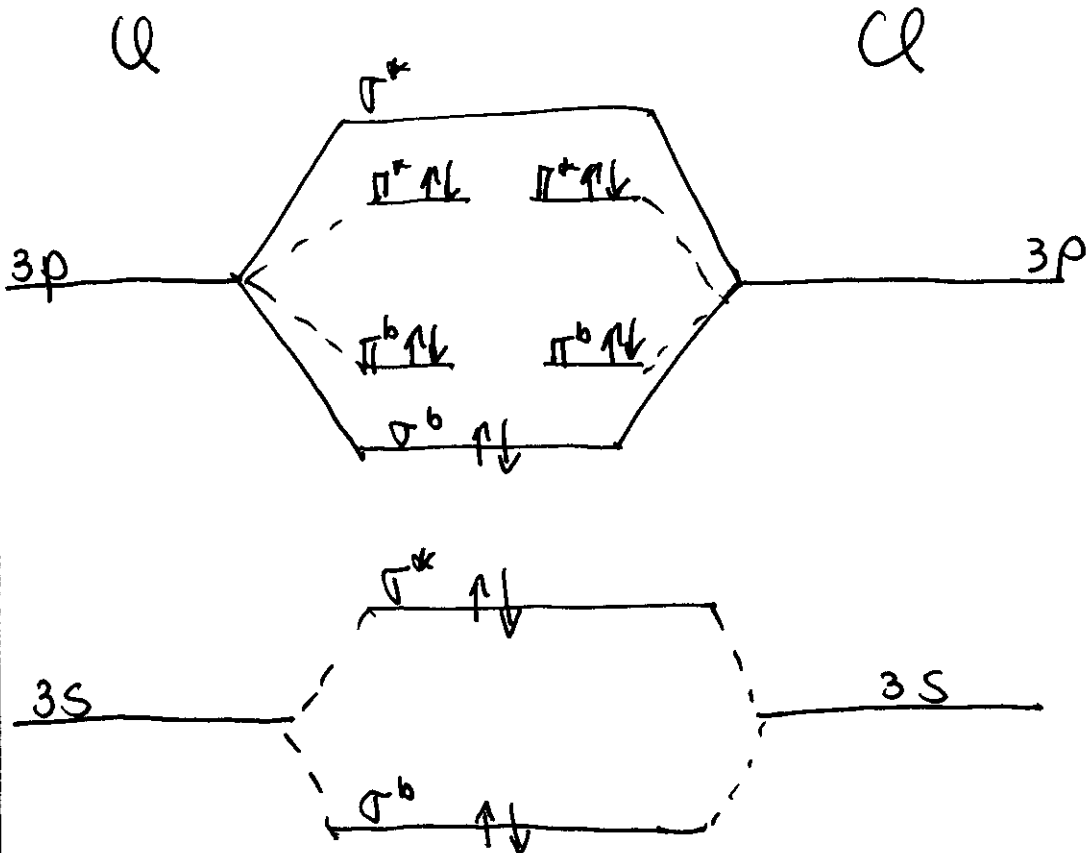


EXTRA ENERGY TO FLIP THE SPIN

P4



Cl_2 IS A HETERO NUCLEAR DIATOMIC MOLECULE
 Cl_2^+ IS AN ION OF Cl_2



$BO = 1$ DIAMAGNETIC

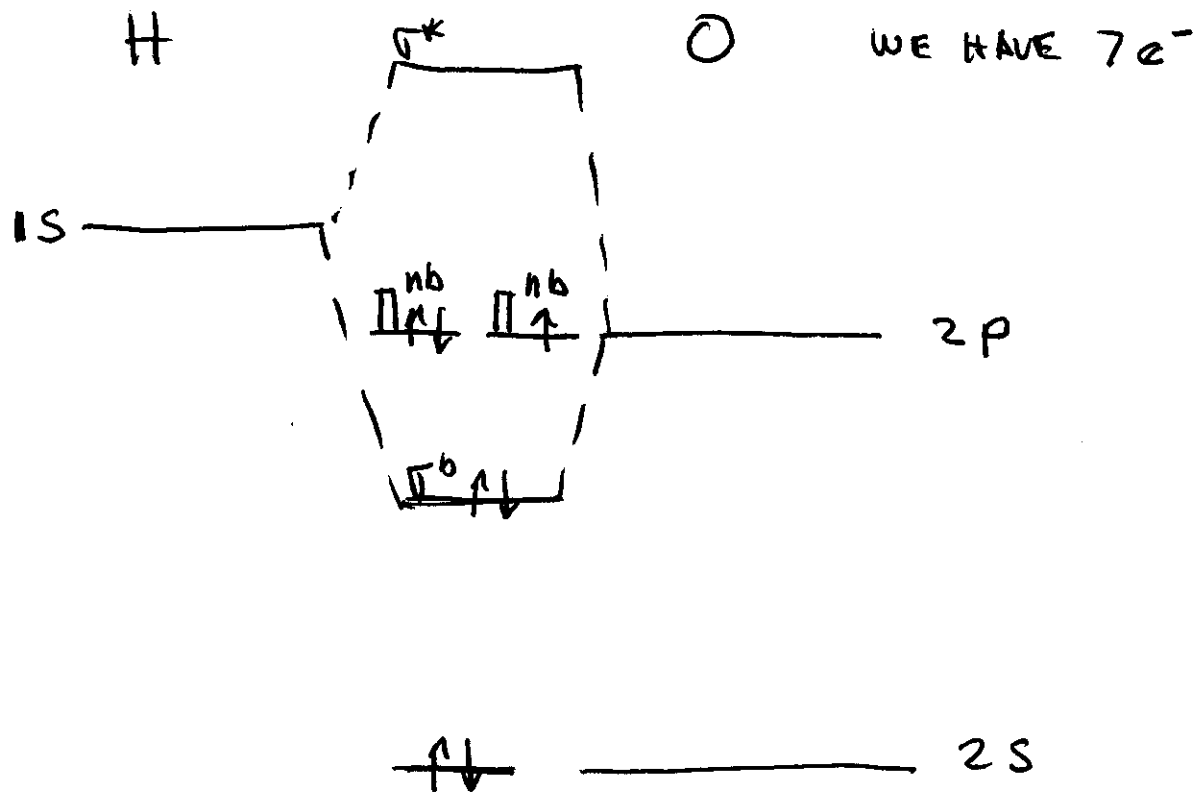
O_2^+ HAS $13 e^- \Rightarrow$ PARAMAGNETIC MOLECULE

$BO = 1\frac{1}{2} \Rightarrow$ HIGHER BOND ENERGY THAN O_2

P7

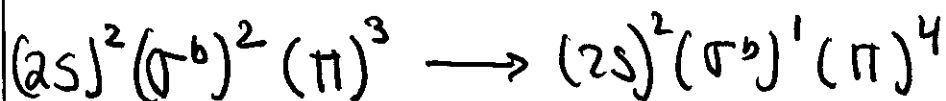
OH RADICAL (SIMILAR TO HF)

H $1s$ 110000 cm^{-1} O $2s$ 261000 cm^{-1} $2p$ 128000 cm^{-1}

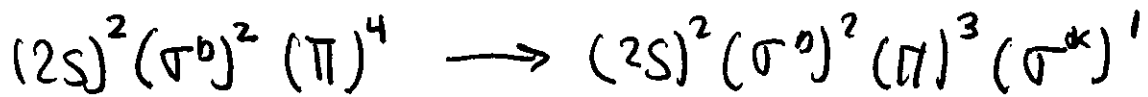


THE UNPAIRED e^- IS ON A NONBONDING MO AND IS LOCALIZED ON THE O

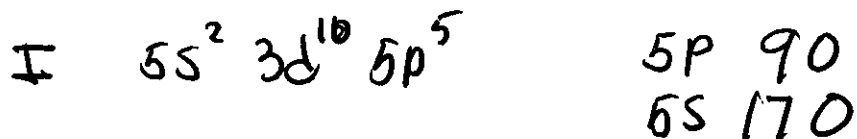
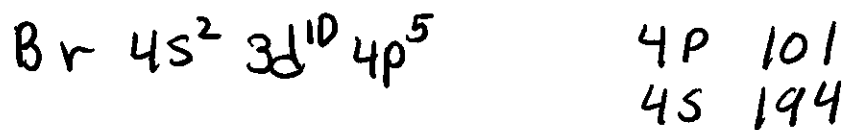
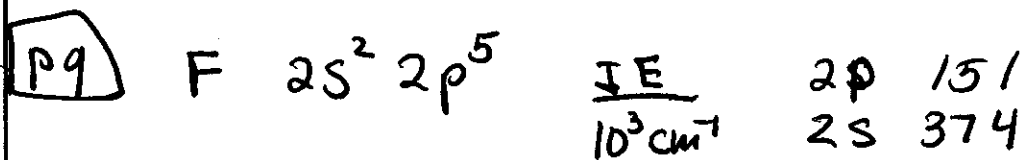
LOWEST ENERGY TRANSITION



THIS ENERGY IS LESS THAN THE ENERGY ASSOCIATED TO THE FOLLOWING TRANSITION:



"DISTANCE" BETWEEN σ^0 AND $\pi^{Hb} < \pi^{Hb} \sigma^*$



FOR ClF $\mu = 0.88 \text{ D}$ $R_{ClF} = 1.6281 \text{ \AA}$

$$\mu_{\text{ionic}} = 7.8 \text{ D}$$

$$\text{PARTIAL IONIC CHARACTER} = \frac{0.88}{7.8} = 0.11$$

$$\text{BrF} \quad \mu = 1.29 \text{ D} \quad R_{\text{BrF}} = 1.7555$$

$$\mu_{\text{ionic}} = 8.40 \text{ D}$$

$$\text{IONIC CHARACTER} = \frac{1.29}{8.40} = 0.154$$

$$\text{BrCl} \quad \mu = 0.57 \text{ D} \quad R_{\text{BrCl}} = 2.138$$

$$\mu_{\text{ionic}} = 10.23 \text{ D}$$

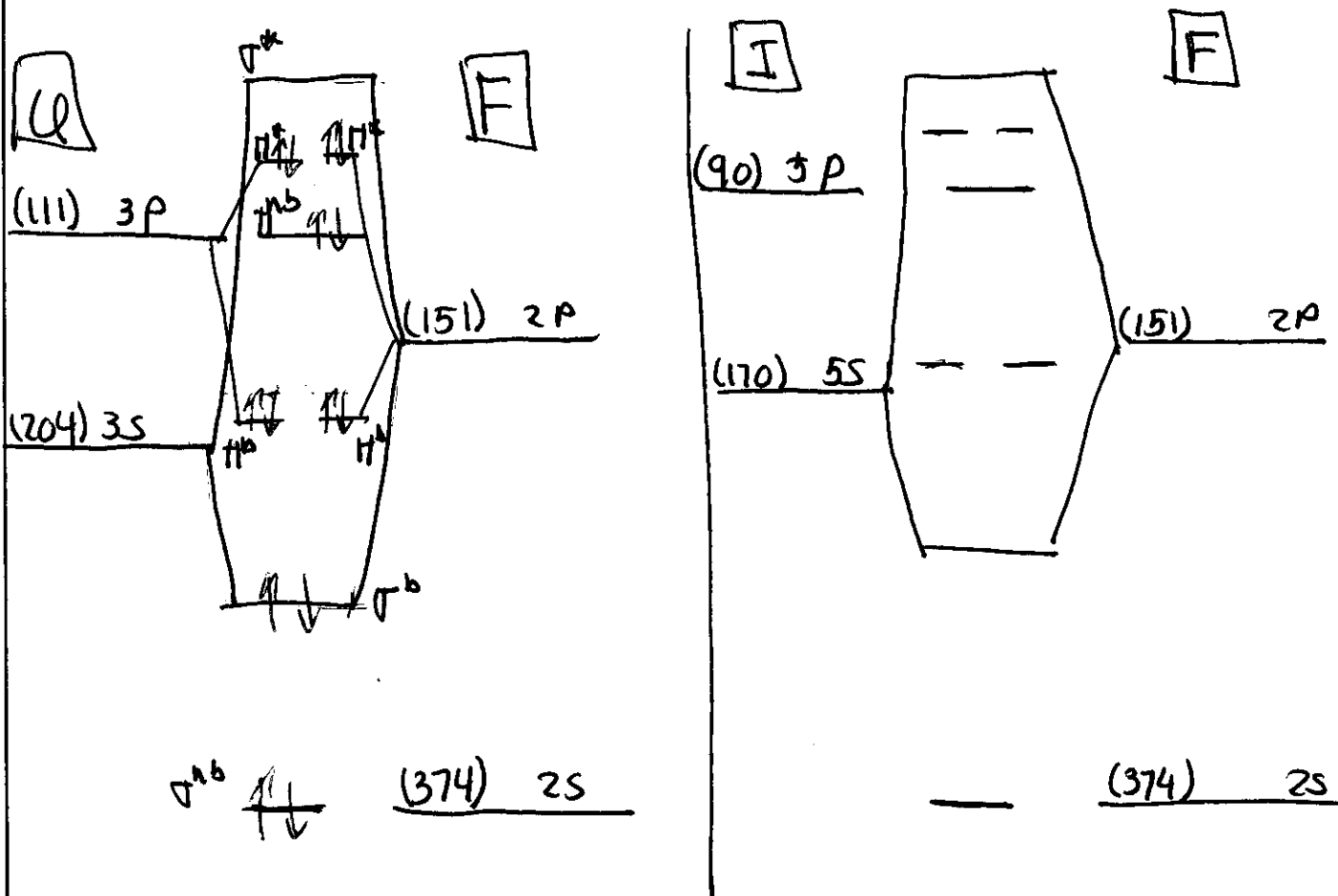
$$\text{I CHARACTER} = \frac{0.57}{10.23} = 0.056$$

$$\text{I Cl} \quad \mu = 0.65 \text{ D} \quad R_{\text{I Cl}} = 2.32070$$

$$\mu_{\text{ionic}} = 11.1 \text{ D}$$

$$\text{I CH} = \frac{0.65 \text{ D}}{11.1 \text{ D}} = 0.059$$

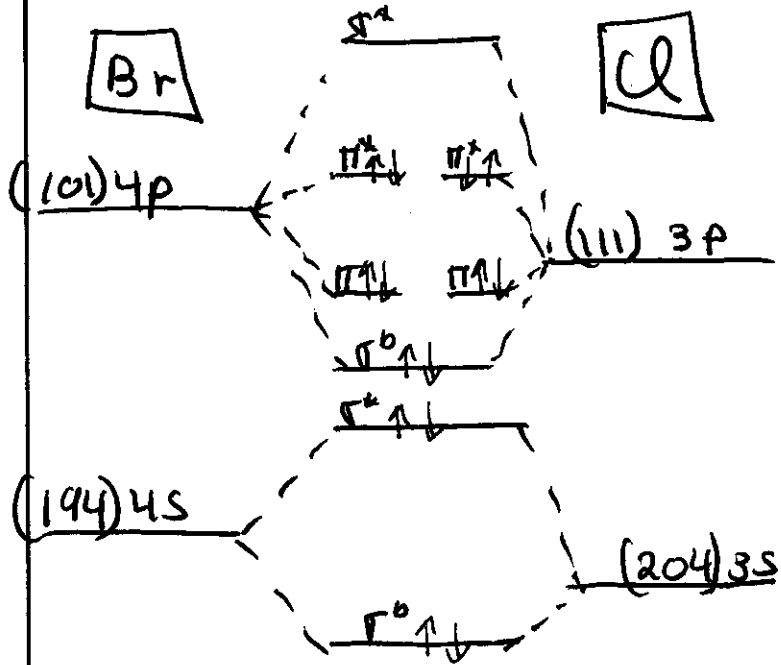
FOR FLUORINE THE 2S ENERGY IS 374.
 IF WE COMPARE WITH THE 3S (Cl) 204 AND
 4S (Br) 194 ENERGIES, WE SHOULD
 CONCLUDE THAT THE 3S OR 4S CANNOT
 MIX WITH THE 2S.



IN THIS CASE ONLY σ PARTICIPATE ON BONDING
 AND TWO "SIT" ON THE ATOM. STILL WE
 FIND NO OVENEN ACCUMULATION OF CHARGE

GIVEN THE NS AND NP ENERGIES, MIXING
S' ORBITAL AND P'S WORKS BETTER

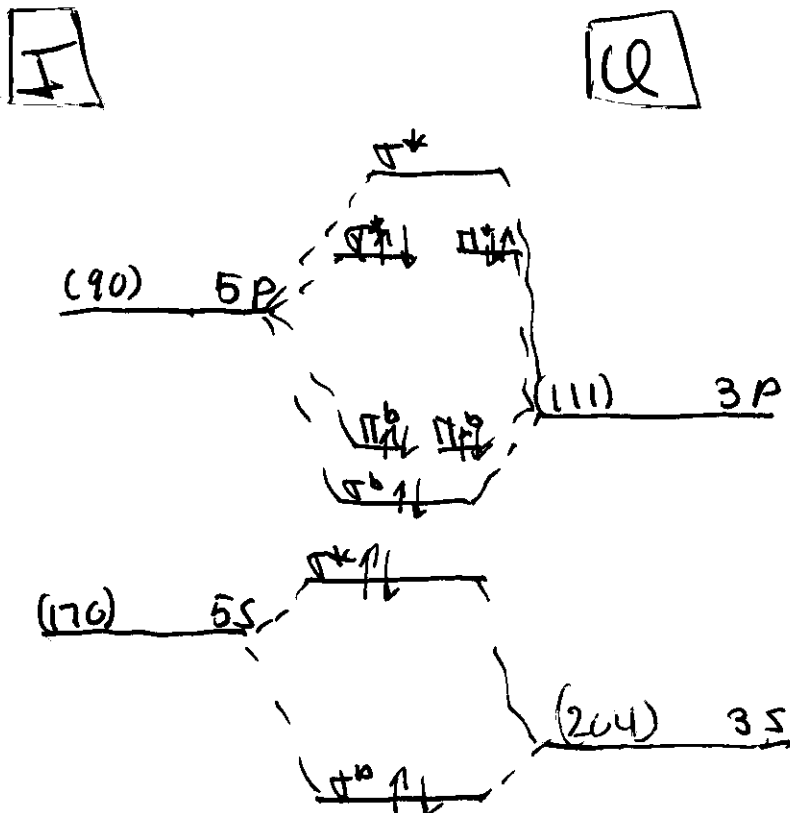
FOR BrCl AND ICl

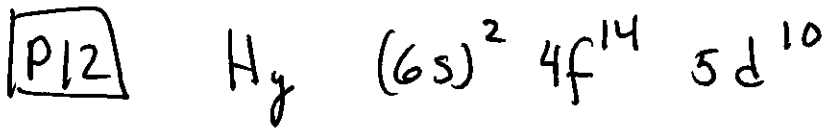


WE HAVE $14e^-$

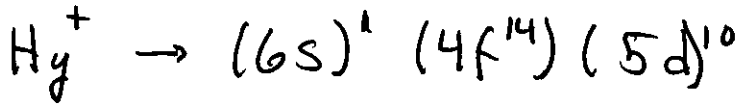
WE CAN ONLY SAY
THAT THE Cl^- ARE
DELOCALIZED SO
NO ACCUMULATION
OF CHARGE ON
ANY ATOM.

THUS NO DIPOLE!

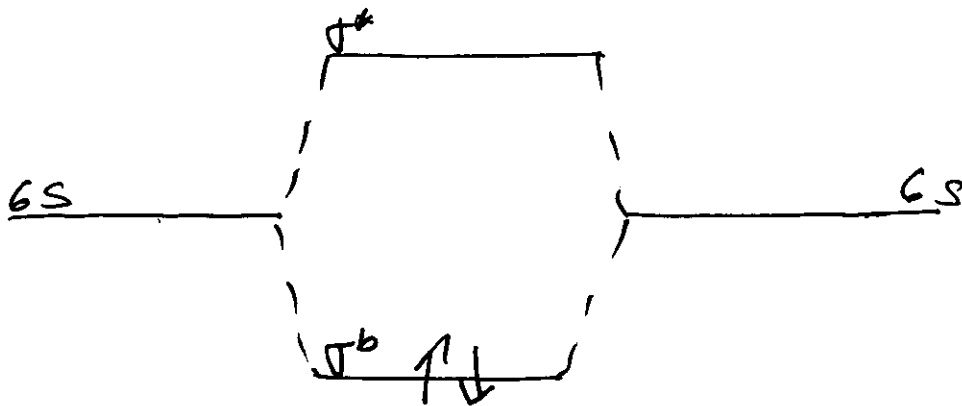




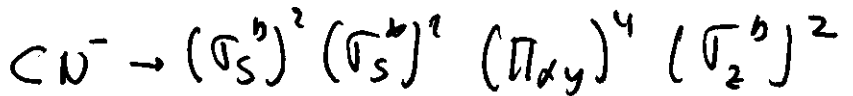
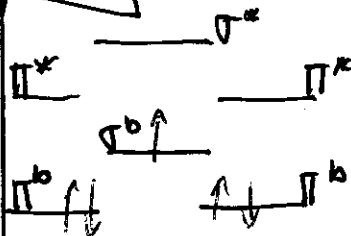
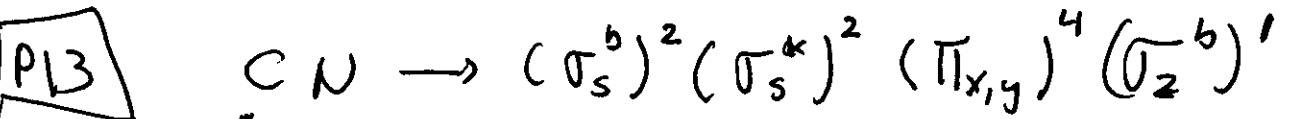
IF WE ONLY CONSIDER THE 6S electrons,



AND THE MO ARE SIMILAR TO H_2



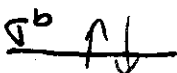
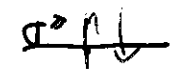
THE TRANSITION $\sigma^b \rightarrow \sigma^*$



FOR CN^- THE LOWEST ENERGY TRANSITION IS



WHICH IS NOT OBSERVED



IN THE IR. THUS, THE IR TRANSITION
OBSERVED IN CN WAS TO BE

