

CHEM 315 *INORGANIC CHEMISTRY*

FALL, 2001: Quiz #3

Wed. Nov. 14, 2001

15 minutes

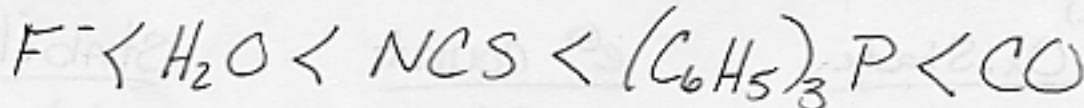
4 problems, two sides, 50 points as indicated.

1. Describe the difference between a nucleophile and a Lewis base. (5 pts.)

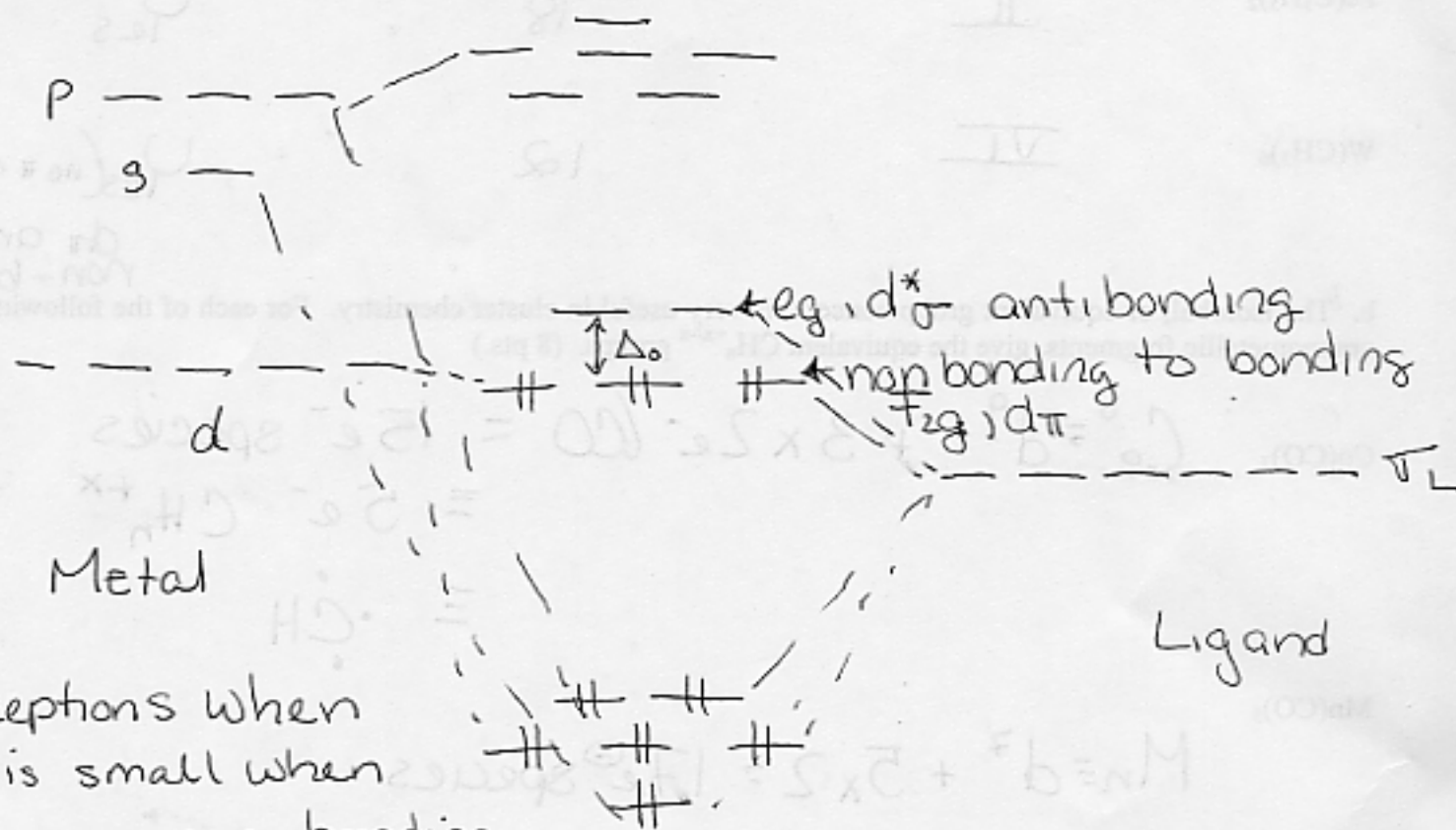
nucleophile: kinetic term for the species attacking an e^- (pair) acceptor

LEWIS BASE: thermodynamic term for an e^- pair donor.

2. Put in order of increasing ligand field strength:
- H_2O
- ,
- F^-
- ,
- $(C_6H_5)_3P$
- ,
- NCS^-
- ,
- CO
- (5 pts.)



3. From where does the 18 electron rule apply for octahedral complexes? Draw and label a M.O. diagram to explain. How do exceptions to it arise? (20 pts)



*Exceptions when Δ_o is small when t_{2g} are non-bonding (i.e. no π -acceptor ligands)

