Chapter 10

21. $\text{CO}_2 = \text{CBr}_4 < \text{H}_2\text{S} < \text{NH}_3 < \text{H}_2\text{O} < \text{HF}$

34. tetrahedral, sp$^3$ hybridization, b) tetrahedral, sp$^3$ hybridized

38. a) sp$^3$, b) sp$^2$, c) 1 and 4 sp$^3$, 2 and 3 sp, d) 1 sp$^3$ and 2 sp$^2$, e) 1 sp$^3$ and 2 sp$^2$

43. a) 4 sigma, 0 pi, b) 5 sigma, 1 pi, c) 10 sigma, 3 pi

59. $\text{F}_2^+$ should be more stable than $\text{F}_2$ and should also have shorter bond length.

69. Only C will not be tetrahedral

73. Geometry: bent, hybridization: sp$^3$

80. Only Icl$_2^-$ and CdBr$_2$ will be linear. The rest are bent.

91. $\text{B}_2$ is paramagnetic