



3. A) What VSEPR structures would be predicted for  $\text{SnCl}_2$ ,  $\text{SnCl}_4$ , and  $\text{SnCl}_4[\text{PPh}_3]$ ? [15 pts]

B) Why does  $\text{SnCl}_4$  react with  $\text{PPh}_3$  whereas  $\text{CCl}_4$  does not? [5 pts]

4. What specific information was obtained by measuring the molar conductances of  $[(\text{NH}_3)_4\text{CoCO}_3]\text{Cl}$  and  $[(\text{NH}_3)_5\text{CoCl}]\text{Cl}_2$ ? Be specific. [20 pts]

5. A. What is the normal range of pH in aqueous solution? [5 pts]

B. What part of the range is considered acidic? Neutral? Basic? [5 pts]

C. Do all indicators change color at the same pH? [5 pts]

D. Does an indicator change color at a specific pH or over a range of pH's? [5 pts]