

3. What is the molar ratio of Cu, Ba, and Y in the ceramic superconductor you prepared. [5pts]

Sketch a graph of resistance versus temperature for a superconductor. Identify the critical temperature on the graph. [10 pts]

What is the Meisner effect? How was this demonstrated in lab? [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. Tin(IV) chloride was prepared by the reaction of tin metal with chlorosulfonic acid (ClSO_3H). Write a balanced chemical equation for this reaction. [5pts]

What VSEPR structures would be predicted for SnCl_2 , SnCl_4 , and $\text{SnCl}_4[\text{PPh}_3]$? [10 pts]

Could lead (IV) iodide be prepared in a similar manner tin (IV) iodide? Comment. [5 pts]