Section C

Question 4

a. What is the main component in baking powder? How does it function in baking? [3]

b. The observed ionic mobility or conductivity measurements in aqueous solutions show the following order Cs\(^+\) > Rb\(^+\) > K\(^+\) > Na\(^+\) > Li\(^+\). Explain why though lithium is the smallest ion in Group 1, it shows the highest conductivity measurements. [6]

c. Ge(II) is strongly reducing whereas Pb(IV) is strongly oxidizing. Why? [6]

d. Explain the geometry of ClF\(_3\) using valence bond theory. [6]

e. Complete the following reaction equations:

  (i) \( \text{H-COOH} + \text{H}_2\text{SO}_4 \rightarrow \) [4]
  (ii) \( \text{PCl}_5 + 4\text{RCOOH} \rightarrow \) [4]
  (iii) \( \text{CCl}_3 + \text{H}_2\text{O} \rightarrow \) [4]
  (iv) \( \text{XeF}_2 + \text{H}_2\text{O} \rightarrow \) [4]