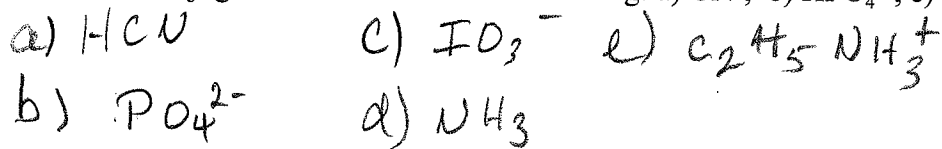


CH 223 – Worksheet 1

1. Give the conjugate acid or base of the following: a) CN^- , b) HPO_4^{2-} , c) HIO_3 , d) NH_4^+ , e) $\text{C}_2\text{H}_5\text{NH}_2$



2. Predict whether aqueous solutions of the following substances are acidic, basic, or neutral: a) CrBr_3 , b) LiI , c) K_3PO_4 , d) KCN , e) NH_4^+

basic basic basic acidic

acidic
small charged
metal

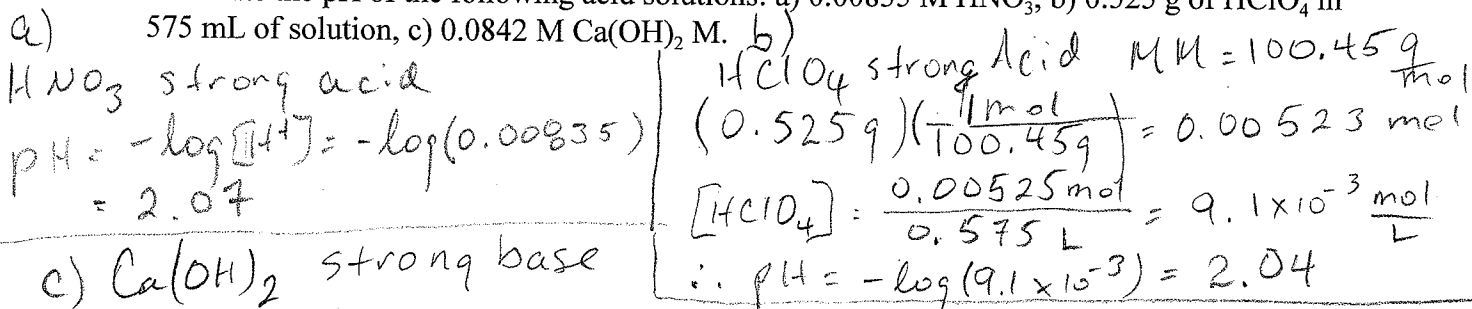
3. Briefly define the following terms:

Common-Ion Effect: When a common ion is added to a system at equilibrium there will be a shift in products & reactants
 CH_3COOH & KCH_3COO^- the common ion is CH_3COO^-

Brønsted-Lowry acid and base: acid donates $\text{H}^+ \Rightarrow \text{HClO}_4 \rightarrow \text{H}^+ + \text{ClO}_4^-$
 base accepts $\text{H}^+ \Rightarrow \text{NH}_3 \rightarrow \text{NH}_4^+ + \text{OH}^-$

A Strong acid: dissociates completely, example HNO_3

4. Calculate the pH of the following acid solutions: a) 0.00835 M HNO_3 , b) 0.525 g of HClO_4 in 575 mL of solution, c) 0.0842 M $\text{Ca}(\text{OH})_2$ M.



5. Calculate the molar concentration of OH^- ions in 0.5 M solution of hypobromite ion BrO^- , $K_a = 2.5 \cdot 10^{-9}$. What is the pH of the solution?
 $\text{pH} = 14 - 0.774 = 13.2$

