

Chemistry 1210
pH and Indicators; Determination of the K_a 's for Weak Acids;
Potentiometric Titrations of Strong and Weak Acids

Date: _____ Name: _____ Lab Day/Time: _____

Partner: _____

OBJECT:

To determine the pK_a 's and useful pH ranges of several indicators and to measure the pH of solutions with pH meters and indicators.

To determine the K_a for weak acids from pH measurements of dilute solutions of acetic acid, propionic acid and phosphoric acid.

To study the titrations of a strong acid, a weak acid and a polyprotic acid with a strong base.

PROCEDURE: As in the Chemistry 1210 lab manual, pages _____

Part II Data and Calculations:

Solution Name	Molarity of Weak Acid	Measured pH	Calculated $[H^+]$	Calculated K_a	Literature K_a
<i>Acetic Acid</i>					
<i>Phosphoric Acid</i>					
<i>Propionic Acid</i>					
Reference for Literature K_a including Name of book, edition, and page:					

Calculations (for all three acids):

Part III Attach the data on separate sheets to the back of this handout.
Graph the three titration curves from the data obtained in the lab.

Part I**OBSERVATIONS:** Circle the pH (range) at which each indicator appears to change from its acidic form to its basic form

Name of Indicator	pH of buffers										Unknown solution(s)		Estimated pKa	Lit pKa	
	1	2	3	4	5	6	7	8	9	10	#__	#__			
Bromo-thymol blue															
Thymol blue															
Methyl red															
Methyl Orange															
Bromocresol Green															
Unknown Indicator #_____															
Estimated pH of unknown solution(s) based on observed colours															
Reference including Name, edition and page for lit pKa's															

DISCUSSION:

QUESTIONS: