Name_____   Pd____   Date_____

Lab 33: Titration

Aim: To find the concentration (molarity) of an unknown concentration of an acid solution by using a known concentration of a base.

Vocabulary *(7 points)*

Acid

Base

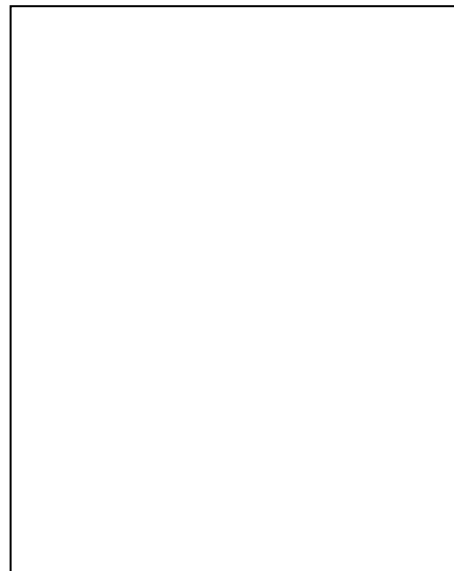Neutralization

Buret

Indicator

Titration

Molarity

Materials: Two Burets, buret clamp, ring stand, _____M NaOH, unknown concentration of HCl, phenolphthalein, 2-50 mL beakers, 50 mL Erlenmeyer flask, goggles

Diagram: *(10 points)* Draw and Label the set-up:

Method *(5 points):* Describe how to do a titration (numbered steps, refer to text p. 552-553)

Data (10 points):

	Trial 1	Trial 2	Trial 3
Final volume acid (mL)			
Initial volume of acid (mL)			
Volume of acid used (mL)			
Final volume base (mL)			
Initial volume of base (mL)			
Volume of base used (mL)			

Calculations (25 points): Using the titration formula on Table T **find the concentration of the unknown** for **each** trial.   Give the **formula** and **show work** for all problems; be sure to include the correct units.

Formula:

Trial 1   Trial 2   Trial 3

Average your concentration for the 3 trials to determine your **final** results:

Using the **average** above give the formula for **% error** & calculate the % error, given that the accepted Molarity is _____M.

Questions (18 points):

1. What is the endpoint?

2. Describe how you determined the endpoint was reached.

3. What do you do if you go beyond the endpoint?

4. What is the concentration of the acid used (experimental)?_____M   Actual? _____M

5. What was your percent error? _____.   Name at least one aspect of your METHOD that might contribute to error (do not include human error):

6. Write the equation for the neutralization reaction in this lab.

Conclusion: (25 points) RERUN (Use your answers to the questions to help with writing your conclusion)