EXP. NUMBER	EXPERIMENT/SUBJECT	DATE
1	Qualitative Volumetric Analysis	[redacted]

NAME	LAB PARTNER	LOCKER/DESK NO.	COURSE & SECTION NO.
[redacted]			L69 Chem1A03

Pre-Lab Questions

1. i.) $1349 \times 8320 / 2339 = 4.80 \times 10^3$

ii) $24.3 - 9.25 + 0.328 = 1.54 \times 10^1$

iii) $6.78 \times 10^{-3}\ M \times 23\ mL =$
$6.78 \times 10^{-3}\ M \times 0.023\ L = 1.6 \times 10^{-4}$ mol

2. A 15.00 mL stock sample of HI is diluted to 65mL. If 18.23 ml of 0.1231 M NaOH was required to reach equivalence point, what is the concentration of the stock HI solution?

At equivalence point, moles NaOH = moles HI

Moles NaOH = $0.01823\ L \times 0.1231\ M$
$= 2.244 \times 10^{-3}$ mol NaOH

∴ 2.244×10^{-3} mol HI in 15.00mL.

$[HI] = \frac{2.244 \times 10^{-3}\ mol}{0.01500\ L}$
$= 0.1496\ M$

Purpose: To determine the concentration of an unknown NaOH solution using a stock, calibrated solution of HCl; to learn how to properly use volumetric analysis as a qualitative technique.

$NaOH(aq) + HCl(aq) \rightarrow NaCl(aq) + H_2O(l)$

Procedure: The experiment was carried out as described in experiment one of the chemistry 1A03, 1E03 and 1AA3 Labratory Manual.

Observations: [HCl] = 0.2656 M

10.00mL of HCl per titration.
$= 2.656 \times 10^{-3}$ moles HCl

Measurement	Titration #1	Titration #2	Titration #3
Initial Buret Reading (mL)	0.70	0.65	3.10
Final Buret Reading (mL)	26.50	26.80	28.30
Volume NaOH Used (mL)	25.80	26.15	25.20
Molarity NaOH (M)	0.1029	0.1016	0.1054

Sample Calculations:

Moles HCl = Volume HCl × Molarity HCl
$= 10.00\ mL \times 0.2656\ M$
$= 0.0100\ L \times 0.2656\ M$
$= 2.656 \times 10^{-3}$ moles HCl

Moles HCl = Moles NaOH at Equivalence Point.
$= 2.656 \times 10^{-3}$ moles NaOH

Molarity NaOH = # Moles NaOH / Volume Na
$= 2.656 \times 10^{-3}$ mol / 0.0259L
$= 0.1029\ M$

Mean Molarity NaOH = $\frac{0.1029 + 0.1016 + 0.1}{3}$
$= 0.1033\ M$

Conclusion: The average / mean molarity of NaOH was 0.1033 M.

SIGNATURE	DATE	WITNESS/TA	DATE