Chemistry 1210: Spectrophotometric Analysis of Fe^{2+} using 1,10-phenanthroline

Date: _____ **Stn #:** _____ **Name:** _____

Objective: To determine the percent by mass of Fe^{2+} in 1, 10 – phenanthroline using spectral analysis.

Procedure: As on pages 23 - 24 in Chem 1210 lab manual.

Observations:

Data: [Stock Fe^{+2}]: _____ Unknown #: _____

Mass of boat + sample: _____

Mass of boat + residue: _____

Mass of Unknown sample: _____

Sample	**%Transmittance/Absorbance**			**Concentration of Fe^{2+}**
	Run 1	Run 2	Average	(mg/L)
Diluted 1.00ml of stock				
Diluted 3.00mL of stock				
Diluted 5.00mL of stock				
Unknown				

Calculations:

Part A: Show a sample calculation for the concentration of 1.00 mL standard solution of Fe^{2+}.

Part C:

1. Calculate the concentration of Fe^{2+} in the unknown final solution in mg/L.

2. Calculate the %Fe by mass in the unknown solid sample.

Graph – Attach Beer's law plot.

Results :

Slope	**y-intercept**	**mg/L Fe^{2+} in diluted Unknown final solution**	**%Fe in Unknown #_____**

Question:

Hydroxylamine hydrochloride is a reducing agent. What was the purpose of adding it to the iron solutions? (Consider the stability of the Fe^{2+} ion.)