EXP. NUMBER	EXPERIMENT/SUBJECT	DATE
3	Determination of an Equilibrium Constant for a Chemical Reaction	[redacted]

NAME	LAB PARTNER	LOCKER/DESK NO.	COURSE & SECTION NO.
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Pre-Lab Question

i) The spectrophotometer needs to be calibrated against a blank solution so that measurements taken after it can use the blank solution's absorbance as a zero reference. At the end of the experiment, the absorbance is plotted against the concentration to give the calibration curve. This curve can be used to obtain the results of the amount of light absorbed for a specific concentration, and vice versa.

ii) $Fe^{3+}_{(aq)} + SCN^-_{(aq)} \rightleftharpoons FeSCN^{2+}_{(aq)}$

	Fe^{3+}	SCN^-	$FeSCN^{2+}$
I	0.00100	0.00150	0
C	$-x$	$-x$	$+x$
E	$(0.00100-x)$ ↓ 7.3×10^{-4}	$(0.00150-x)$ ↓ 1.23×10^{-3}	2.7×10^{-4}

$$K_c = \frac{[FeSCN^{2+}]}{[Fe^{3+}][SCN^-]}$$

$$= \frac{2.7\times10^{-4}}{(7.3\times10^{-4})(1.23\times10^{-3})}$$

$$= 301$$

∴ The equilibrium constant for the reaction is 301.

Purpose: To determine the value of K_c (equilibrium constant) for the chemical reaction $Fe^{3+}_{(aq)} + SCN^-_{(aq)} \rightleftharpoons FeSCN^{2+}_{(aq)}$ using several concentrations of reactants.

Procedure: The experiment was carried out as described in Experiment 3 of the Chemistry 1A03/1E03 Lab Manual.

PART A

	Vol. KSCN (mL)	Vol $FeNO_3$ (mL)	$[FeSCN^{2+}]$	Absorbance
1	1.0	49	4.0×10^{-5}	0.224
2	2.0	48	8.0×10^{-5}	0.430
3	3.0	47	1.2×10^{-4}	0.531

PART B

	V KSCN (mL)	V $Fe(NO_3)_3$ (mL)	V H_2O (mL)	Absorbance
1	1.0	5.0	4.0	0.131
2	2.0	5.0	3.0	0.244
3	3.0	5.0	2.0	0.343
4	4.0	5.0	1.0	0.428
5	5.0	5.0	0	0.528

SIGNATURE	DATE	WITNESS/TA	DATE