TA USE ONLY	
Prelab Quiz	_____
Objective	_____
Notebook	_____
Report	_____
Total Score	____/70

Name: _____
Lab Partner(s): _____
Due Date: _____
Date Expt. Performed: _____
Section: _____
Teaching Assistant: _____

EXPERIMENT 9: STANDARDIZATION OF A THIOSULFATE SOLUTION AND DETERMINATION OF ASCORBIC ACID IN VITAMIN C TABLETS REPORT

The report is to be completed individually. While you are permitted to discuss issues involved in completing the calculations and questions below, the work submitted for this report must be completed entirely on your own and must be presented in your own way using your own calculations and words.

Honor Pledge: I pledge, on my honor, that I have neither given, nor received, any unauthorized assistance on this assignment. Signed: _____ Date: _____

DATA (PARTS A & B)

Attach a ***typed*** data table for this experiment. The data on this table must match the data in your electronic notebook. If the data are different, you will not receive credit for this laboratory report. (10 points)
Include:

- Mass of sodium thiosulfate used to prepare the titrant.
- Volume of titrant required to reach the end point for each standardization.
- Mass of vitamin C tablet used for each trial.
- Volume of titrant required to reach the end point for each vitamin C trial.

RESULTS

PART A: STANDARDIZATION OF THIOSULFATE

You may neatly handwrite the answers to the calculations. However, any answers that cannot be clearly read (at the discretion of the grader) will be marked "zero."

1. What is the concentration of your iodate primary standard? Determine the uncertainty (you may ignore uncertainty in the molar mass, as it will be negligible). Show all of your work and be sure to include the correct number of significant figures. (7 points)

2. Determine the number of moles of I_3^- present in the analyte. Show ***all of*** your calculations in determining the limiting reactant and report your answer with the correct number of significant figures for one trial only (they should all be identical). (8 points)

3. Determine the concentration of your standard thiosulfate solution. Determine the average concentration and the uncertainty (show work). Report your answer in M to the correct number of significant figures. (7 points)

PART B: DETERMINATION OF VITAMIN C CONTENT

1. What mass of vitamin C is present in your tablet? Show ALL calculations for one trial only. (10 points)

2. Calculate an average mass of vitamin C (using the 2-3 trials), and determine the uncertainty. Compare this to the reported amount of vitamin C on the packaging. (7 points)

POST-LAB QUESTIONS

Type your answers on a separate page and attach it to the back of your report. Hand written answers will not be accepted.

(6 points)

Many biological reactions are electron transfer reactions and their spontaneity can be determined by calculating the potential and ΔG of the reaction. For the following reaction, determine a) the oxidizing agent and reducing agent, b) $\Delta G°$, and c) if the reaction is spontaneous. (You will need to use a standard reduction table to determine the $E°$ of each half reaction.)

$$NADH + H^+ + \tfrac{1}{2} O_2 \rightarrow NAD^+ + H_2O$$