Chem 2/5 Nuclear Decay Lab Report

(Typed Report-Lab partners are to submit independent reports using shared data)

Your Name_____ Section_____ Date _____ TA Name _____

Purpose:

- Concise description of what is to be done (details of sample, sample size, irradiation, counting, etc.)

Procedure:

- Brief description of procedure used

Data and Calculations:

- Tables of collected data: (Your group's data and 1 other group's data)

- Plots: Four plots total, properly titled and labeled.

Your Group's Data (Computer)	Other Group's (Computer)
1. Counts/minute vs. time	3. Counts/minute vs. time
2. ln(counts/minute) vs. time	4. ln(counts/minute) vs. time

- Calculations: (Make sure to show work on ALL calculations, may be handwritten)

  - k = Rate constant calculated 2 ways for each data set.
    (Recall k = -m, the negative of the slope.)
    - Calculate the slope of the ln(counts/minute) vs. time graph from $m = (y_2 - y_1)/(x_2 - x_1)$ by hand.
    - Get slope from the computer-generated linear regression equation of the ln(counts/minute) vs. time graph ($y = mx + b$).

  - $t_{1/2}$ = Half-life (minutes) calculated 2 ways for each data set
    - Estimate half-life from the counts/minute vs. time plot by hand.
    - Calculate from the computer-generated linear regression equation of the ln(counts/minute) vs. time graph and the fact that $t_{1/2} = 0.693/k$.

- A_o = Initial activity for both data sets calculated just one way.
    - From the slope from the computer-generated linear regression equation of the ln(counts/minute) vs. time graph (y = mx + b) where A_o = e^(ln(counts/minute)$_o$, and ln(counts/minute)$_o$ is the y-intercept, b).

· Discussion

- Restate results and compare the results of each set of data.
- Compare the values calculated between each calculated method.
- Support the results and explain any inconsistencies.

· Conclusion

- Give a brief summary of the experiment and findings along with what can be concluded from this experiment.

*Note, a laboratory report is not an editorial, it is a scientific presentation and explanation of the facts found through experimentation.