Presentation College Chaguanas

Form 6 Labs

Tips For Physics Labs

**ALWAYS** spend at least 5 minutes reading the entire question.

**Materials Needed in Lab:**

Graph Book (with numbered pages), stop-watch, French Curves, calculator, clear 30cm plastic ruler, geometry set, pencil (2B 0r HB), pen (blue or black ink)

**No liquid paper!** Make **ONE** line through mistakes.

**Results:**

1. **ALL** results and working must be done in **pen**.
2. The results and table must always be opposite the graph.
3. There must be only **ONE** table.
4. Try to leave extra space in table in case extra variables are needed e.g. lg T etc.
5. There should be **NO** transposing of results.
6. Ensure that the heading of each column in your table is accompanied by its correct quantity and unit e.g R/Ω, V/V, l/m etc.
7. Use a ruler to draw the table.
8. Calculations should be done **AFTER** all readings have been taken, **NOT** during experiment.
9. Consistency of raw readings (i.e. Decimal places and **sig**nificant **fig**ures)
10. For calculated values in the table e.g. Period T, the formula used should be stated below the table, e.g. Period, T = Time taken for n oscillation

Number of oscillations, n

1. When doing oscillation labs, the time taken for n oscillations should be varied to get a time between 30 and 35 seconds, **UNLESS** otherwise stated.
2. Justification of Sig. Fig: calculated values (e.g. period, T) should have the same number or one more than the least number of significant figures in the raw readings (time, t/s). If t was to 4 sig fig, then T could have been the same amount or one more sig fig, i.e. 4 or 5 significant figures.

**Graph:**

**Do not erase** an already drawn graph! (unless you have already drawn it over)

1. Everything in the graph should be drawn in pencil.
2. The graph should be titled.
3. Graph should be plotted y vs x.
4. Axes should be labelled with the appropriate quantities and units.
5. The axes should be marked off every 2cm.
6. Good scales should be used (e.g 1:10, 1:2, 1:100 **NOT** 3:10, 3:1, 7:1 etc)
7. The points plotted should occupy more than half the page in both the x and y directions.
8. No points should fall in the margin area.
9. Points should be plotted using either of the following: Θ, + or x.
10. Clear plastic ruler should be used to draw the line of best fit (with a reasonable balance of points about the line).
11. If there is more than one line on graph draw lines differently e.g. \_ \_ \_ \_ \_ \_, \_\_\_\_ \_ \_\_\_\_ \_ \_\_\_\_ and make a key.
12. When finding the gradient the triangle used should be more than half the line.
13. The coordinates of the two points used to calculate the gradient should be identified in the graph.
14. Ensure that **points on the line** are used to **calculate gradient or points from the table if points are on the line.**
15. If graph is a straight line put in the form y = mx + c.
16. When calculating the gradient put formula and coordinates into the equation.
17. If graph doesn’t start at x = 0 use y = mx + c to calculate the intercept.
18. If graph is a curve use a tangent at the point to find the rate of change or gradient.
19. Units for slope and intercept… **IMPORTANT**!!!
20. Final calculated value should have the same amount or one more significant figure than the least amount in the raw readings.
21. Don’t round off figures too soon when calculating.
22. Check calculator mode.
23. If slope is negative, expect to get a negative value of m and vice versa.
24. Remember that the intercept can only be obtained directly from graph when x = 0, otherwise calculations must be used. Plot at least 8 points on the graph unless otherwise stated (usually 6 in exams).

**FORMAT FOR LAB**

DATE:

AIM:

APPARATUS:

DIAGRAM:

THEORY:

METHOD:

RESULTS AND CALCULATIONS:

PRECAUTIONS:

SOURCES OF ERRORS:

DISCUSSION: (if necessary)

CONCLUSION: