

Ensc 220 – Lab 2 Write-up Expectations

Overall:

Make sure that your names and student numbers are on your cover page or first page. Do not reproduce the lab handout in your write-up, but do include some statements that provide context and let me know where you are in the procedure. If you change the procedure, note the change. For example, if there were no 1k resistors in the bins you could use a 1.2k and note the change in your write-up. There will be marks for the readability of your lab, it should not be point form, this is a formal write-up. If I find your lab hard to follow you will lose marks.

Section 1 Comparator:

- 1 – State the values you used, both nominal and measured, in a sentence or a table for both the Resistors and Supply voltages.
- 2 – Give the values V_{dc} and V_{ref} and describe how you got V_{ref} , either with a sentence or with an equation.
- 3 – Note the actual frequency that you used (ie 1.005 kHz), measure it with the oscilloscope and take a screen capture.
- 4 – Provide two screen captures, one at an input signal lower than V_{ref} and one with an input signal greater than V_{ref} .
- 5 – State the value of the switching voltage and give a screen capture of the measurement.
- 6,7 – State the value of the switching voltage and give a screen capture of the measurement.
- 8 – Give the value of the resistor used both nominal and measured. Give the switching voltage and a screen capture of the measurement. In a few sentences justify why the switching level did or did not change.
- 9 – Provide the definition of slew rate, describe how you measured it (include a screen capture) and state the slew rate you measured.
- 10 – State the Peak to Peak value and give a screen capture of the measurement.
- 11 – In a few sentences justify why the measurement does or does not match the magnitude of the supply voltages.
- 12 – Give a screen capture using a single supply that shows the Input and Output.

Section 2 Inverting Amplifier:

0 – Give the values of R_1 and R_2 you used and show your calculated gain. If your supply voltages are different than section 1 state their values if not say they are the same.

Measure and state the frequency you used (screen cap if different than section 1) and the resistance of R_L .

1 – State the peak to peak amplitude value and give a screen capture of the measurement.

2 – State the value and give a screen capture of the measurement. Compare the gains and in a few sentences answer the question posed.

3 – State the measured value of R_L and your gain and give a screen cap of the measurement. In a few sentences justify why the gain did or did not change.

4 – Show a screen cap of the result (show V_{in} and V_{out})

6 – Provide two screen captures of V_{in} and V_{out} : one where $0V < V_{supplypos} < 12V$ and one where $-12V < V_{supplyneg} < 0V$. State what V_{supply} is for each screen capture. To make these interesting make sure that your V_{in} and thus V_{out} is at the maximum non-distorting level.

Conclusion:

You need to write up a conclusion to your lab that discusses your observations. Talk about whether or not they were what you expected and talk a little about why they were or weren't what you expected.

Notes:

Instead of a screen capture you can substitute a graph or drawing, however the substitute must be accurate enough for me to extract values of interest like peak to peak values, points where curves cross, slopes, DC offsets, etc.

If you have a value within a sentence **bold** the value so I can easily pick out your numbers.

Make sure that all of your values have units.

For your numbers please use engineering notation rather than scientific notation.