**SYSC 3203: Fall 2019**

**Lab 3B Report**

Submit this page to the lab instructor.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1: Full Wave Rectifier Design**

1.1: Sketch the circuit diagram for the full wave rectifier. Indicate the resistor values you plan to use to build your circuit.

1.2: Indicate on your above sketch whether each diode is conducting or not when: a) Vi is positive b) Vi is negative.

1.3: Sketch a schematic for the full wave rectifier showing the chip layouts for the OP97 op-amps and labeling the terminals. Please label the testing points for your circuit.

**2: Full Wave Rectifier Assembly and Test**

2.1: Measure the outputs at VA, VB, and VO given a sine wave input at Vi. What type of circuit does each point represent? Sketch the input and output for each of the three measurement points.

2.2. Demonstrate the proper operation of the full wave rectifier circuit to your TA.

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**3. Integrator Circuit**

3.1: Analyze the integrator circuit and explain why this circuit is called a “lossy” or practical integrator and how it compares to an ideal integrator.

3.2. How would an ideal integrator behave for the current project?

3.3. Explain what time constant value you selected and show your calculations for R1, R2, and C.

3.4: Sketch the circuit diagram for the lossy integrator. Indicate the resistor and capacitor values you plan to use to build your circuit.

3.5: Sketch a schematic for the lossy integrator showing the chip layout for the OP97 op-amp and labeling its terminals. Please label the testing points for your circuit.

3.6: Demonstrate the proper operation of the integrator circuit.

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