## 7.5.3: Active RC Circuit Step Response (50 points total)

1. Capacitor voltage measurement (15 pts)
   1. Provide below a schematic of the circuit and measured resistance and (if possible) capacitance values. (3 pts)
   2. Attach, to this worksheet, the image of your oscilloscope time window, showing the measured input and output data. (4 pts)
   3. Provide below your estimates of the time constant and steady state response estimates (4 pts)
   4. In the space below, provide a discussion comparing the response of the active RC circuit with the passive RC circuit of Lab 7.5.1. (4 pts).
2. Circuit response vs. input voltage frequency (15 pts)
   1. Provide below a table of input and output voltage amplitudes and frequencies (5 pts)
   2. Discuss your observations relative to peak-to-peak input and output voltage amplitudes vs. frequency and comment on possible reasons for these trends. (5 pts)
   3. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuits’ operation. (5 pts)

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1. Loaded circuit response (20 pts)
   1. Provide below a schematic of the loaded active RC circuit with measured resistance and (if possible) capacitance values. (3 pts)
   2. Attach, to this worksheet, the image of your oscilloscope time window, showing the measured input and output data. (4 pts)
   3. Provide your estimates of the active RC circuit time constant and steady-state response. (3 pts)
   4. Compare the response of the loaded active RC circuit with the unloaded active RC circuit of part (a). Also compare the response of the loaded active RC circuit with the unloaded passive circuit of Lab 7.5.1. Discuss your observations. (5 pts)
2. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuits’ operation. (5 pts)

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