EE 43 and EE 100
Experiment Report: RC Filters and Simulation/Instrumentation Software

Name: _____

GSI: _____

Time/Date: _____

1. Do **P1**. Write down your raw data and calculated values in the following table and then draw the transfer function on the log-log sheet. Please indicate the 3 dB points on your plots. Are the -3 db points in good agreement with what you calculated from R and C? (Start from 10Hz and stop at around 10Khz)

f (Hz)											
V_{out} (mV)											
V_{out}/V_{in}											

f (Hz)											
V_{out} (mV)											
V_{out}/V_{in}											

f (Hz)											
V_{out} (mV)											
V_{out}/V_{in}											

2. Do **P2**. Write down your raw data and calculated values in the following table and then draw the transfer function on the log-log sheet. Please indicate the -3 dB points on your plots. Are the 3 db points in good agreement with what you calculated from R and C? (Start from 10Hz and stop at around 10Khz)

f (Hz)											
V_{out} (mV)											
V_{out}/V_{in}											

f (Hz)											
V_{out} (mV)											
V_{out}/V_{in}											

f (Hz)											
V_{out} (mV)											
V_{out}/V_{in}											

3. What did you see on the oscilloscope (or the representation of the oscilloscope display on the computer screen) when you changed the frequency of the input signal? Qualitatively draw graphs at f = 100 Hz, 1 kHz, and 10 kHz of the square wave. Explain why they look different.

4. Attach the plots of your automated measurements of the transfer functions for the high-pass and low-pass filters. Compare them with your manually taken plots. Are they in good agreement in terms of shapes, amplitudes and 3 dB points? If not, try to explain the reasons. What are the advantages of using software for instrumentation (control of measurement equipment) and simulation?