Capacitor Series and Parallel Quick Sheet

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Section_____ Date_____ TA_____

Lab Partner_____

(1) **Measured values** of R_1, C_1 and C_2. C_1 is already connected to R_1. Use the 1μF range on the multimeter when measuring capacitance.

R_1 = 34.96 kilohms R_g = .05 kilohms $R = R_1 + R_g$ = 35.01 kilohms

C_1 = .104 uF C_2 = .099 uF (Three numbers after the decimal point.)

(2) Using the slope from Excel and equation 9, calculate the capacitance of the first capacitor C_1. Calculate the % error, where the accepted value of C_1 is 0.10μF.

Slope = 3.8361 **Enter your result to 4 numbers after the decimal point.**

C_1 = 0.1097 μF **(4 numbers after the decimal point.)**

% error = 5.49 **(2 numbers after the decimal point.)**

(3) Enter your value of the half time **(2 numbers after the decimal point) for** the parallel and the series capacitor connects, and use these values to calculate $C_{parallel}$ and C_{series}. **Enter your results for capacitors to 3 numbers after the decimal point, and show your calculations on the back of this page.**

$t_{parallel}$ = 4.900 msec t_{series} = 1.224 msec

$C_{parallel}$ = .202 μF C_{series} = .051 μF

(4) Can the resistance of the function generator be ignored in this experiment? Use 5% as a limit for this problem.

Here, % error = (| R – R_1 | / | R_1|)*100% or, % error = (| R_g / R_1 |)*100%

% error = .14% **(2 numbers after the decimal point.)**

Circle **Yes** or **No**

(5) Use your experimental values of C_1 and C_{series} to calculate C_2. **Enter your result to 3 numbers after the decimal point, and show your calculations.**

C_2 = .098 μF **(3 numbers after the decimal point.)**