Name:_____   Date:_____

Capacitors in Series and Parallel

Objective: To verify the equivalent capacitance equations for capacitors in series and parallel

Theory:

Capacitors in series are added according to the equation $\frac{1}{Ceq} = \frac{1}{C1} + \frac{1}{C2} + \cdots \frac{1}{cn}$

Capacitors in parallel are added according to the equation Ceq = C1 + C2+ ... Cn

Procedure:

1. Collect 3 capacitors of similar capacitance between 1nF and 1µF.
2. Test and record the capacitance of each of the capacitors with the capacitance meter on multimeter.

Capacitors in series

3. Calculate the capacitance of adding 3 capacitors in series.
4. Test your answer by placing 3 capacitors in series and testing the equivalent capacitance of these capacitors with the capacitance meter.
5. Calculate the percent error between the calculated and the experimental results.
6. Comment in your notes on this relationship

Capacitors in parallel

7. Calculate the capacitance of adding 3 capacitors in parallel.
8. Test your answer by placing 3 capacitors in parallel and testing the equivalent capacitance of these capacitors with the capacitance meter.
9. Calculate the percent error between the calculated and the experimental results.
10. Comment in your notes on this relationship

Other Combination

11. Experiment with other combinations of series and parallel of your choice.