Lab Results

Case-A: Data for charging a single capacitor

Table-1 Resistance R = _100_____ Capacitance C = __0.05_____

Time s	Measured Voltage v	Charge on Capacitor
0.50	0.30	0.015
1.00	0.85	0.042
1.50	1.20	0.06
2.00	1.80	0.09
2.50	2.30	0.115
3.00	2.90	0.145
3.05	3.50	0.175
4.00	4.77	0.238
4.05	5.32	0.266
5.00	5.89	0.295
7.00	6.13	0.307
10.0	6.50	0.325
15.0	7.90	0.395
20.0	8.33	0.417
25.0	9.20	0.46

Table 2 Maximum Charge from eqn (2) = Q = ___0.46_____ RC time constant from eqn (3) = τ = _____15_____

	Calculated value eqn (1)	Experimental value eqn (5)	% error
Charge at t = 1 τ	0.46	0.39	6
Charge at t = 2 τ	1.2	1.2	0
Charge at t = 3 τ	3.2	2.6	43.75

Case C and D: Data for Two Capacitors in Series and Parallel: Table 5: Resistance: _100_____ Capacitance 1: _____0.05_____ Capacitance 2: ___0.10_____

Type of Circuit Capacitors in:	Calculated values of τC and τD	Measured Charging time τC	Measured Discharging time τD	Percent error in time of charging	Percent error in time of discharging
Series	300	13	14	7.69	15.38
Parallel	1.5	8	6	25	37.5