

Exp 5: Capacitors - Series and Parallel

Capacitance in Farad

- Charge of Capacitor :- $Q = C \times V$
Charge in Coulombs Voltage

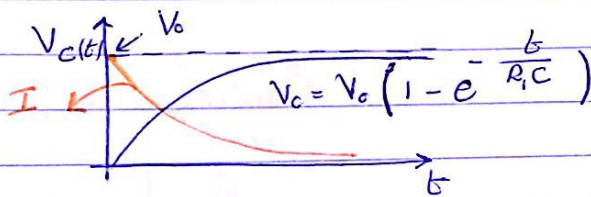
- Energy stored :- $E = \frac{1}{2} QV = \frac{1}{2} CV^2$ in Joules

Charge is equal

- Capacitors in Series $\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$

More efficient in real life

- Capacitors in Parallel: $C = C_1 + C_2 + C_3 + \dots$

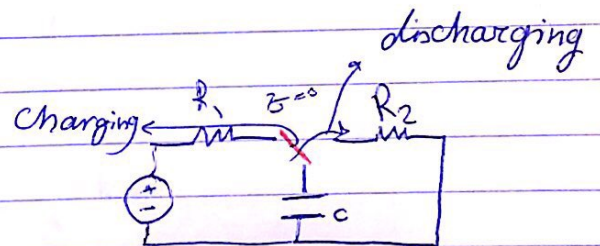
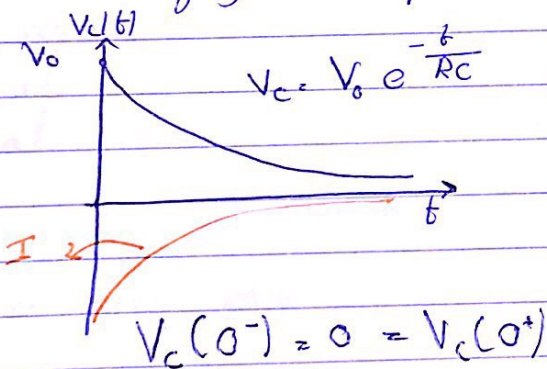


- Charging a Capacitor

→ The current is Max (Capacitor behaves as a short circuit)

→ Q is Given by area under current time curve

- Discharging a Capacitor



Slope of Q, V curve = C

Note:

• Capacitors return their stored energy to the circuit

They don't use up electrical energy. But this energy is small