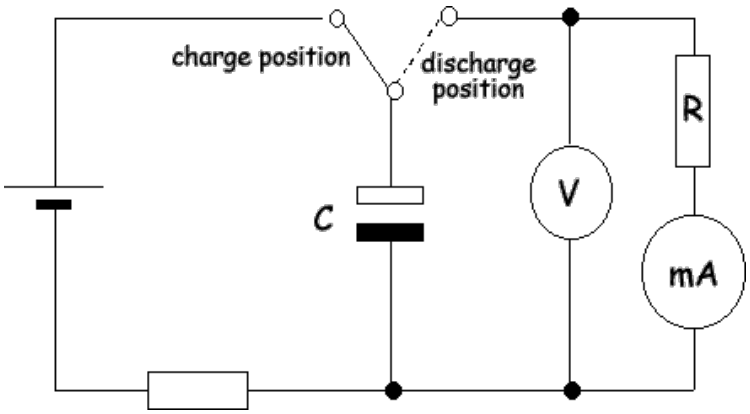
Edexcel Physics A Level

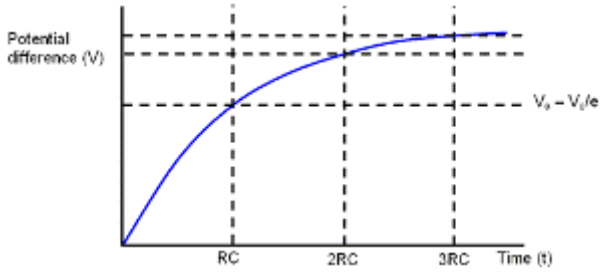
Core Practical 11

Analyse the PD across a charging and discharging Capacitor



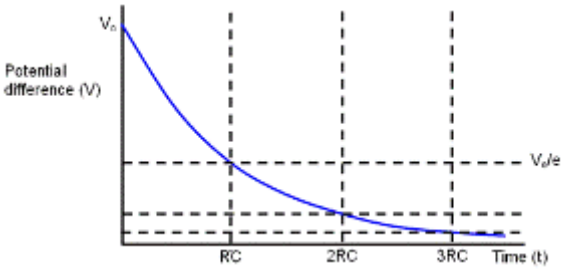
Method 1: Charging Capacitor

- Set up a circuit with a DC power supply, high resistance resistor, switch, capacitor, ammeter and a voltmeter around the (initially discharged) capacitor
- Close the switch to charging position and start the timer
- Record the PD and current every 10s
- Repeat process 3 times, and calculate mean V and I
- Plot graph of current against time and PD against time



Method 2: Discharging Capacitor

- Move switch to the second position for the capacitor to discharge
- Record the PD and current every 10s
- Repeat process 3 times, and calculate mean V and I
- Plot graph of current against time and PD against time



Safety

- Ensure that the capacitor is connected the right way in the circuit, as to prevent it exploding
- Use low (sub 40V) voltages for open circuit work

Evaluation

- Increasing the circuit resistance causes the capacitor to discharge slower; measuring a larger value for time reduces percentage uncertainty (and effect of reaction time)