

2023-Ph-H1-Q23

Section: Electricity

Topic: Capacitors

What happens when a capacitor discharges through a resistor?

Answer: D

(Current and voltage decrease over time)

Guidance for Students:

A discharging capacitor releases stored energy gradually:

- Current and voltage **both decrease exponentially**.
- Never reach zero instantly.

Revision Tips:

- Voltage: $V(t) = V_0 e^{-t/RC}$
- Current: $I(t) = I_0 e^{-t/RC}$
- Time constant $\tau = RC$: time to fall to 37% of original