



ASSIGNMENT NO. 3

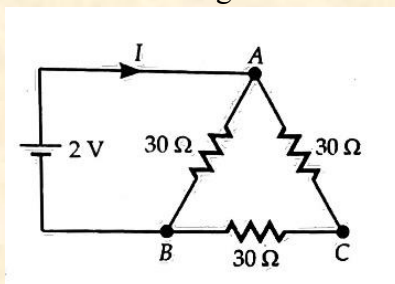
SUBJECT: PHYSICS

CLASS-XII

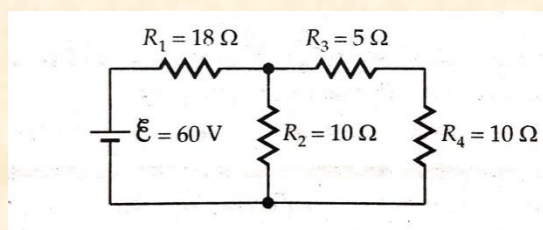
JULY, 2025

CH: 3 CURRENT ELECTRICITY

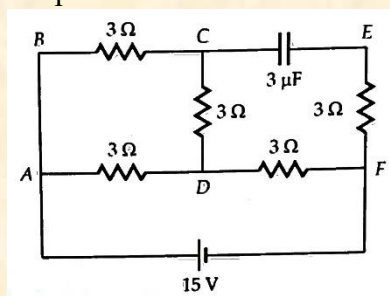
1. Find the value of current I in the circuit shown in figure.



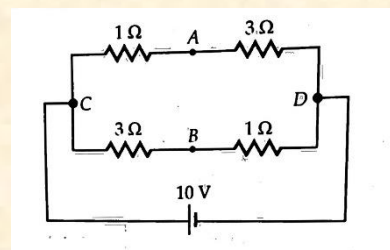
2. Determine the voltage drop across the resistor R_1 in the circuit given below with $\mathcal{E} = 60 \text{ V}$, $R_1 = 18 \Omega$, $R_2 = 10 \Omega$.



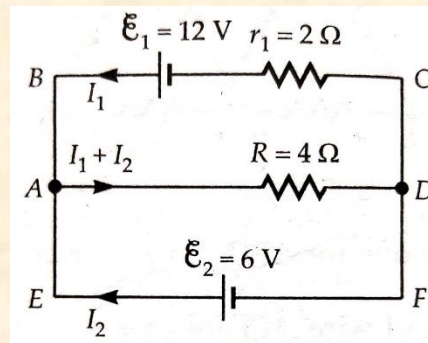
3. In the circuit shown in figure, find the potential difference across the capacitor.



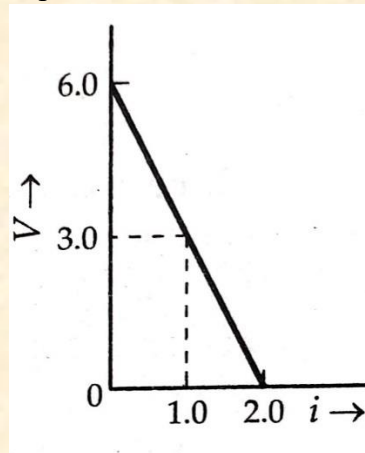
4. A battery of emf 10 V is connected to resistances as shown in figure. Find the potential difference between the points A and B.



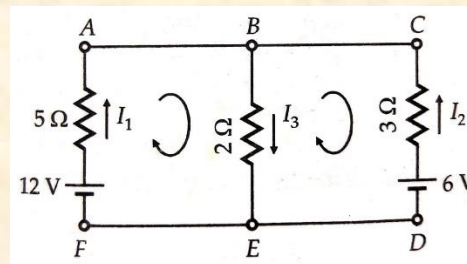
5. In the electric network shown in figure, use Kirchhoff's rules to calculate the power consumed by the resistance $R=4\Omega$.



6. The following graph shows the variation of terminal potential difference V , across a combination of three cells in series to a resistor, versus the current, i :
- Calculate the EMF of a cell
 - For what current i , power dissipation of the circuit be maximum?



7. Using Kirchhoff's laws in the electrical network shown in figure, calculate the values of I_1 , I_2 and I_3 .



8. The resistance of the platinum wire of a platinum resistance thermometer at the ice point is 5Ω and at steam point is 5.23Ω . When the thermometer is inserted in a hot bath, the resistance of the platinum wire is 5.795Ω . Calculate the temperature of the bath.
9. The resistance of a bulb filament is 100Ω at a temperature of 100°C . If its temperature coefficient of resistance is 0.005 per $^\circ\text{C}$, its resistance will become 200Ω at a temperature of ____.
10. A platinum resistance thermometer has a resistance $R_0 = 40.0\Omega$ at $T_0 = 30^\circ\text{C}$. α for Pt is $3.92 \times 10^{-3} (^\circ\text{C})^{-1}$. The thermometer is immersed in a vessel containing melting tin, at which point R increases to 94.6Ω . What is the melting point of tin?