ELECTRICITY/विद्युत

विद्युत धारा/ current electricity

RATE OF FLOW OF CHARGE IS KNOWN AS current electricity

आवेश के प्रवाह की दर को

$$i = \frac{q}{t}$$

i – current (Ampere)

q – charge (coulomb)

t – time (second)

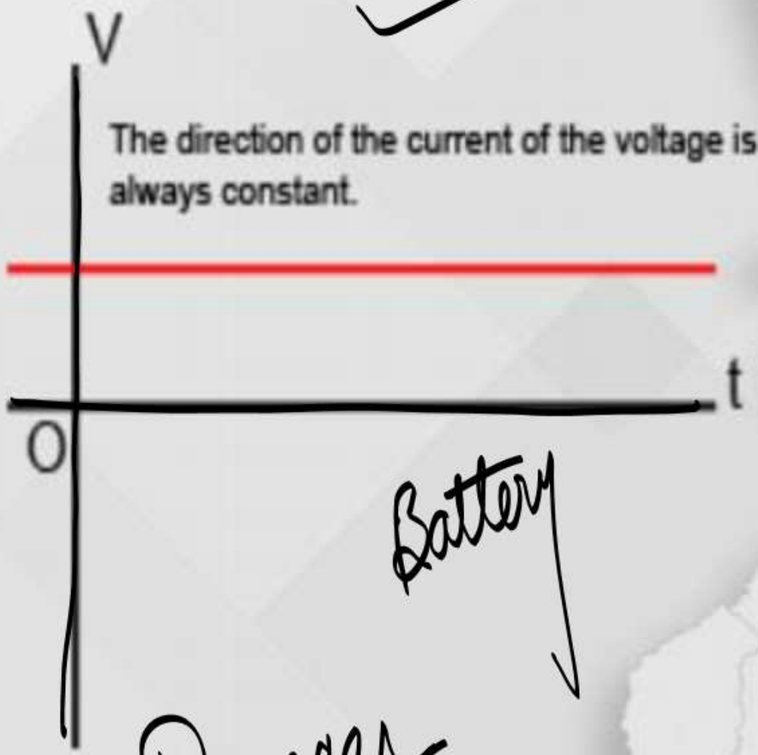
$2A = \frac{?}{2\ min}$

$2A = \frac{?}{2 \times 60}$

240 coul

RRB JE

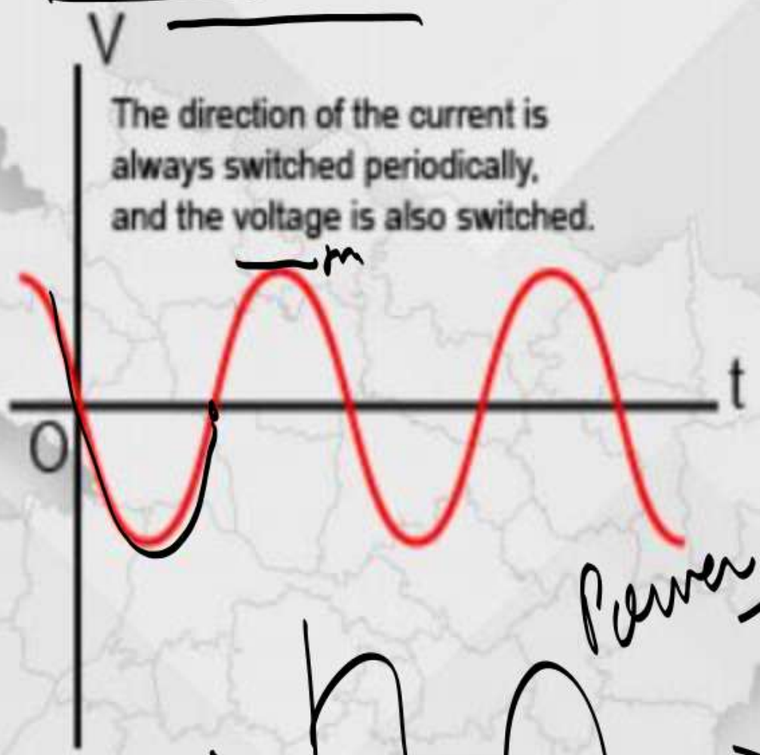
Direct Current (DC)



Battery

Danger

Alternating Current (AC)



Power House

DC – AC
+
Rectifier

Ohm's Law (ओम नियम)

विद्युत को बहने में जो कि प्रकार का प्रतिरोध करता है - Resistance (R)

Obstruction offered in the path of current.

$V \propto I$

$V = RI$

$$R = \frac{V}{I}$$ ohm (Ω)

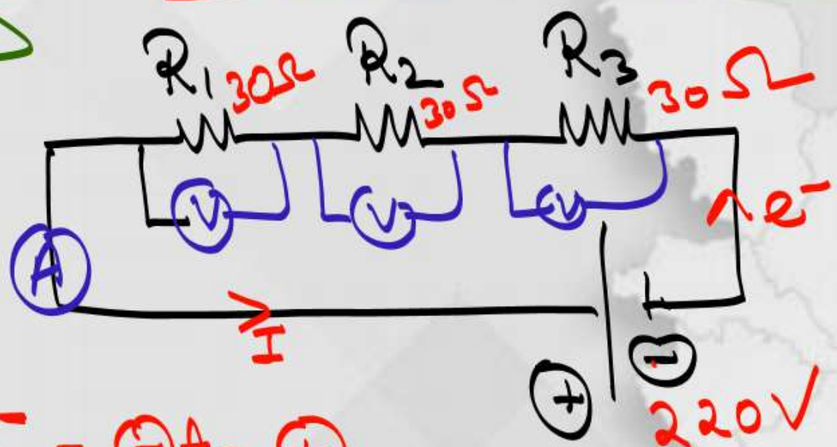
$1\Omega = \frac{1 \text{ volt}}{1 \text{ Ampere}}$

$V = IR$

$I = \frac{V}{R}$

$R = \frac{V}{I}$

Series (श्रेणी) | Parallel (समांतर)



e^- = ⊖ to ⊕

I = ⊕ to ⊖

समांतर

$R = R_1 + R_2 + R_3$

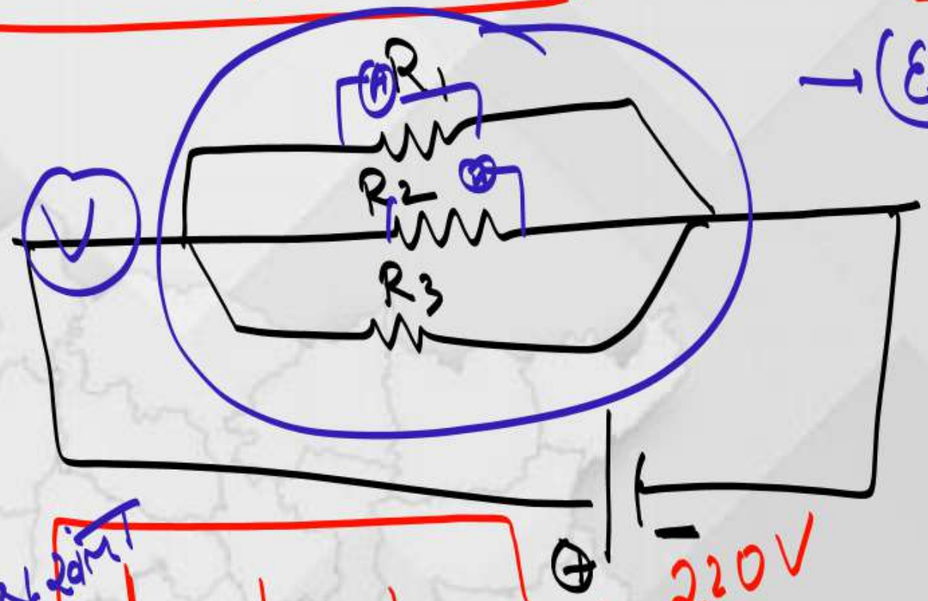
श्रेणी

R = 90Ω

$I = V/R = 220/90 = 22/9$ Ampere

I = ?

R = ?



→ (धारा)

$R_1 = R_1 = R_3 = 30\Omega$

R = ?

I = ?

$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

$\frac{1}{R} = \frac{1}{30} + \frac{1}{30} + \frac{1}{30}$

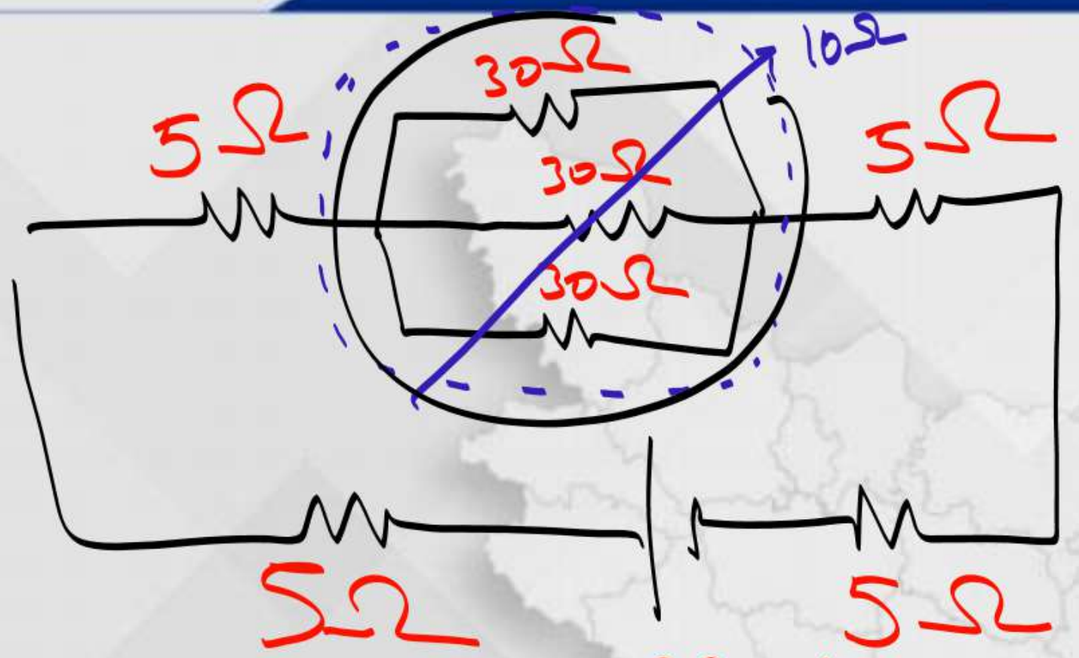
$= \frac{1+1+1}{30} = \frac{3}{30} \frac{1}{10}$

$R = 10\Omega$

$I = \frac{V}{R} = \frac{220}{10} = 22A$

⊆ Voltmeter → श्रेणी

⊂ Ammeter → समांतर



11:15 Am
Bihar KGS
4T

I =
R =

R = 30Ω
33 A
I = V/R = 990/30

(4) $R \propto L \propto \frac{1}{A} \propto T$

$R = \rho \frac{L}{A}$ (ρ = Rho)

$\rho = \frac{RA}{L} = \frac{\Omega m^2}{m} = \Omega m$

विशिष्ट प्रतिरोध
Specific Resistance

(विशिष्ट चालकता
Specific conductivity)

$\Rightarrow \frac{1}{\rho} = \frac{1}{\Omega m}$

$\Rightarrow \Omega^{-1} m^{-1}$

$= \boxed{mho}$

10	$\frac{1}{10}$
20	$\frac{1}{20}$
30	$\frac{1}{30}$
a	$\frac{1}{a}$
b	$\frac{1}{b}$

Electric Conductance (विद्युत चालकता)

$\frac{1}{R} \Rightarrow \frac{1}{\Omega} = \Omega^{-1}$

(Simen)
(सीमेन)