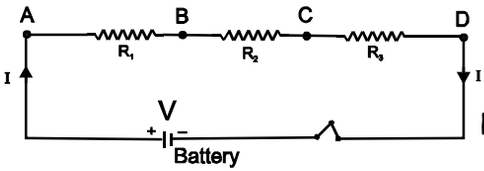
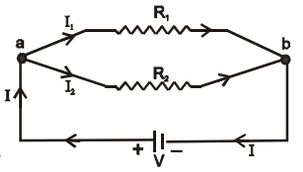
Class-X(Cancept Map)



Series combination of resistances

$R_s = R_1 + R_2 + R_3 + \ldots$

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



Parallel combination of resistances

Series

Parallel

At constant temperature
V = IR

Amount of heat
$H = VIt = I^2Rt = (V^2/R)t$

System of resistances

Ohm's Law

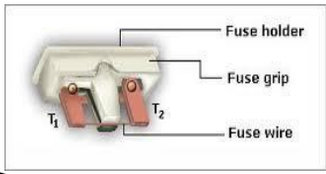
Heating effect of current

Heat in to work

Electric heater

Fuse

Bulb



Where
ρ= resistivtiy
depends
only on
temperature
and material

Unit:ohm Ω

Formula:R=ρL/A

Dependence:
•temperature
•material
•Length
•area

Resistance

ELECTRICITY

Electric current

Rate of flow of electric charges

Unit:ampere

Formula:I=Q/t

Measurement: by ammeter

Defination:
Electric energy
per unit time

Unit : watt(W)

Formula:
$P = I^2R = \frac{V^2}{R} = VI$

Commercial unit:
$KWH = 3.6 \times 10^6 J$

Power

House hold electricity

Circuit Diagram

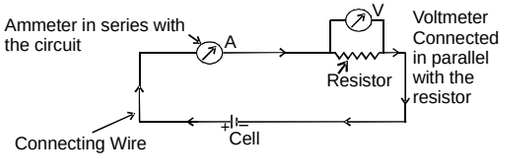
Electric Potential

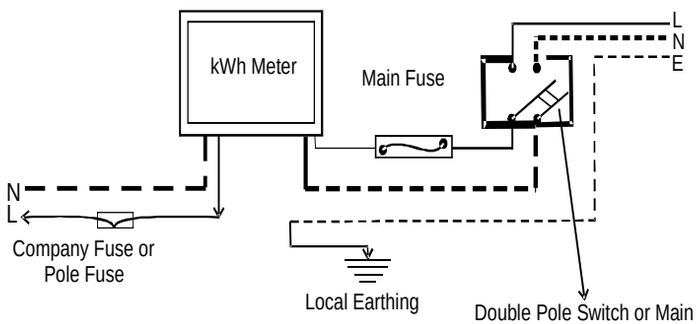
Definition:
Work done to move
a unit charge

Unit:volt(V)

Formula:V=W/Q

Measurement: by voltmeter





Switch: Close Open

Bulb:

Galvanometer: G