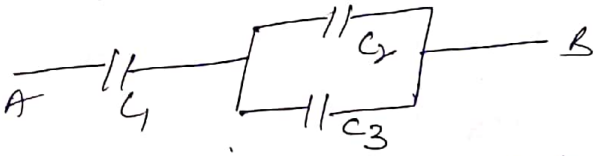
Important Questions

Subject: Physics

Short Questions

1. Give Full Form of SONAR
2. The Heat travels in _____ line. Ans: [Ampere]
3. The unit of electric current is _____
4. Full form of LASER
5. Define SHM with example.
6. Unit of capacitance? [Ans: farad]
7. Instrument used to see for objects like planet & stars called _____ (Ans: Telescope)
8. 

what will be equivalent Capacitance in given figure. [Ans. $C_{eq} = \frac{C_1 C_2}{C_1 + C_2}$]
9. Unit of Resistance.
10. solve 

$R_{eq} = ?$
11. Define Kinetic Theory of Heat.
12. Define Rectifier.
13. Define Gauss Law. Give formula
14. Define Optical fiber.
13. Define Power of Lens. give its unit.
14. 

find out equivalut capacitance in the given figure

Long Questions

1. Explain Transverse and Longitudnal waves with example.
   or
   Difference b/w Transverse & Longitudnal waves.

2. Define a) Reverberation
   b) Reverberation time.
   c) Echo
   d) Noise.

3. State & explain coulomb's law.

4. Difference b/w AC & DC

5. Define Nano materials with example. What are its application.

6. Write short note on intrinsic & extrenic semi-conductors.

7. Define and explain TIR with example.

8. Explain the methods of Transfer of Heat
   Heat → Convection
   → Radiation
   → Conduction.

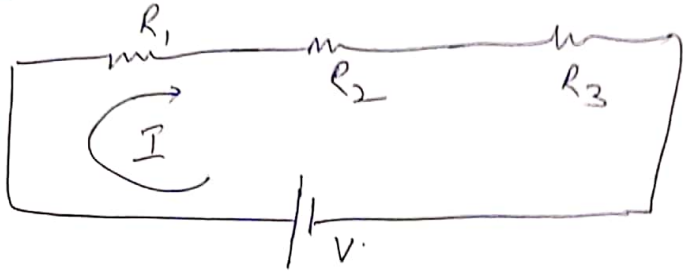
9. Calculate the Total capacitance when capacitors are connected in
   a) series b) parallel.

10. Define Rectifier. Explain full wave Rectifier in details.

Connection of Resistors

in Series

Suppose R_1 & R_2 & R_3 connected in series.



Let due to voltage V, I current flow in circuit.

So, I current will flow through R_1, R_2 & R_3.

But voltage will appear diffent. across. R_1

$$V_1 = IR_1 \quad -(1)$$

across R_2 $\quad V_2 = IR_2 \quad -(2)$

across R_3 $\quad V_3 = IR_3 \quad -(3)$

Total voltage V will be.

$$V = V_1 + V_2 + V_3 \quad -(4)$$

Put the value of V_1 & V_2 & V_3 in eqn (4)

$$V = IR_1 + IR_2 + IR_3$$

$$V = I(R_1 + R_2 + R_3)$$

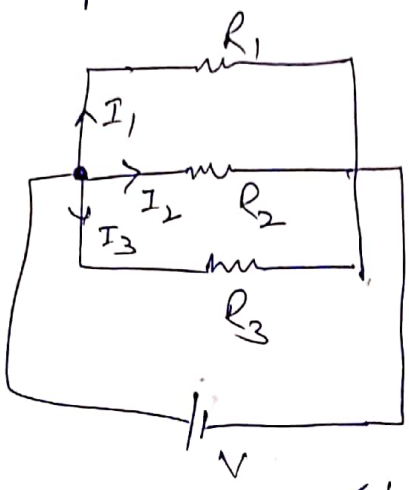
$$\frac{V}{I} = R_1 + R_2 + R_3$$

$$\boxed{R_{eq.} = R_1 + R_2 + R_3}$$

Total Resistance of the circuit.

In Parallel

Suppose R_1, R_2 & R_3 connected in parallel.



Voltage appears across the R_1, R_2 & R_3 are same.

But current will divided as we studied in KCL

Let I_1 & I_2 & I_3 currents are flowing through R_1, R_2 & R_3

So $I_1 = \frac{V}{R_1}$ (By ohm's law) — (1)

$I_2 = \frac{V}{R_2}$ — (2)

$I_3 = \frac{V}{R_3}$ — (3)

Total current = $I = I_1 + I_2 + I_3$

Put value of I_1, I_2 & I_3 from equation (1), (2) & (3)

$$I = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$$

$$\frac{V}{R_{eq}} = V\left(\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}\right)$$

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$R_{eq} = \frac{R_1 R_2 R_3}{R_1 + R_2 + R_3}$$

As we studied in case of Resistors

in Resistor connected in series.

$$R_{eq} = R_1 + R_2 + R_3$$

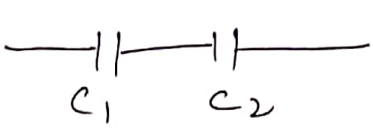
In parallel

$$R_{eq} = \frac{R_1 R_2 R_3}{R_1 + R_2 + R_3}$$

In case of capacitors

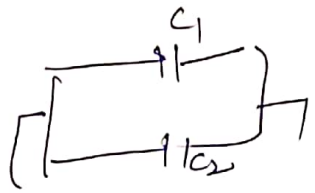
It is opposite to Resistance.

ie in series.



$$\Rightarrow \frac{C_1 C_2}{C_1 + C_2}$$ ✓

in parallel



$$= C_1 + C_2$$ ✓

(see derivations in Books)

For Any Query & Problems

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Keep Learning...