

# NDA-CDS 1 2025

# GS

LIVE

# PHYSICS

ELECTRICITY

# MCQS



NAVJYOTI SIR

SSBCrack  
EXAMS



## 04 Feb 2025 Live Classes Schedule

7:00AM --- 04 FEBRUARY 2025 DAILY DEFENCE UPDATES --- DIVYANSHU SIR

10:00AM --- 04 FEBRUARY 2025 DAILY CURRENT AFFAIRS --- RUBY MA'AM

### SSB INTERVIEW LIVE CLASSES

7:30AM --- ONLINE COURSE INTRODUCTION --- ANURADHA MA'AM

### AFCAT 1 2025 LIVE CLASSES

12:30PM --- REASONING - FIGURE COMPLETION --- RUBY MA'AM

3:00PM --- STATIC GK - WORLD HERITAGE SITES IN INDIA --- DIVYANSHU SIR

4:30PM --- ENGLISH - IDIOMS & PHRASES - CLASS 1 --- ANURADHA MA'AM

### NDA 1 2025 LIVE CLASSES

10:00AM --- MATHS - PERMUTATION & COMBINATION - CLASS 2 --- NAVJYOTI SIR

11:30AM --- HISTORY COMBINED MCQS --- RUBY MA'AM

1:00PM --- PHYSICS - ELECTRICITY --- NAVJYOTI SIR

4:30PM --- ENGLISH - IDIOMS & PHRASES - CLASS 1 --- ANURADHA MA'AM

### CDS 1 2025 LIVE CLASSES

11:30AM --- HISTORY COMBINED MCQS --- RUBY MA'AM

1:00PM --- PHYSICS - ELECTRICITY --- NAVJYOTI SIR

4:30PM --- ENGLISH - IDIOMS & PHRASES - CLASS 1 --- ANURADHA MA'AM

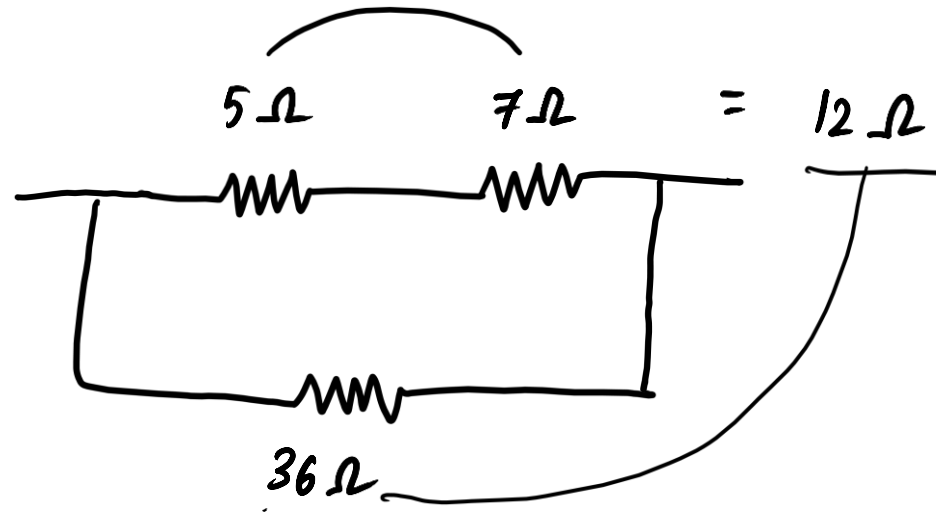
5:30PM --- MATHS - GEOMETRY - CLASS 2 --- NAVJYOTI SIR



# ELECTRICITY - MCQs



Two resistances of  $5.0 \Omega$  and  $7.0 \Omega$  are connected in series and the combination is connected in parallel with a resistance of  $36.0 \Omega$ . The equivalent resistance of the combination of three resistors is



- (a)  $24.0 \Omega$
- (b)  $12.0 \Omega$
- (c)  $9.0 \Omega$
- (d)  $6.0 \Omega$

$$R_s = R_1 + R_2 + \dots \text{ (Series)}$$

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \dots \text{ (parallel)}$$

$$\frac{12 \times 36}{12 + 36} = \frac{12 \times 36}{48} = 9 \Omega$$

Two resistances of  $5.0 \Omega$  and  $7.0 \Omega$  are connected in series and the combination is connected in parallel with a resistance of  $36.0 \Omega$ . The equivalent resistance of the combination of three resistors is

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**ANS : C**

Lightning is due to

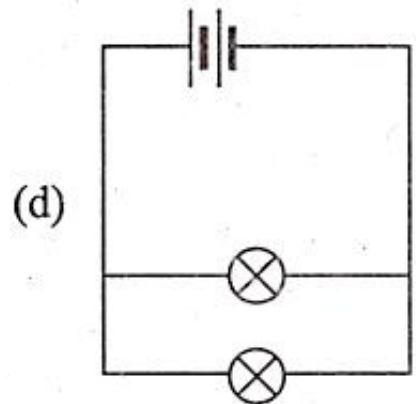
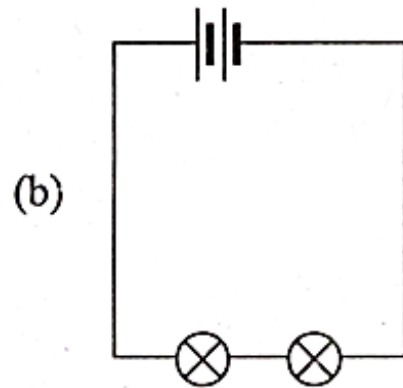
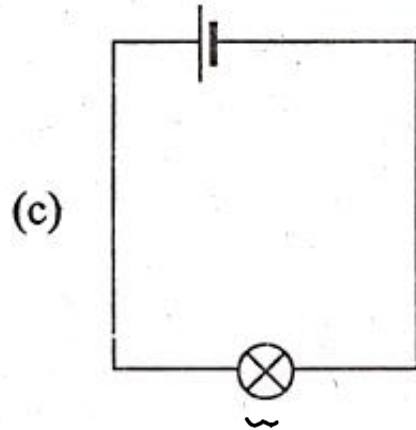
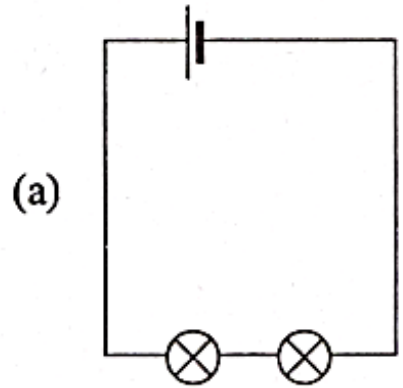
- (a) The flow of charges between different parts of the cloud
- (b) The short-circuiting of charges between the upper and lower surfaces of the cloud
- (c) The collection of positively charged particles on the base and collection of negatively charged particles at the top of the cloud
- (d) The induction of positive charge on the ground below the negative charge at the base of the cloud

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- (a) The flow of charges between different parts of the cloud
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- (d) The induction of positive charge on the ground below the negative charge at the base of the cloud

**ANS : D**

In which one among the following situations, the bulb  $\otimes$  would glow the most? (Consider all batteries are the same)



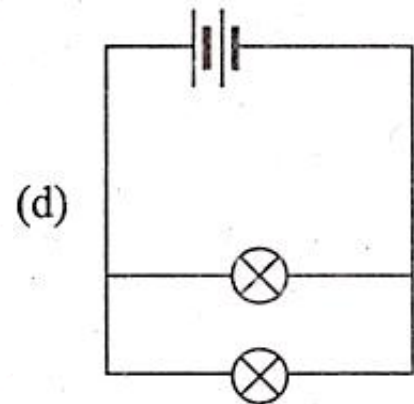
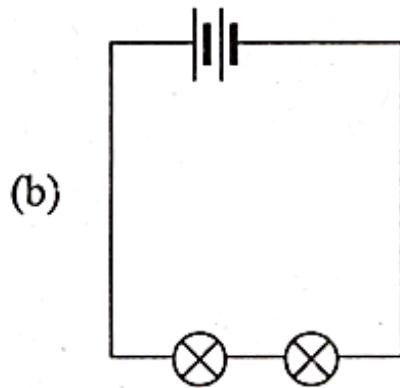
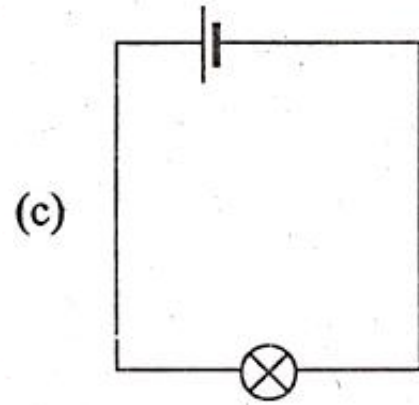
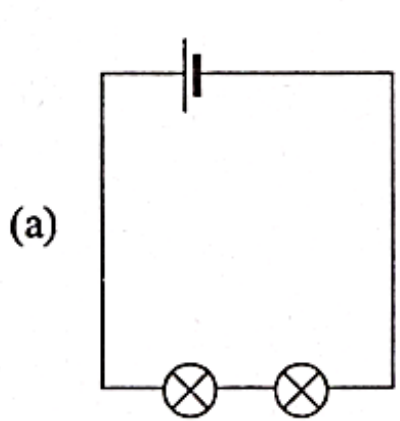
max. glow  $\Rightarrow$  max. current

more V  $\Rightarrow$  more I ( (a) & (c) are rejected )

(b) series — (d) parallel  
 more I  $\Rightarrow$  less Resistance  
 Equivalent resistance of parallel is less than series.

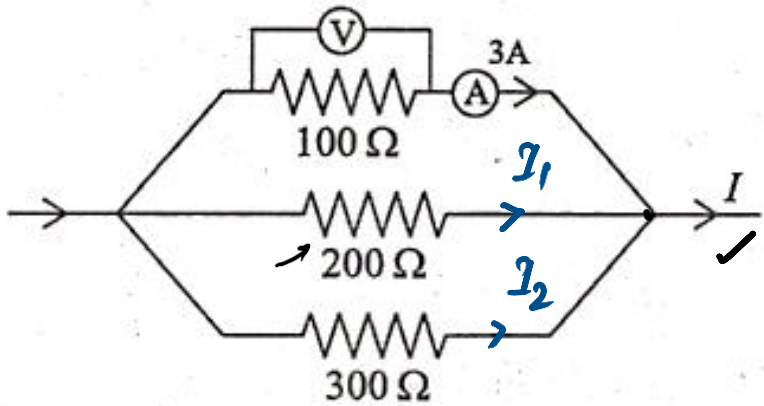


In which one among the following situations, the bulb  $\otimes$  would glow the most? (Consider all batteries are the same)



ANS : D

For an electric circuit given below, the correct combination of voltage ( $V$ ) and current ( $I$ ) is



- (a)  $V = 900 \text{ V}; I = 18 \text{ A}$
- (b)  $V = 300 \text{ V}; I = 5.5 \text{ A}$
- (c)  $V = 600 \text{ V}; I = 1 \text{ A}$
- (d)  $V = 300 \text{ V}; I = 2 \text{ A}$

$$I = 3\text{A} + I_1 + I_2 \text{ (Kirchoff's 1st law)}$$

$100 \Omega, 200 \Omega$  &  $300 \Omega$  are in parallel.

$\Rightarrow$  Same voltage on all three.

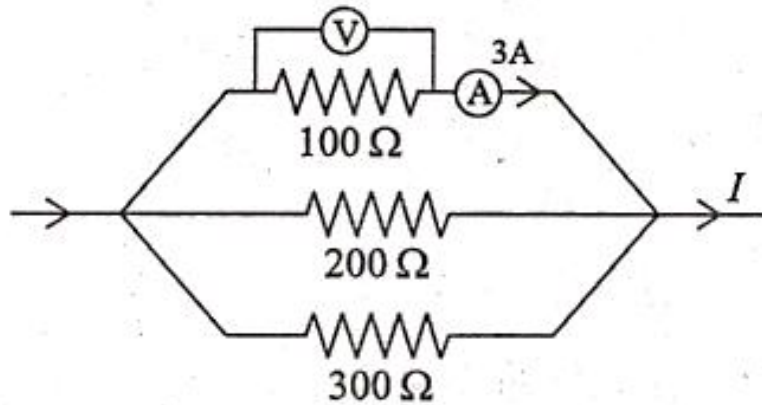
$$V = IR = 3 \times 100 \Omega = 300 \text{ V}$$

$$I_1 = \frac{V}{R} = \frac{300}{200} = 1.5 \text{ A}$$

$$I_2 = \frac{V}{R} = \frac{300}{300} = 1 \text{ A}$$

$$I = 3 + 1 + 1.5 = \underline{\underline{5.5 \text{ A}}}$$

For an electric circuit given below, the correct combination of voltage ( $V$ ) and current ( $I$ ) is



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- (c)  $V = 600\ \text{V}; I = 1\ \text{A}$
- (d)  $V = 300\ \text{V}; I = 2\ \text{A}$

**ANS : B**

An incandescent electric bulb converts 20% of its power consumption into light, and the remaining power is dissipated as heat. The bulb's filament has a resistance of  $200 \Omega$  and 2 A current flows through it. If the bulb remains ON for 10 h and the rate of electricity charge is ₹5/unit, then which among the following is the correct amount for the money spent on producing light?

- (a) ₹5
- (b) ₹6
- (c) ₹7
- (d) ₹8

$$\text{Power} = I^2 R$$

$$(P) = (2)^2 \times 200 = 800 \text{ W}$$

$$P \text{ (in kW)} = \frac{800}{1000} = 0.8 \text{ kW}$$

$$20\% \text{ of } P = \frac{1}{5} \times 0.8 = \underline{0.16 \text{ kW}}$$

(producing light)

For 10 h, energy =  $0.16 \times 10 = 1.6 \text{ kWh}$  Commercial unit of energy

$$1.6 \times ₹ 5 = \text{₹ } 8$$

An incandescent electric bulb converts 20% of its power consumption into light, and the remaining power is dissipated as heat. The bulb's filament has a resistance of  $200 \Omega$  and 2 A current flows through it. If the bulb remains ON for 10 h and the rate of electricity charge is ₹5/unit, then which among the following is the correct amount for the money spent on producing light ?

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- (c) ₹7
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**ANS : D**

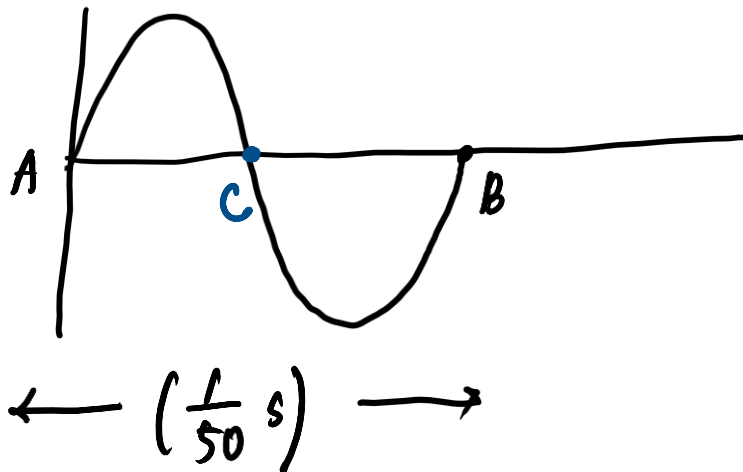
The AC mains domestic supply current in India changes direction in every

- (a) 50 s
- (b)  $\frac{1}{50}$  s
- (c) 100 s
- (d)  $\frac{1}{100}$  s

$\frac{50 \text{ Hz}, 220 \text{ V}}$   
|  
frequency

Time period =  $\frac{1}{50} \text{ s}$

Time till AC =  $\frac{1}{2} \left( \frac{1}{50} \text{ s} \right) = \frac{1}{100} \text{ s}$



The AC mains domestic supply current in India changes direction in every

- (a) 50 s
- (b)  $\frac{1}{50}$  s
- (c) 100 s
- (d)  $\frac{1}{100}$  s

**ANS : D**

Which one of the following is primarily responsible for conduction of current in a metal ?

- (a) Bound electrons
- (b) Free electrons
- (c) Both bound and free electrons
- (d) Ions

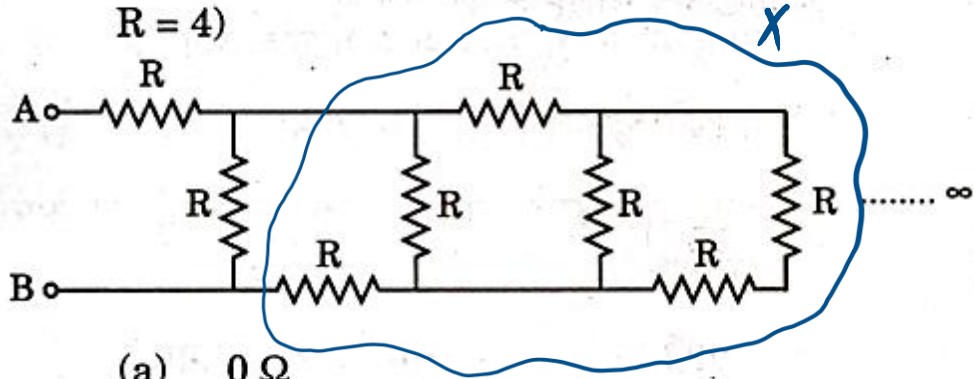


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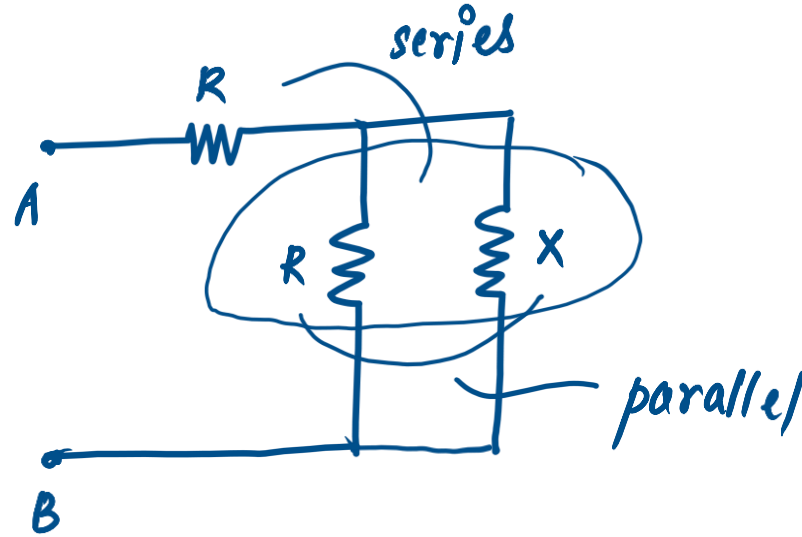
- (a) Bound electrons
- (b) Free electrons
- (c) Both bound and free electrons
- (d) Ions

**ANS : B**

An infinite combination of resistors, having resistance  $R = 4 \Omega$ , is given below. What is the net resistance between the points A and B? (Each resistance is of equal value,  $R = 4$ )



- (a)  $0 \Omega$
- (b)  $2 + 2\sqrt{5} \Omega$
- (c)  $2 + \sqrt{5} \Omega$
- (d)  $\infty \Omega$



$$X = R + \frac{RX}{R+X}$$

$$X = 4 + \frac{4X}{4+X}$$

$$4X + X^2 = 16 + 4X + 4X$$

$$X^2 - 4X - 16 = 0$$

$$x^2 - 4x - 16 = 0$$

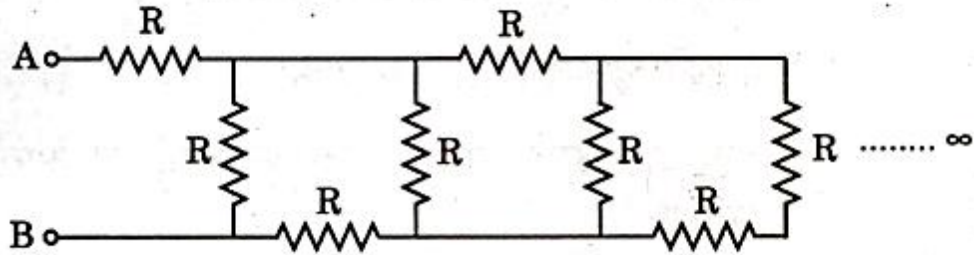
$$x = \frac{4 \pm \sqrt{16 - 4 \times (-16)}}{2}$$

$$x = \frac{4 \pm 4\sqrt{5}}{2} = 2 \pm 2\sqrt{5}$$

$2 + 2\sqrt{5}$

$2 - 2\sqrt{5} = -ve$  (not possible)

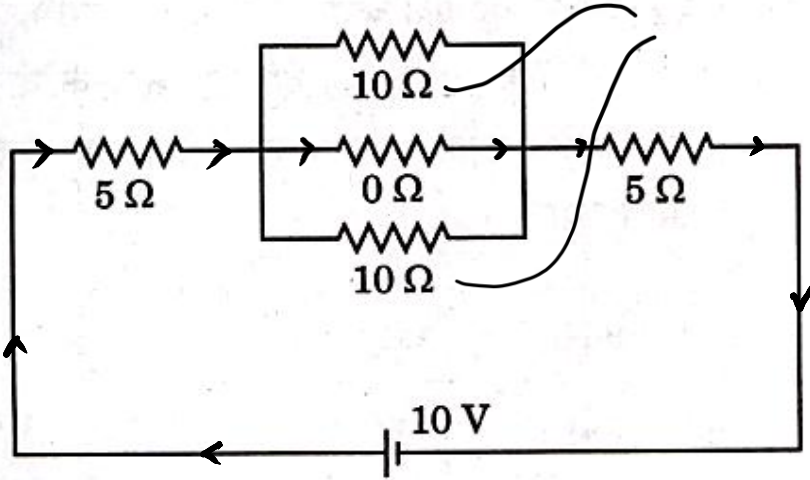
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- (d)  $\infty \Omega$

**Answer: (B)**

Consider the following electric circuit :



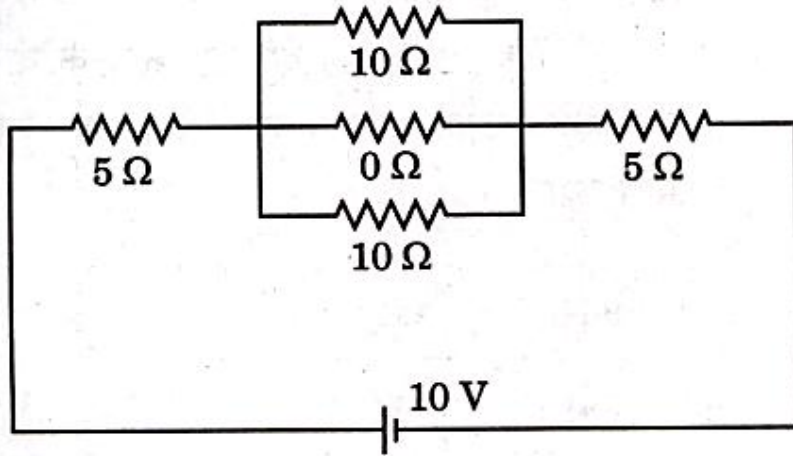
The current in the above electric circuit is :

- (a) 1 A
- (b) (10/15) A
- (c) 2 A
- (d) 1.5 A

Current will go straight through  $0\ \Omega$  resistance.

$$I = \frac{10}{\text{Equivalent}} = \frac{10}{5+5} = 1\text{ A}$$

Consider the following electric circuit :

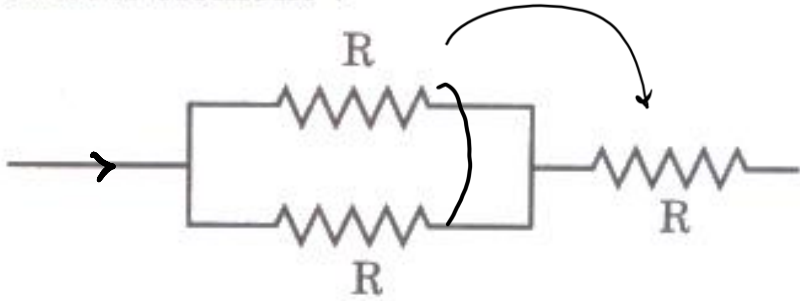


The current in the above electric circuit is :

- (a) 1 A
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- (c) 2 A
- (d) 1.5 A

**Answer: (A)**

What is the total resistance in the following circuit element ?

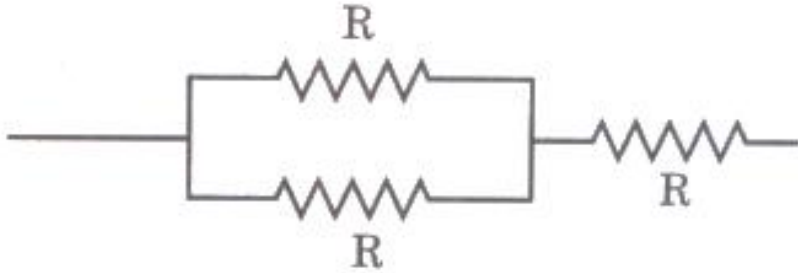


$$\frac{R}{2} + R = \frac{3R}{2}$$

- (a)  $R/2$
- (b)  $3R$
- (c)  $3R/2$
- (d)  $2R/3$

\* If  $n$  equal resistors of resistance ' $R$ '  $\Omega$  are  
 → connected in parallel  $\Rightarrow R_{eq} = \frac{R}{n}$   
 → connected in series  $\Rightarrow R_{eq} = \underline{\underline{nR}}$

What is the total resistance in the following circuit element ?



- (a)  $R/2$
- (b)  $3R$
- (c)  $3R/2$
- (d)  $2R/3$

**Answer: (C)**



The cost of energy to operate an industrial refrigerator that consumes 5 kW power working 10 hours per day for 30 days will be

(Given that the charge per kW.h of energy = ₹ 4)

- (a) ₹ 600
- (b) ₹ 6,000
- (c) ₹ 1,200
- (d) ₹ 1,500

(HW)

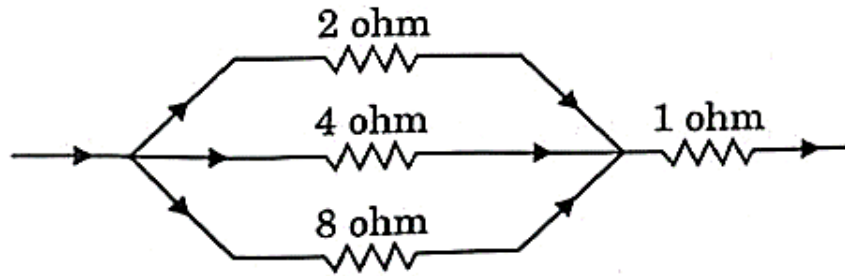
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**Answer: (B)**

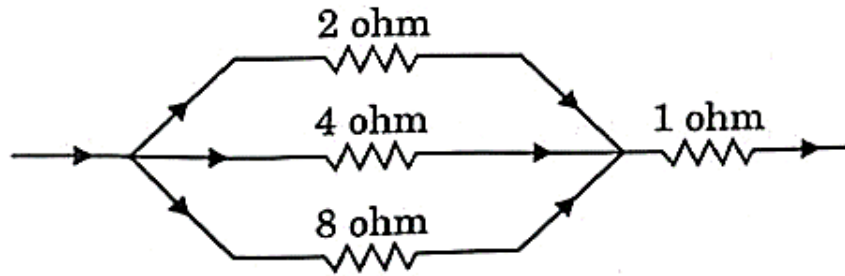
Consider the following part of an electric circuit :



The total electrical resistance in the given part of the electric circuit is

- (a)  $\frac{15}{8}$  ohm
- (b)  $\frac{15}{7}$  ohm
- (c) 15 ohm
- (d)  $\frac{17}{3}$  ohm

Consider the following part of an electric circuit :

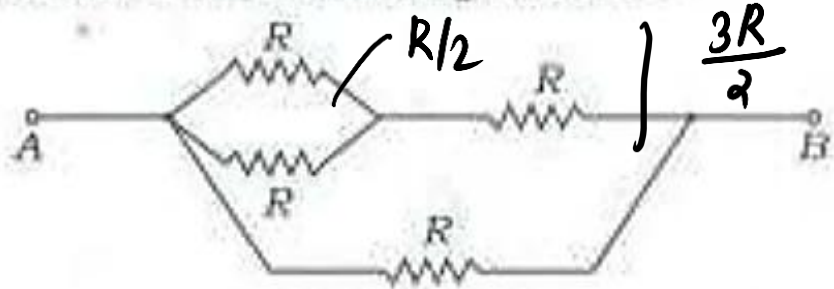


The total electrical resistance in the given part of the electric circuit is

- (a)  $\frac{15}{8}$  ohm
- (b)  $\frac{15}{7}$  ohm
- (c) 15 ohm
- (d)  $\frac{17}{3}$  ohm

**Answer: (B)**

Consider the following circuit :



Which one of the following is the value of the resistance between points A and B in the circuit given above?

- (a)  $\frac{2}{5} R$
- (b)  $\frac{3}{5} R$
- (c)  $\frac{3}{2} R$
- (d)  $4R$

$$\frac{\frac{3R}{2} \times R}{\frac{3R}{2} + R}$$

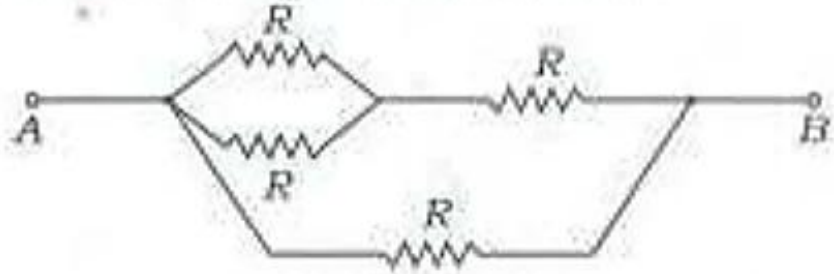
$$\frac{\frac{3}{2} R^2}{\frac{5}{2} R}$$

$$\frac{3}{5} R$$

For  $R_1, R_2$  in parallel,

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

Consider the following circuit :



Which one of the following is the value of the resistance between points A and B in the circuit given above?

- (a)  $\frac{2}{5}R$
- (b)  $\frac{3}{5}R$
- (c)  $\frac{3}{2}R$
- (d)  $4R$

**Answer: (B)**

Which one of the following is the value of 1 kWh of energy converted into joules?

- (a)  $1.8 \times 10^6 \text{ J}$
- (b)  $3.6 \times 10^6 \text{ J}$
- (c)  $6.0 \times 10^6 \text{ J}$
- (d)  $7.2 \times 10^6 \text{ J}$

$$\begin{array}{l} \text{1 kWh} \\ \underbrace{\hspace{1.5cm}} \\ \downarrow \qquad \searrow \\ \text{1000 W} \quad \text{3600 s} \end{array}$$

$$= \underline{3.6 \times 10^6 \text{ J}}$$

$$J \longrightarrow \underline{\text{Watt}} \times \underline{\text{seconds}}$$

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- (d)  $7.2 \times 10^6 \text{ J}$

**Answer: (B)**



Which one of the following devices is non-ohmic ?

*not following ohm's law,*

- (a) Conducting copper coil
- (b) Electric heating coil
- (c) Semi conductor diode
- (d) Rheostat

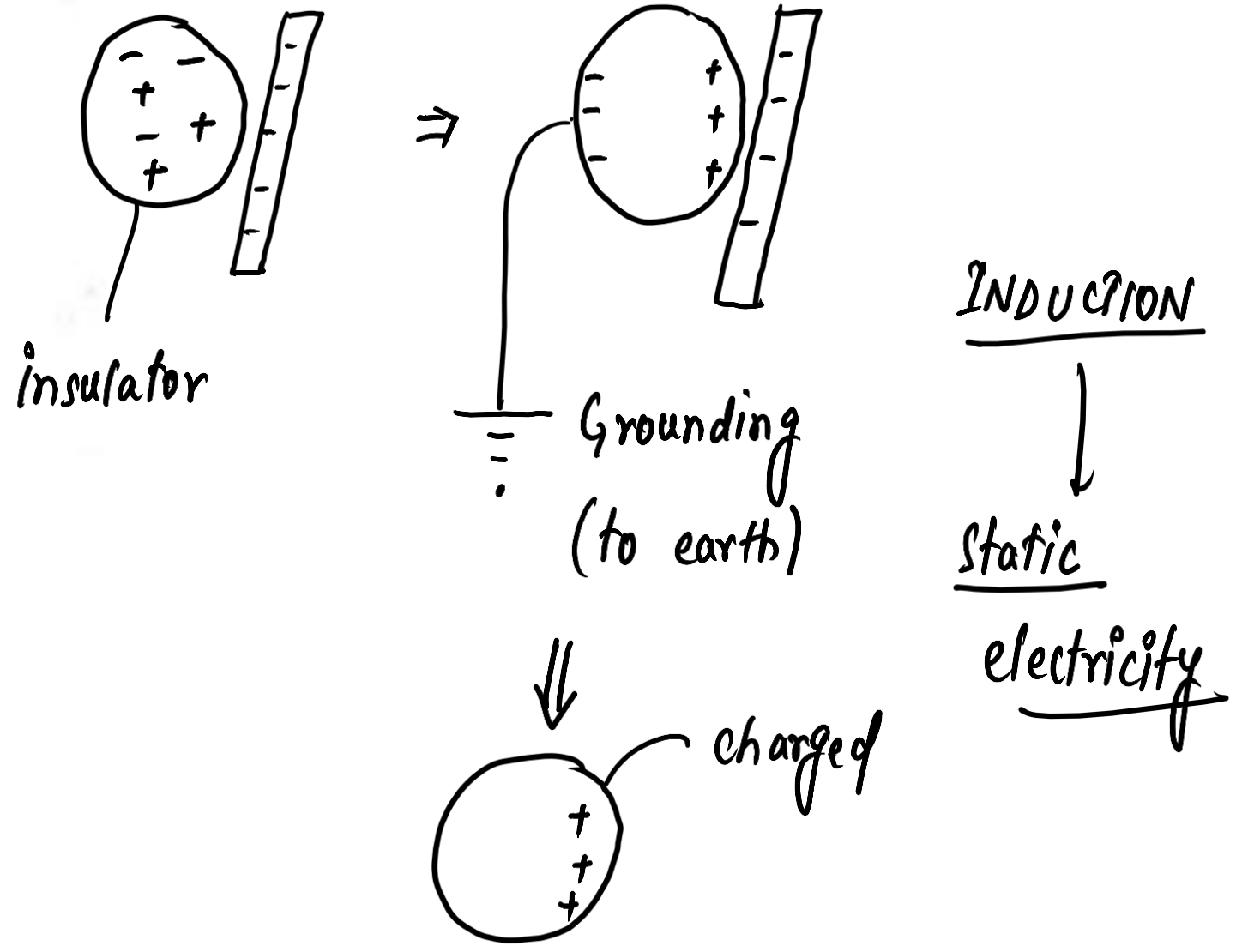
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- (a) Conducting copper coil
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- (d) Rheostat

**Answer: (C)**

Which one of the following can charge an insulator ?

- (a) Current electricity
- (b) Static electricity
- (c) Magnetic field
- (d) Gravitational field



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- (a) Current electricity
- (b) Static electricity
- (c) Magnetic field
- (d) Gravitational field

**Answer: (B)**

A current of 1.0 A is drawn by a filament of an electric bulb for 10 minutes. The amount of electric charge that flows through the circuit is

- (a) 0.1 C
- (b) 10 C
- (c) 600 C
- (d) 800 C

$$\begin{aligned} \text{(Q) charge} &= \text{current (I)} \\ \text{(t) Time} & \end{aligned}$$

$$\begin{aligned} Q &= It \\ &= 1.0 \times (10 \times 60s) \\ &= \boxed{600 \text{ C}} \end{aligned}$$

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- (b) 10 C
- (c) 600 C
- (d) 800 C

**Answer: (C)**

Which one of the following correctly represents the SI unit of resistivity?

(a)  $\Omega$

(b)  $\Omega / \text{m}$

(c)  $\Omega \text{ cm}$

(d)  $\Omega \text{ m}$

$$R = \frac{\rho l}{A}$$

Handwritten annotations for the formula above:  $R$  is labeled with  $\Omega$ ,  $l$  is labeled with  $\text{m}$ , and  $A$  is labeled with  $\text{m}^2$ .

$$\rho = \frac{\Omega \times \text{m}^2}{\text{m}} = \underline{\underline{\Omega \text{ m}}}$$

Which one of the following correctly represents the SI unit of resistivity?

(a)  $\Omega$

(b)  $\Omega / \text{m}$

(c)  $\Omega \text{ cm}$

(d)  $\Omega \text{ m}$

**Answer: (D)**



Which one of the following formulas does *not* represent electrical power ?

(a)  $I^2 R$

(b)  $I R^2$

(c)  $V I$

(d)  $V^2 / R$

$$\left. \begin{aligned} P &= V I \\ &= I^2 R \\ &= \frac{V^2}{R} \end{aligned} \right\}$$

Which one of the following formulas does *not* represent electrical power ?

(a)  $I^2 R$

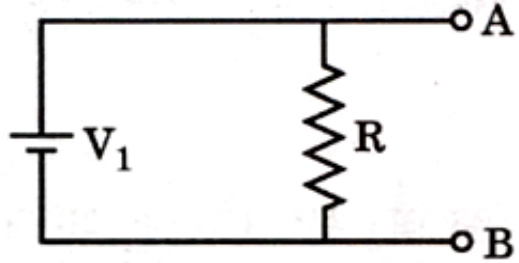
(b)  $I R^2$

(c)  $V I$

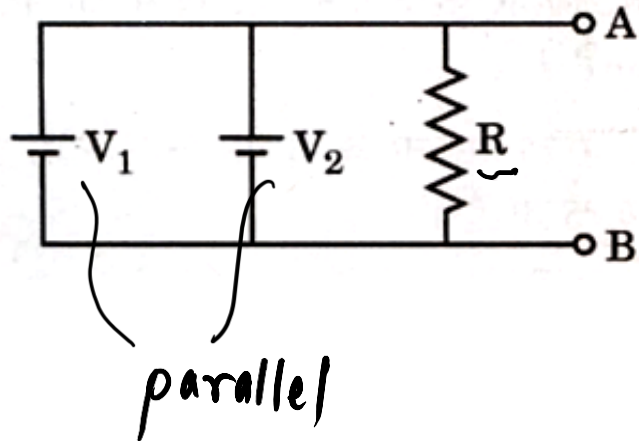
(d)  $V^2 / R$

**Answer: (B)**

An electric circuit is given below.  $V_1 = 1\text{ V}$  and Resistance  $R = 1000\ \Omega$ .



The current through the resistance  $R$  is very close to  $1\text{ mA}$  and the voltage across point  $A$  and  $B$ ,  $V_{AB} = 1\text{ V}$ . Now the circuit is changed to:



where value of  $V_2 = 5\text{ V}$ . The internal resistances of both the batteries are  $0.1\ \Omega$ . The current through the resistance  $R$  is about:

- (a)  $1.0\text{ mA}$
- (b)  $1.2\text{ mA}$
- (c)  $3.0\text{ mA}$
- (d)  $5.0\text{ mA}$

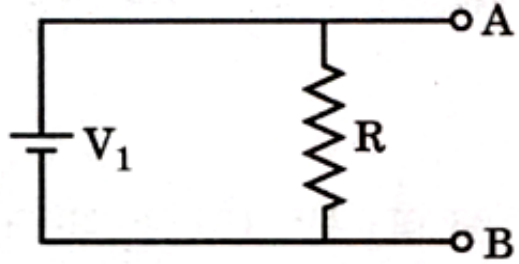
$V_1, V_2$  — emf

equivalent voltage,

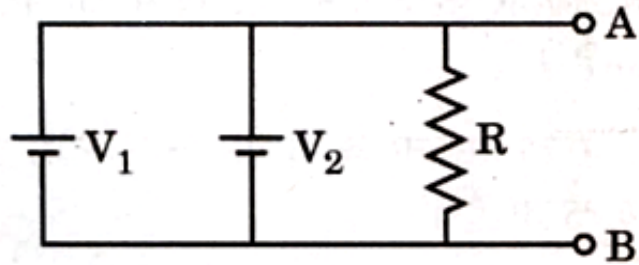
$$V = \frac{V_1 + V_2}{\frac{1}{r_1} + \frac{1}{r_2}} = \frac{1 + 5}{\frac{1}{0.1} + \frac{1}{0.1}} = \frac{6}{2} = \underline{3\text{ V}}$$

current through  $R = \frac{3}{1000} = 3 \times 10^{-3}\text{ A} = 3\text{ mA}$

An electric circuit is given below.  $V_1 = 1 \text{ V}$  and Resistance  $R = 1000 \ \Omega$ .



The current through the resistance  $R$  is very close to 1 mA and the voltage across point A and B,  $V_{AB} = 1 \text{ V}$ . Now the circuit is changed to :



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- (a) 1.0 mA
- (b) 1.2 mA
- (c) 3.0 mA
- (d) 5.0 mA

**ANS : C**

An electric wire of resistance 50 ohm is cut into five equal wires. These wires are then connected in parallel. What is the equivalent resistance of this combination ?

$$R = \frac{\rho l}{A} \Rightarrow R \propto l$$

- A. 2 ohms
- B. 10 ohms
- C. 0.5 ohms
- D. 5 ohms

$$\frac{50}{5} = 10 \Omega$$

$$\text{equivalent resistance} = \frac{10}{5} = 2 \Omega$$

**An electric wire of resistance 50 ohm is cut into five equal wires. These wires are then connected in parallel. What is the equivalent resistance of this combination ?**

- A. 2 ohms**
- B. 10 ohms
- C. 0.5 ohms
- D. 5 ohms

An electric bulb is connected to 220 V generator. The current drawn is 600 mA. What is the power of the bulb ?

- A. 132 W
- B. 13.2 W
- C. 1320 W
- D. 13200 W

$$P = VI$$

$$= (220 \text{ V}) \times (600 \times 10^{-3} \text{ A})$$

$$= 22 \times 6 = \underline{132 \text{ W}}$$

**An electric bulb is connected to 220 V generator. The current drawn is 600 mA. What is the power of the bulb ?**

- A. 132 W**
- B. 13.2 W
- C. 1320 W
- D. 13200 W



Which statements are correct about a wire's electrical resistance and resistivity ?

1. Both quantities depend on the area of cross-section of the wire.  $\propto$
2. Both depend on the temperature. ✓
3. Resistance of the wire is directly proportional to the resistivity of the wire. ✓
4. Resistivity of the wire is directly proportional to the length of the wire.  $\propto$

Select the correct option :

- A. 1 and 2
- B. 2 only
- C. 2 and 3 only
- D. None of these

Resistance (R)

length  $l$

Area of cross section  $A$

temperature  
Resistivity

Resistivity ( $\rho$ )

Temperature

Nature of material

**Which statements are correct about a wire's electrical resistance and resistivity ?**

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**Select the correct option :**

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- B. 2 only
- C. 2 and 3 only**
- D. None of these

Two metallic wires A and B are made using copper. The radius of wire A is  $r$  while its length is  $l$ . A dc voltage  $V$  is applied across the wire A, causing power dissipation  $P$ . The radius of wire B is  $2r$  and its length is  $2l$  and the same dc voltage  $V$  is applied across it causing power dissipation  $P_1$ . Which of the following is the correct relationship between  $P$  and  $P_1$ ?

A.  $P = 2P_1$

B.  $P = P_1 / 2$

C.  $P = 4P_1$

D.  $P = P_1$

$$\text{Power} = \frac{(\text{voltage})^2}{\text{Resistance}}$$

$$R = \frac{\rho l}{\pi r^2}$$

$$R_1 = \frac{\rho(2l)}{\pi(2r)^2} = \frac{2\rho l}{4\pi r^2} = \frac{1}{2} \left( \frac{\rho l}{\pi r^2} \right)$$

$$\frac{P}{P_1} = \frac{\frac{V^2}{R}}{\frac{V^2}{R_1}}$$

$$\frac{P}{P_1} = \frac{R_1}{R} = \frac{1}{2}$$

$$2P = P_1$$

$$(P = P_1 / 2)$$

Two metallic wires A and B are made using copper. The radius of wire A is  $r$  while its length is  $l$ . A dc voltage  $V$  is applied across the wire A, causing power dissipation  $P$ . The radius of wire B is  $2r$  and its length is  $2l$  and the same dc voltage  $V$  is applied across it causing power dissipation  $P_1$ . Which of the following is the correct relationship between  $P$  and  $P_1$  ?

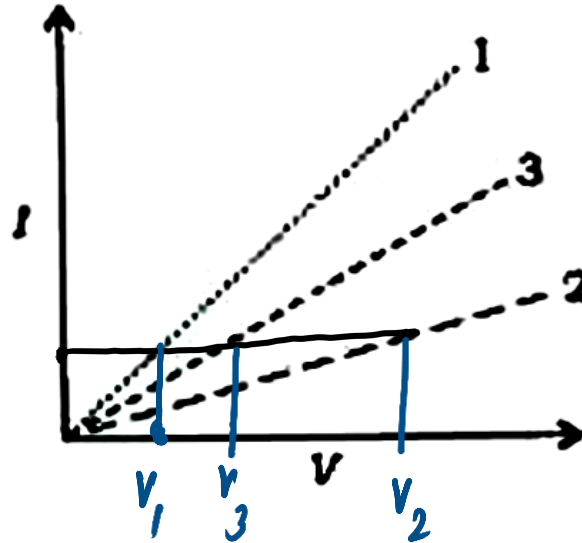
- A.  $P = 2P_1$
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The graphs between current (I) and Voltage (V) for three linear resistors

1, 2, and 3 are given below :

If  $R_1$ ,  $R_2$  and  $R_3$  are the resistances of these resistors , then which one of the following is correct ?

- A.  $R_1 > R_2 > R_3$
- B.  $R_1 < R_3 < R_2$
- C.  $R_3 < R_1 < R_2$
- D.  $R_3 > R_2 > R_1$



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

for same  $I$ ,

greater  $V =$  greater  $R$

$$V_1 < V_3 < V_2 \Rightarrow R_1 < R_3 < R_2$$

The graphs between current (I) and Voltage (V) for three linear resistors

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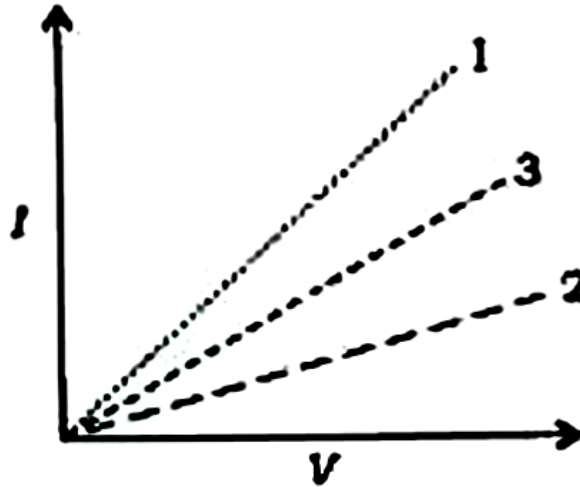
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Water is heated with a coil of resistance  $R$  connected to the domestic supply. The rise of the temperature of water will depend on

1. Supply Voltage.
2. Current passing through the coil.
3. Time for which voltage is supplied.

Which statements are correct ?

- A. 1, 2 and 3
- B. 1 and 2 only
- C. 1 only
- D. 2 and 3 only

Heat produced,  
Joule's law of Heating,  
Heat,  $H = I^2 R t$  Time  
current Resistance

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Which of the following statements correctly explains/explain the existence of a positive force between two electric charges?

1. Both the charges are positive. ✓
2. Both the charges are negative. ✓
3. Both the charges are oppositely charged.

$$F = \frac{k q_1 q_2}{r^2}$$

Select the correct option :

- A. 1 only
- B. 2 only
- C. 1 and 2 only
- D. 1, 2 and 3

$$F > 0 \Rightarrow \overbrace{q_1 q_2} > 0 \Rightarrow F \text{ is repulsive}$$

$$F < 0 \Rightarrow q_1 q_2 < 0 \Rightarrow F \text{ is attractive}$$

**Which of the following statements correctly explains/explain the existence of a positive force between two electric charges?**

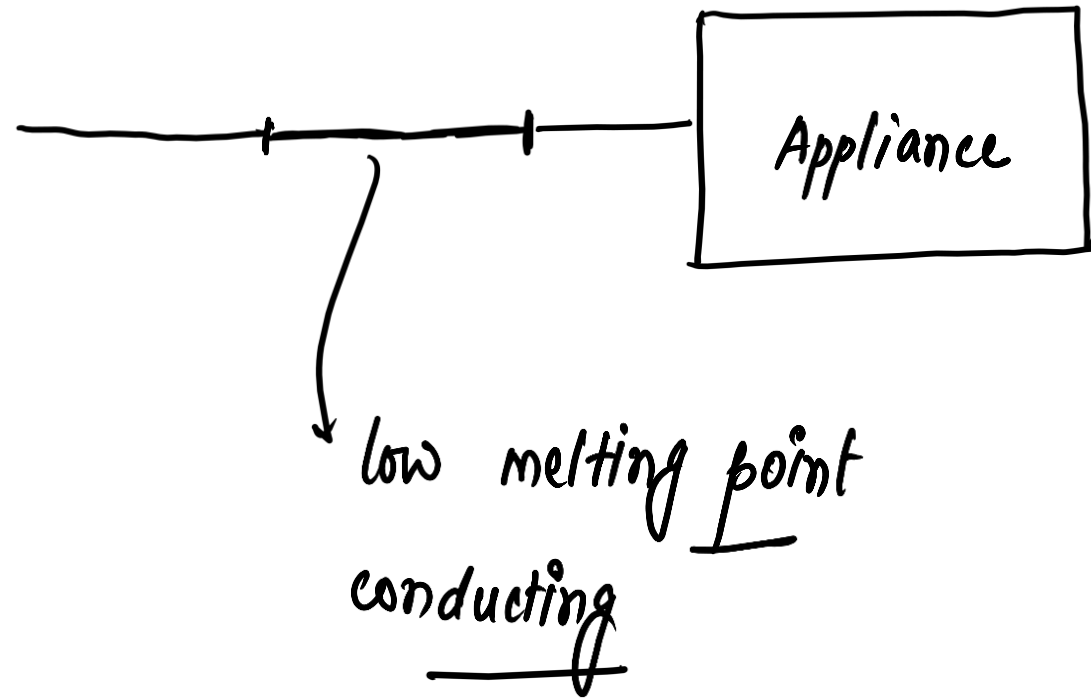
- 1. Both the charges are positive.**
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**Select the correct option :**

- A. 1 only
- B. 2 only
- C. 1 and 2 only**
- D. 1, 2 and 3

## A fuse wire must be

- A. conducting and of low melting point
- B. conducting and of high melting point
- C. insulator and of high melting point
- D. insulator and of low melting point



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- A. **conducting and of low melting point**
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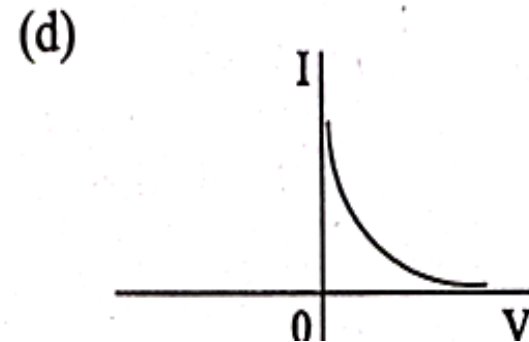
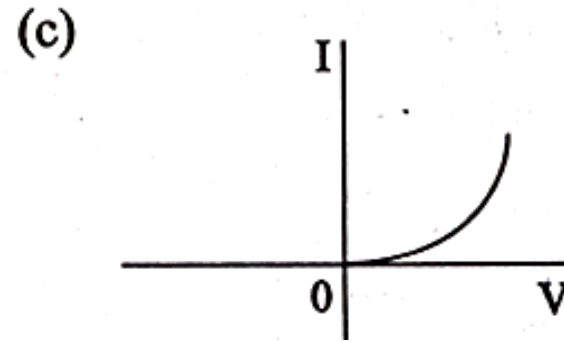
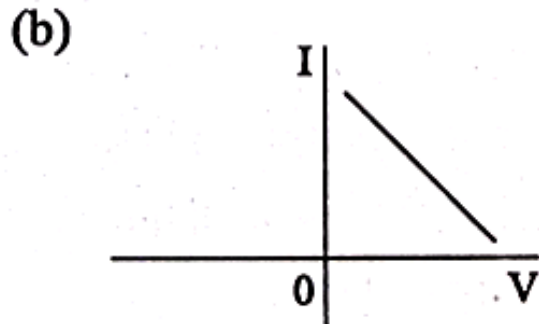
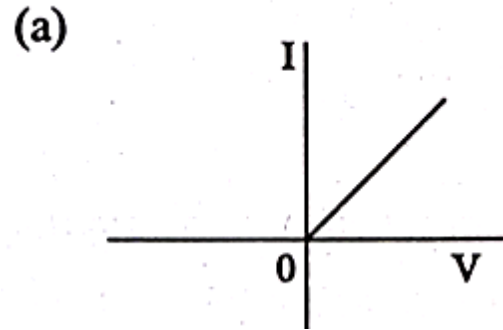
**‘The sum of emf’s and potential differences around a closed loop equals zero’ is a consequence of**

- A. Ohm's Law
- B. Conservation of charge
- C. Conservation of momentum
- D. Conservation of energy

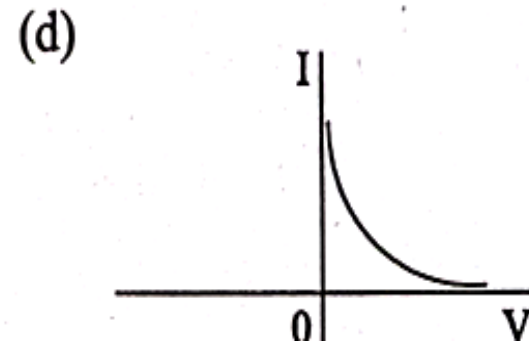
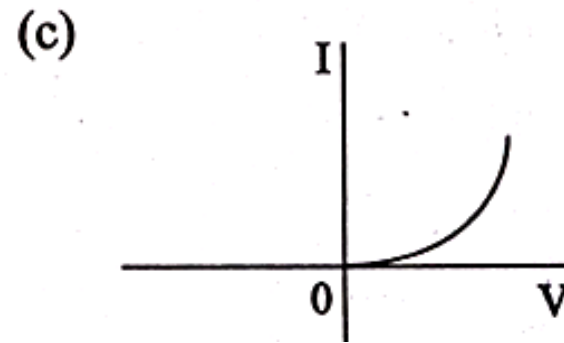
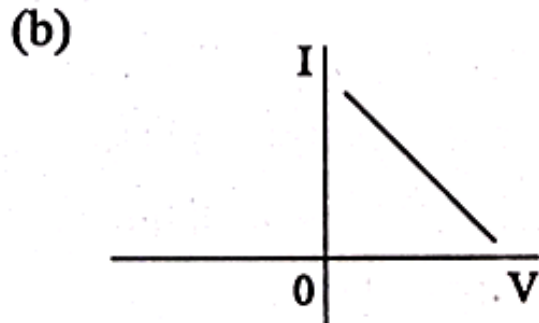
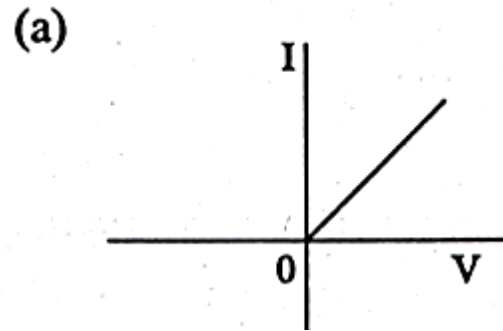
**‘The sum of emf’s and potential differences around a closed loop equals zero’ is a consequence of**

- A. Ohm's Law
- B. Conservation of charge
- C. Conservation of momentum
- D. Conservation of energy**

Which one of the following graphs correctly represents the current (I) - voltage (V) variation for a rectangular piece of a semiconductor wafer ?



Which one of the following graphs correctly represents the current (I) - voltage (V) variation for a rectangular piece of a semiconductor wafer ?



**ANS : C**



**When the short circuit condition occurs, the current in the circuit**

- A. becomes zero
- B. remains constant
- C. increases substantially
- D. keeps on changing randomly

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A given conductor carrying a current of  $I$  ampere. It produces an amount of heat equal to 2000 J. The current through the conductor is doubled the amount of heat produced will be

- (a) 2000 J                      (b) 4000 J  
(c) 8000 J                      (d) 1000 J

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**ANS : C**

The main power supply in India is at 220 V, whereas that in the US is at 110 V. Which one among the following statements in this regard is correct?

- (a) 110 V is safer but more expensive to maintain.
- (b) 110 V is safer and cheaper to maintain.
- (c) 110 V leads to lower power loss.
- (d) 110 V works better at higher latitudes.

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**ANS : A**

In India, distribution of electricity for domestic purpose is done in the form of

- (a) 220 V, 50 Hz
- (b) 110 V, 60 Hz
- (c) 220 V, 60 Hz
- (d) 110 V, 50 Hz

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- (a) 220 V, 50 Hz
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- (d) 110 V, 50 Hz

**ANS : A**



Which one among the following is the correct order of power consumption for light of equal intensity?

- (a) CFL Tube < Fluorescent Tube < Incandescent Bulb < Light Emitting Diode
- (b) Light Emitting Diode < CFL Tube < Fluorescent Tube < Incandescent Bulb
- (c) CFL Tube < Fluorescent Tube < Light Emitting Diode < Incandescent Bulb
- (d) Incandescent Bulb < Light Emitting Diode < Fluorescent Tube < CFL Tube

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**ANS : B**

When an electrical safety fuse is rated (marked) as 16 A, it means it

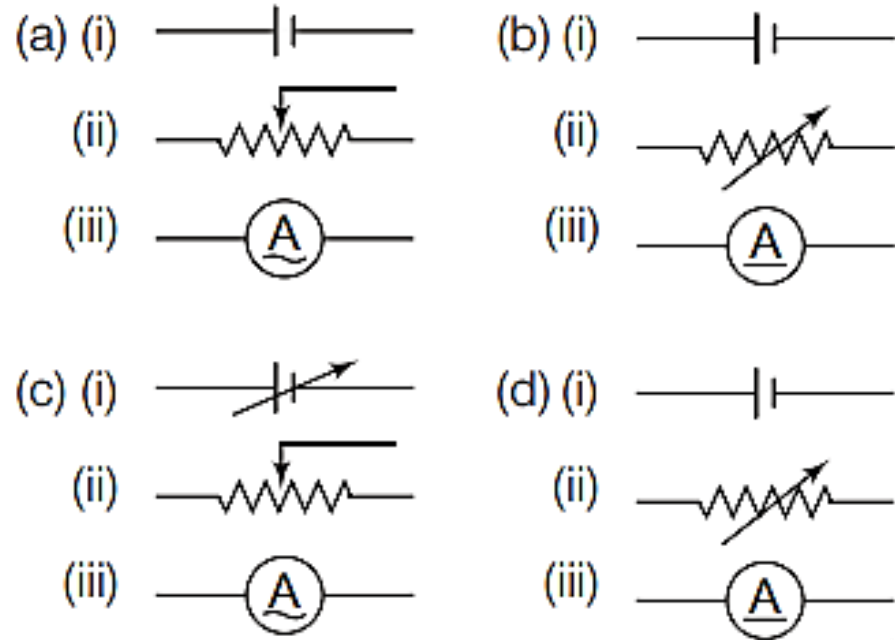
- (a) will not work, if current is less than 16 A
- (b) has a resistance of 16  $\Omega$
- (c) will work if the temperature is more than 16°C
- (d) will be blown (break) if current exceeds 16 A

When an electrical safety fuse is rated (marked) as 16 A, it means it

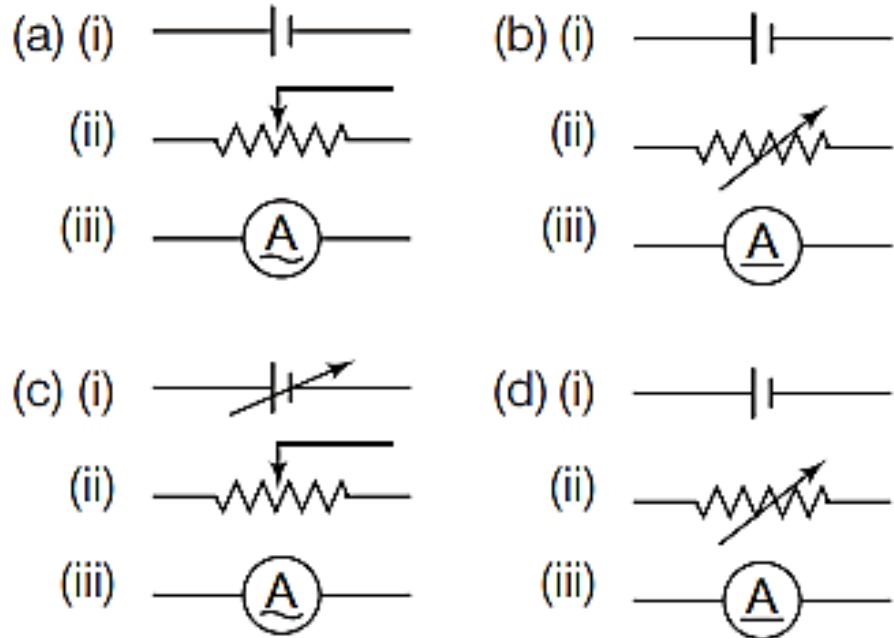
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**ANS : D**

- Which one among the following is the true representation of  
 (i) variable DC potential  
 (ii) rheostat and (iii) AC ammeter respectively?

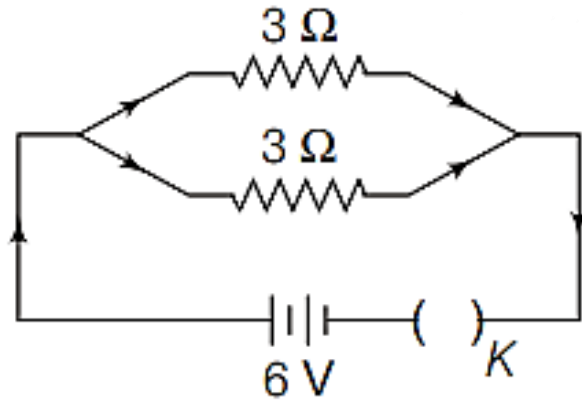


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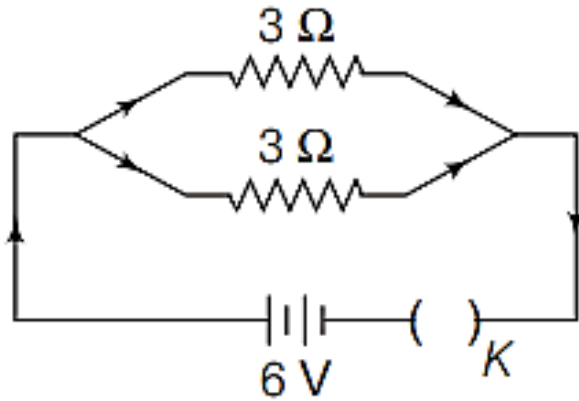
**ANS : C**

Consider the following circuit,  
The current flowing through each  
of the resistors connected in the  
above circuit is



- (a) 2 A      (b) 1 A      (c) 9 A      (d) 4 A

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- (a) 2 A      (b) 1 A      (c) 9 A      (d) 4 A

**ANS : A**



Ohm's law defines

- (a) a resistance
- (b) current only
- (c) voltage only
- (d) Both current and voltage

Ohm's law defines

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**ANS : D**

A current  $I$  flows through a potential difference  $V$  in an electrical circuit containing a resistance  $R$ . The product of  $V$  and  $I$ , i.e.  $VI$  may be understood as

- (a) resistance  $R$
- (b) heat generated by the circuit
- (c) thermal power radiated by the circuit
- (d) rate of change of resistance

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**ANS : C**

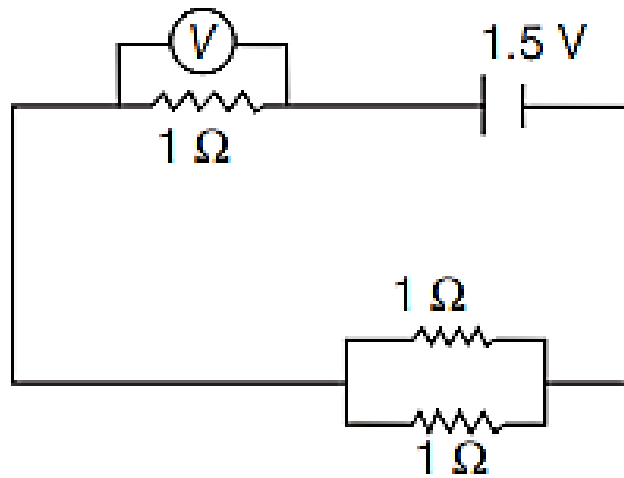
Ohm's law can also be taken as a statement for

- (a) conservation of energy
- (b) conservation of electric charge
- (c) conservation of angular momentum
- (d) non-conservation of momentum of the flowing charges

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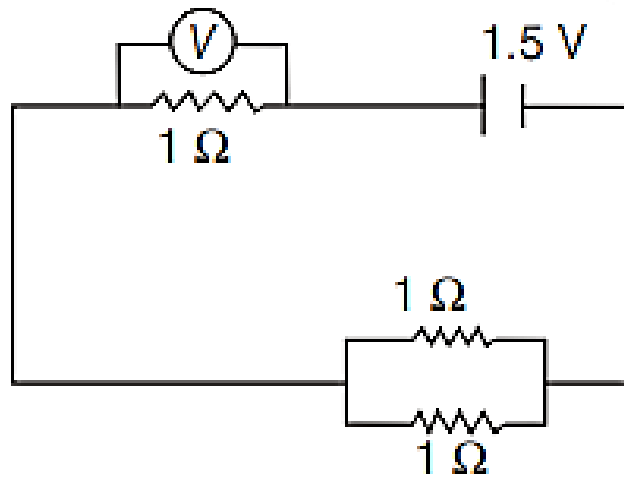
- (a) conservation of energy
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**ANS : A**



What should be the reading of the voltmeter  $V$  in the circuit given above? (All the resistances are equal to  $1 \Omega$  and the battery is of  $1.5 \text{ V}$ )

- (a)  $1.5 \text{ V}$    (b)  $0.66 \text{ V}$    (c)  $1 \text{ V}$    (d)  $2 \text{ V}$



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- (a)  $1.5 \text{ V}$    (b)  $0.66 \text{ V}$    (c)  $1 \text{ V}$    (d)  $2 \text{ V}$

**ANS : C**



When you walk on a woolen carpet and bring your finger near the metallic handle of a door, an electric shock is produced. This is because

- (a) charge is transferred from your body to the handle
- (b) a chemical reaction occurs when you touch the handle
- (c) the temperature of the human body is higher than that of the handle
- (d) the human body and the handle arrive at thermal equilibrium by the process

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**ANS : A**

The product of conductivity and resistivity of a conductor

- (a) depends on pressure applied
- (b) depends on current flowing through conductor
- (c) is the same for all conductors
- (d) varies from conductor-to-conductor

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**ANS : C**

Three equal resistances when combined in series are equivalent to  $90\ \Omega$ . Their equivalent resistance when combined in parallel will be

- (a)  $10\ \Omega$                       (b)  $30\ \Omega$   
(c)  $270\ \Omega$                     (d)  $810\ \Omega$

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**ANS : A**

# NDA-CDS 1 2025

# GS

LIVE

# PHYSICS

MAGNETIC EFFECTS OF ELECTRIC  
CURRENT

# MCQS



NAVJYOTI SIR

SSBCrack  
EXAMS

SSBCrack  
EXAMS