

## PHYSICS

DHA : 05

## Electricity

**Q1** Resistors are given as  $R_1 R_1 = 10 \Omega$ ,  $R_2 R_2 = 20 \Omega$  and  $R_3 R_3 = 30 \Omega$ . Calculate the effective resistances when they are connected in series. Also calculate the current flowing when the combination is connected to 6V battery.

- (A)  $60 \Omega$ , 0.1A
- (B)  $60 \Omega$ , 1A
- (C)  $8 \Omega$ , 0.1A
- (D)  $8 \Omega$ , 1A

**Q2** A  $9 \Omega$  resistance is cut into three equal parts and connected in parallel. Find the equivalent resistance of the combination.

- (A)  $1 \Omega$
- (B)  $2 \Omega$
- (C)  $3 \Omega$
- (D)  $4 \Omega$

**Q3** There are two resistors  $R_1$  and  $R_2$  having resistance equal to  $20 \Omega$  and  $30 \Omega$  respectively are connected in parallel in an electric circuit. If

the potential difference across the electric circuit is 5 V, find the electric current flowing through the circuit

- (A) 0.416 A
- (B) 0.517 A
- (C) 0.442 A
- (D) 0.550 A

**Q4** In series connection of resistors, what happens to the current across each resistor?

- (A) Increases
- (B) Decreases
- (C) Remain the same
- (D) Initially increases and then decreases

**Q5** Which connection is preferable to connect bulbs?

- (A) Series
- (B) Parallel
- (C) Both series and parallel
- (D) Neither series nor parallel



## Answer Key

Q1 (A)

Q2 (A)

Q3 (A)

Q4 (C)

Q5 (B)



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## Hints & Solutions

**Q1 Text Solution:**

Series, equivalent resistance is sum of the individual resistances. ohm law

**Video Solution:**

**Q2 Text Solution:**

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

**Video Solution:**

**Q3 Text Solution:**

EQUIVANT RESISTANCE IS SUM OF THE RECIPROCAL OF INDIVIDUAL RESISTANCES

**Video Solution:**

**Q4 Text Solution:**

When the resistors are connected in series, and current is passed through them, the current passing through each of the resistors is the same. This is because the resistors are connected end to the end and, therefore, there is only one path for the current to flow through

**Video Solution:**

**Q5 Text Solution:**

Bulbs are connected in parallel so that even if one of the bulbs blows out, the others continue to get a current supply. This is why parallel connection is used in domestic electrical circuits.

**Video Solution:**

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