

Question 1: State Ohm's law?

Answer: For any resistor the current is directly proportional to the voltage across it.

Question 2: A 5 v source connects to a 10 ohms resistor. What is current?

Answer: 0.5

Solution for above: $I = V/R = 5 \text{ v} / 10 \text{ ohms} = 0.5$

Question 3: A 2.2 kohm resistor has 15 mA current passing through it. Find the value of connected voltage source.

Answer: 33 V | Solution: $V = IR = 2.2 \text{ kohm} * 15 \text{ mA} = 33 \text{ V}$

Question 4: A circuit contains 12-volt battery connected to a light bulb having resistance of 5 ohms. Find the current.

Answer: $I = V/R = 12 \text{ V} / 5 \text{ ohms} = 2.4 \text{ A}$

Question 5: Two batteries, one of 3 V and other one of 12 V are connected in series to a resistor of 1 kohm. Find the current that will flow through the resistors.

Answer: 15 mA | Solution: $I = V/R = (3 \text{ V} + 12 \text{ V}) / 1 \text{ kohms} = 15 \text{ V} / 1 \text{ kohm} = 15 \text{ mA}$

Question 6: Two lamps, each having resistance of 3 ohms connect in series. What current will flow if a voltage source of 5 V is connected at input.

Answer: 0.83 A | Solution: $I = V/R = 5 \text{ V} / (3 + 3) \text{ ohms} = 5 \text{ V} / 6 \text{ ohms} = 0.83 \text{ A}$

Question 7: How current changes in circuit for constant voltage, when resistance value increases?

Answer: An increases in resistance always decreases current.

Question 8: Certain resistance has 10 Amps current through it, when a 50 V source is applied. Find the value of resistance.

Answer: $R = V/I = 50 \text{ V} / 10 \text{ A} = 5 \text{ ohms}$

Question 9: A 5 V, 3 mA led connected to a 12 V source requires a series resistor of how many ohms?

Answer: $R = V/I = (V1 - V2) / I = 12 \text{ V} - 5\text{V} / 3 \text{ mA} = 7 \text{ V} / 3 \text{ mA} = 2.33 \text{ kohm}$

Question 10: Find current supplied by 10 V source to two parallel resistors of 6 ohms?

Answer: $I = V/R(\text{eq}) = 10 / (6 || 6) = 10 \text{ V} / 3 \text{ ohms} = 3.33 \text{ A}$

Parallel resistance formula $1/R(\text{eq}) = 1/R1 + 1/R2$; $R(\text{eq}) = 3 \text{ ohms}$