

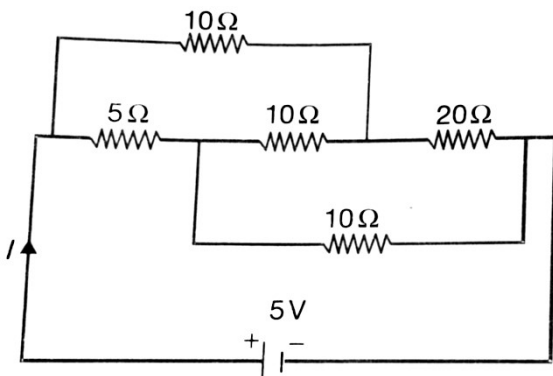
PHYSICS

**ELECTRIC CHARGES AND FIELDS,
ELECTRIC POTENTIAL AND
CAPACITORS AND CURRENT
ELECTRICITY**

131. Two metal wires of identical dimensions are connected in a series. If σ_1 and σ_2 are the conductivities of the metal wires, respectively, the effective conductivity of the combination is

- (1) $\frac{\sigma_1 \sigma_2}{\sigma_1 + \sigma_2}$ (2) $\frac{2\sigma_1 \sigma_2}{\sigma_1 + \sigma_2}$
 (3) $\frac{\sigma_1 + \sigma_2}{2\sigma_1 \sigma_2}$ (4) $\frac{\sigma_1 + \sigma_2}{\sigma_1 \sigma_2}$

132. The current I drawn from the 5 V source will be



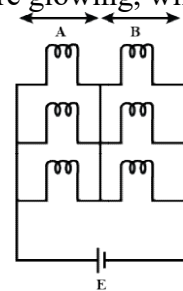
- (1) 0.33 A (2) 0.5 A
 (3) 0.67 A (4) 0.17 A

133. The resistance of wire is R ohm. If it is melted and stretched to n times its original length, its new resistance will be

- (1) $\frac{R}{n}$ (2) $n^2 R$
 (3) $\frac{R}{n^2}$ (4) nR

134. Six similar bulbs are connected as shown in the figure with a DC source of emf E , and zero internal resistance. The ratio of power consumption by the bulbs when (i) all are glowing and (ii) in the situation

when two from section A and one from section B are glowing, will be

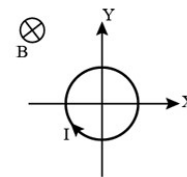


- (1) 4 : 9 (2) 9 : 4
 (3) 1 : 2 (4) 2 : 1

135. An electric bulb is rated 220 V-100 W. The power consumed by it when operated on 110 V will be

- (1) 75 W (2) 40 W
 (3) 25 W (4) 50 W

136. A conducting loop carrying a current I is placed in a uniform magnetic field pointing into the plane of the paper as shown. The loop will have a tendency to

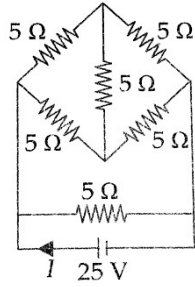


- (1) contract
 (2) expand
 (3) move towards +ve x-axis
 (4) move towards -ve x-axis

137. Two heater wires, made of the same material and having the same length and the same radius, are first connected in series and then in parallel to a constant potential difference. If the rates of heat produced in the two cases are H_S and H_P respectively, then the ratio of H_S and H_P will be

- (1) $\frac{1}{3}$ (2) 2
 (3) $\frac{1}{4}$ (4) 4

138. Calculate I for the given circuit diagram.



- (1) 10 A
- (2) 5 A
- (3) 2.5 A
- (4) 20 A

139. When a current is passed in a conductor, 5°C rise in temperature is observed. If the strength of current is made thrice, rise in temperature will be

- (1) 5°C
- (2) 20°C
- (3) 45°C
- (4) 15°C

140. Ratio of magnetic fields at 10 cm and 20 cm from an infinitely long current carrying wire is

- (1) 1 : 2
- (2) 1 : 4
- (3) 2 : 1
- (4) 4 : 1

