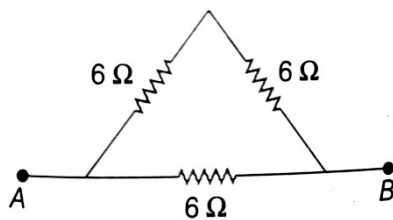


## PHYSICS

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

91. (4)

Resistance of each arm of equilateral

triangle will be  $R = \frac{18}{3} = 6 \Omega$ 

So we have following combination will be  
Equivalent resistance is

$$\therefore R_{AB} = \frac{12 \times 6}{12 + 6} = \frac{12 \times 6}{18} = 4 \Omega$$

92. (4)

$$\text{Drift speed, } v_d = \frac{1}{neA} \propto \frac{1}{A}$$

Therefore, for non-uniform cross-section  
(different values of A) drift speed will be  
different at different sections. Only  
current (or rate of flow of charge) will be  
same.

93. (4)

Copper is metal and germanium is  
semiconductor. Resistance of a metal  
decreases and that of a semiconductor  
increases with decrease in temperature.

94. (1)

All the three resistances are in parallel.

$$\text{Therefore, } \frac{1}{R_{eq}} = \frac{1}{2R} + \frac{1}{2R} + \frac{1}{R} = \frac{2}{R}$$

$$\therefore R_{eq} = \frac{R}{2}$$

95. (3)

$$\frac{I}{V} \text{ slope of given graph} = \frac{1}{R} \text{ or } R = \frac{1}{\text{slope}}$$

Resistance of a metallic wire increases  
with increase in temperature.

$$(\text{slope})_{T_2} < (\text{slope})_{T_1}$$

$$\therefore \frac{1}{(\text{slope})_{T_2}} > \frac{1}{(\text{slope})_{T_1}}$$

$$\text{or } R_{T_2} > R_{T_1} \text{ or } T_2 > T_1$$

96. (3)

97. (1)

98. (1)

99. (1)

100. (2)