

WORKSHEET

CURRENT ELECTRICITY

1) Three resistors have resistance 2,3 and 5Ω . Place the resistance in the circuit to get maximum power dissipation.



2) Read the following statements carefully:

Y = The resistivity of the semiconductor decreases with increase of temperature.

Z = in a conducting solid the rate of collision between free electrons and ions increases with increases of temperature.

Select the correct statement:

- (a) Y is true but Z is false.
- (b) Y is false Z is true
- (c) Both Y and Z true
- (d) Y is true and Z is the correct reason for Y.

3) Choose the correct statement/s.

When a potential difference is applied across, the current passing through

- (a) an insulator at 0K is zero
- (b) semiconductor at 0 K is zero
- (c) a metal at 0 K is finite
- (d) p-n junction at 300 K is finite, if it is reverse biased.

4) A steady current flow in a metallic conductor of non-uniform cross-section.



The quantities constant along the length of the conductor are

Current

Drift speed

Electric Field



5) A wire is drawn such that its radius changes from r to $2r$. The new resistance is :

- (a) 1 time
- (b) 4 times
- (c) 8 times
- (d) $1/16$ times.

6) The resultant resistance of _____ combination of resistors always smaller than the smallest Resistor. The resultant resistance of _____ combination of resistors always larger than the largest Resistor in the combination.

Series

Parallel

7) If the length of the conductor is doubled, the drift velocity of the electron becomes half.

8) If the potential difference across the conductor doubled at constant temperature mobility becomes _____

Doubled

Becomes Half

No Change

9) Drop the high resistance bulb here



10) If the area of cross- section of a wire is doubled and length is halved, how does the resistivity of the wire vary? _____

Doubled

Becomes Half

No Change