ELECTRICITY

Grade : 10 **Worksheet -1** **Subject : Physics**

I. MULTIPLE CHOICE QUESTIONS

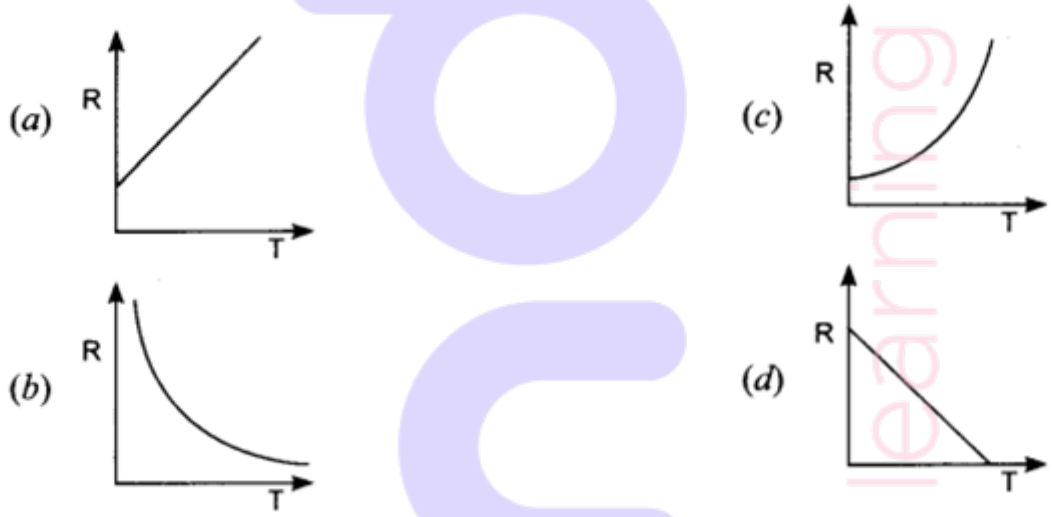
1. A battery of 10 volt carries 20,000 C of charge through a resistance of 20 Ω. The work done in 10 seconds is

(a) 2×10^3 joule (b) 2×10^5 joule
(c) 2×10^4 joule (d) 2×10^2 joule

2. To get 2 Ω resistance using only 6 Ω resistors, the number of them required is

(a) 2 (b) 3 (c) 4 (d) 6

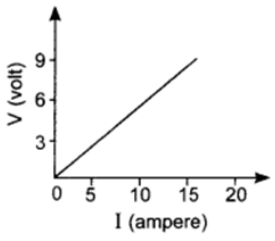
3. The temperature of a conductor is increased. The graph best showing the variation of its resistance is



4. A boy records that 4000 joule of work is required to transfer 10 coulomb of charge between two points of a resistor of 50 Ω. The current passing through it is

(a) 2 A (b) 4 A (c) 8 A (d) 16 A

5. The resistance whose V-I graph is given below is



(a) $\frac{5}{3}\Omega$ (b) $\frac{3}{5}\Omega$ (c) $\frac{5}{2}\Omega$ (d) $\frac{2}{5}\Omega$

6. The charge of 10 coulomb flow through the conductor for 2 s. the electric current flowing through the conductor is_____

(a)2A (b)3A (c)4A (d)5A

7. A fuse wire repeatedly gets burnt when used with a good heater. It is advised to use a fuse wire of

(a) more length (b) less radius
(c) less length (d) more radius

8. If R_1 and R_2 be the resistance of the filament of 40 W and 60 W respectively operating 220 V, then

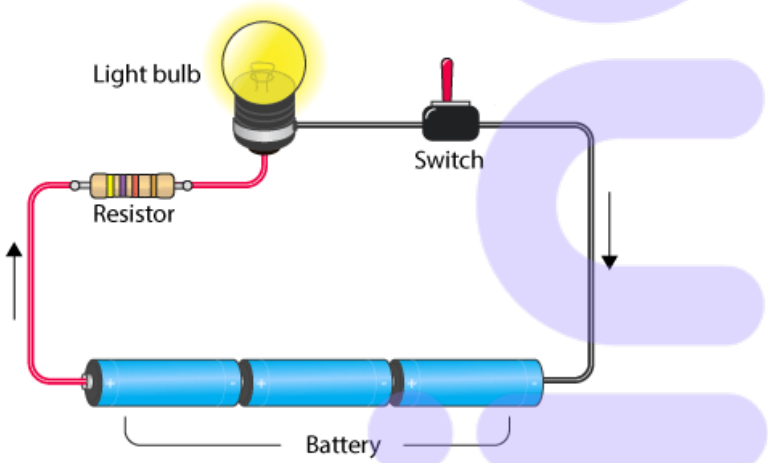
(a) $R_1 < R_2$ (b) $R_2 < R_1$ (c) $R_1 = R_2$ (d) $R_1 \geq R_2$

9. The unit of electrical resistance is:

(a). Ampere (b) Volt (c) Coulomb (d) Ohm

10. The commercial unit of energy is:
(a) Watt (b)Watt-hour
(c) Kilowatt-hour (d)Kilo-joule

II. Redraw the given circuit diagram using the electric symbols.

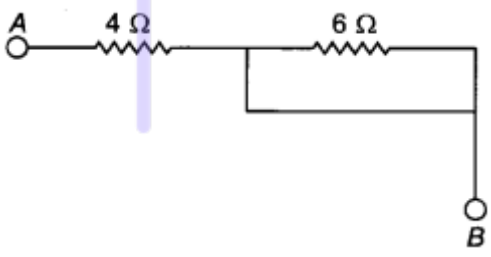


III. Fill in the blanks

1. A car headlight bulb working on a 12 V car battery draws a current of 0.5 A. The resistance of the light bulb is_____

2. A fuse wire is connected in _____ with_____ wire

3. The effective resistance between A and B is_____



4. The maximum resistance which can be made using five resistors each of 1/5 Ω is _____

5. 1 mV is equal to_____

6. 100 J of heat is produced each second in a 4Ω resistor. The potential difference across the resistor will be _____

IV. State whether the following statement is true or false:

1. In an open circuit, the current passes from one terminal of the electric cell to another.(True/False)

2. Current is a scalar quantity. (True/False)

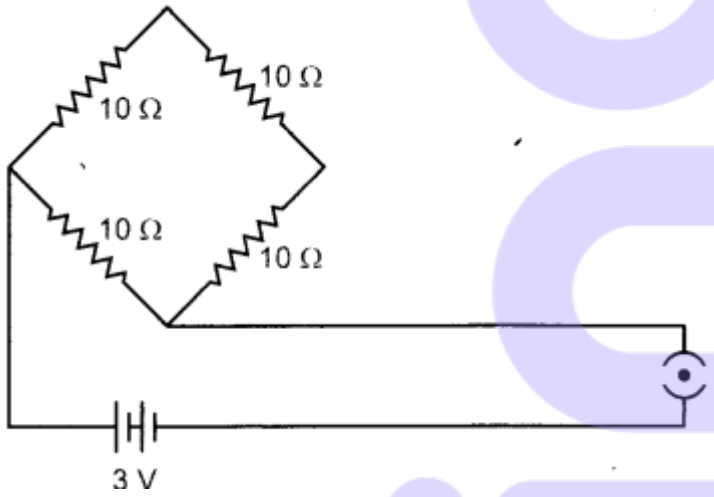
3. Presence of argon prolongs the life of an electric bulb(True/ False)

4. Rheostat used in series in a circuit can make a bulb to glow with varying brightness. [True/False]

5. One common point and no sharing devices for that point are the conditions to be satisfied for two resistors to be in series. [True/False]

V. Solve the problems :

1. Find the current drawn from the battery by the network of four resistors Shown in the figure.



2. A bulb is rated at 200 V, 100 W. Calculate its resistance. Five such bulbs bum for 4 hours daily. Calculate the units of electrical energy consumed per day. What would be the cost of using these bulbs per day at the rate of ₹4.00 per unit?