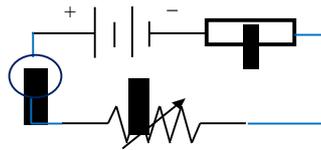


QUESTION BANK

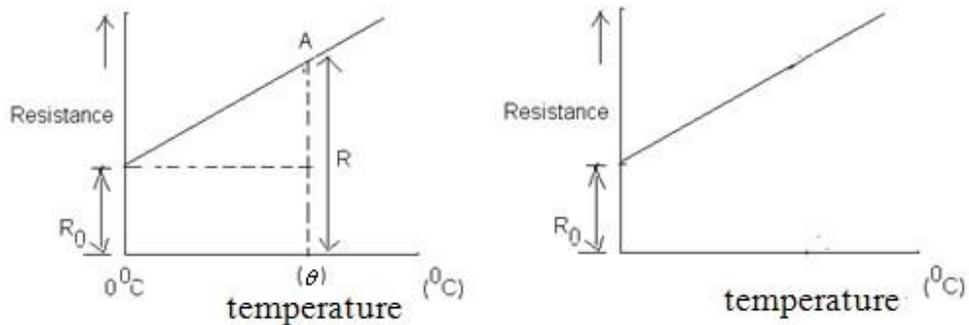
Current Electricity Test 1

If a wire is stretched to double of its length. What will be its new resistivity? [1]

1. Name any one material having a small value of temperature coefficient of resistance. Write one use of this material? [1]
3. Figure shows a piece of pure semiconductor S in series with a variable resistor R and a source of constant voltage V. Would you increase and decrease the value of R to keep the reading of ammeter (A) constant, when semiconductor S is [2]

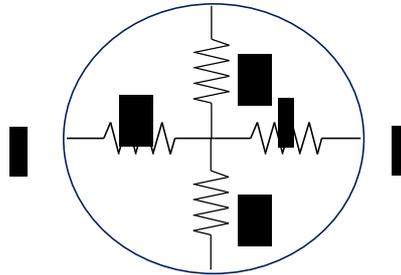


4. The variation of resistance of a metallic conductor with temperature is given in figure. [3]
 - (a) Calculate the temperature coefficient of resistance from the graph.
 - (b) State why the resistance of the conductor increases with the rise in temperature.

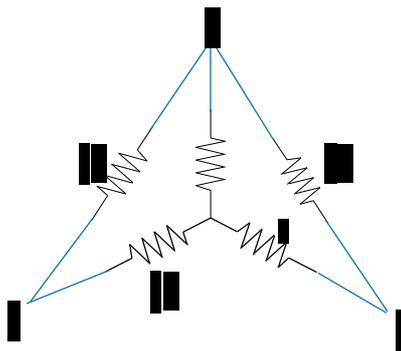


heated ? Give reasons.

5. A circle ring having negligible resistance is used to connect four resistors of [3]
resistances $6R$, $6R$, $6R$ and R as shown in the figure. Find the equivalent resistance
between points A & B



6. A battery of emf E and internal resistance r sends a current I_1 and I_2 , when [3] connected
to an external resistance of R_1 and R_2 respectively. Find the emf. and internal resistance
of the battery?
7. Find the value of unknown resistance X in the circuit shown in the figure if no [3]
current flows through the section AO . Also calculate the current drawn by the circuit
from the battery of emf. 6v and negligible internal resistance.

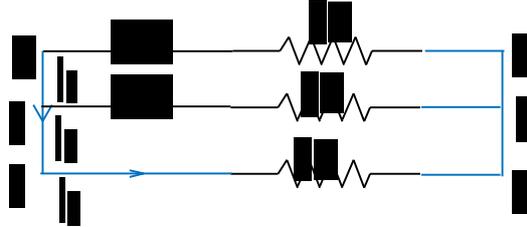


8. (a) Obtain ohm's law from the expression for electrical conductivity. [3]
(b) A cylindrical wire is stretched to increase its length by 10% calculate the percentage
increase in resistance?

Current Electricity Test 2

1. Two wires A and B are of the same metal and of same length have their areas of [1] cross
section in the ratio $2:1$ if the same potential difference is applied across each wire in turn,
what will be the ratio of current flowing in A & B?
2. Why is constantan or manganin used for making standard resistors? [2]

3. What are ohmic and non-ohmic resistors? Give one example of each? [2]
4. The current I flows through a wire of radius r and the free electron drift with a [3] velocity vd what is the drift velocity of electrons through a wire of same material but having double the radius ,when a current of $2I$ flows through it?
5. Three identical cells, each of emf. $2v$ and unknown internal resistance are [2] connected in parallel .This combination is connected to a 50Ω resistor. If the terminal voltage across the cell is 1.5volt . What is the internal resistance of each cell .hence define internal resistance of a cell?
6. Using kirchoff's law, determine the current I_1 , I_2 and I_3 for the network shown. [2]



7. Show that when a current is divided between two resistances in accordance with [3] kirchoff's laws, the heat provided is minimum?
8. (a) Define emf. of a cell? On what factors does it depend? [3] (b) Figure below shows a 2.0v potentiometer used for the determination of internal resistance of a 1.5v cell. The balance point of the cell in open circuit is 76.3cm . When a resistance of 9.5Ω is used in external circuit of the cell the balance point shifts to 64.8cm length of the potentiometer. Determine the internal resistance of the cell.

