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SUBJECT:- PHYSICS CLASS:- XTH DATE:- 06/05/XXI

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 1. (ELECTRICITY) (BASED ON NCERT PATTERN)

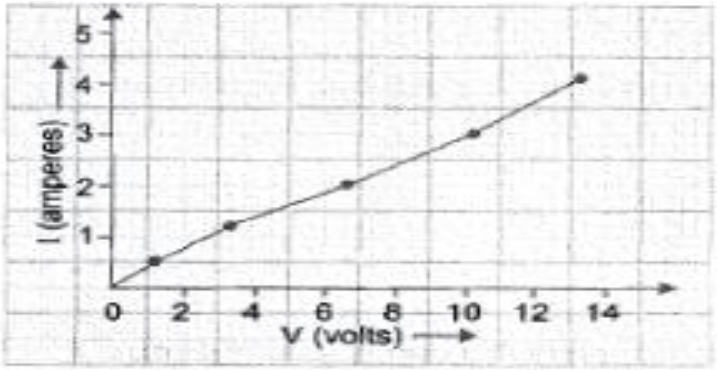
Q1. The values of current I flowing in a circuit with resistor for the corresponding values of potential difference V across the resistors are given below:

I (amperes) 0.5 1.0 2.0 3.0 . 4.0

V(volts) 1.6 3.4 6.7 10.2 13.2

Plot a graph between V and I and calculate the resistance of that resistor.

Ans.



S. No.	I (amperes)	V (volts)	$R = \frac{V}{I}(\Omega)$
1.	0.5	1.6	3.2
2.	1.0	3.4	3.4
3.	2.0	6.7	3.35
4.	3.0	10.2	3.4
5.	4.0	13.2	3.3

Resistance of resistor R (mean)

$$= \frac{3.2+3.4+3.35+3.4+3.3}{5} = 3.33\Omega$$

Q2. When a 12 V battery is connected across an unknown resistor, there is a current 2.5 inA in the circuit. Find the value of the resistance of the resistor.

Ans. V = 12 V

I = 2.5 mA = 2.5 x 10^{-3} A

Using, $R = \frac{V}{I}$

$$R = \frac{12V}{2.5\times10^{-3}A} = 48000\Omega$$

$$= 4.8\,k\Omega$$

Q3. A battery of 9 V is connected in series with resistors of 0.2 Ω , 0.3 Ω , 0.4 Ω , 0.5 Ω and 12 Ω respectively. How much current would flow through the 12 Ω resistor?

Ans. V = 9 Y

Rs = 0.2 Ω + 0.3 Ω . + 0.4 Ω + 0.5 Ω + 12 Ω.

= 13.4 Ω

I = ?

Using, $I = \frac{V}{R}$

$$= \frac{9V}{13.4\Omega}$$

$$= 0.67\,A$$