PHYSICS – X-PART-8 CLASS 08

Effects of Electric Current 1

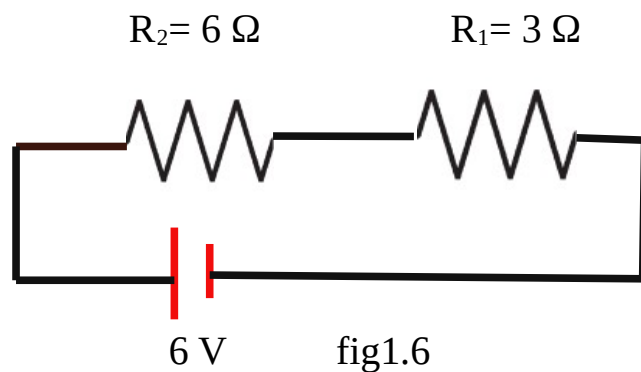## Arrangement of Resistors in Circuits

1. Series Connection

When a circuit is completed by connecting the resistors one after the other, it is called series connection.

$R_2 = 6\ \Omega$ $R_1 = 3\ \Omega$

6 V   fig1.6

> Effective resistance, $R = R_1 + R_2$

* Effective resistance is the sum of the resistance of all the resistors when they are connected in series.

Ex. 1 (Fig.1.6)

$R_1 = 3\ \Omega$
$R_2 = 6\ \Omega$
Effective resistance, $R = R_1 + R_2$
$R = 3\ \Omega + 6\ \Omega$
$R = 9\ \Omega$

2. If 2 Ω, 4 Ω , 6 Ω resistors are connected in series. Calculate the effective resistance.

$R_1 = 2\ \Omega$
$R_2 = 4\ \Omega$
$R_3 = 6\ \Omega$
Effective resistance, $R = R_1 + R_2 + R_3$
$R = 2\ \Omega + 4\ \Omega + 6\ \Omega = 12\ \Omega$

Shanil EJ. HST. Sarvodaya HSS Eachome. Wayanad

When resistors are connected in series,

* The potential difference gets divided

* The current through each resistor will be the same.

* The effective resistance increases.

Assignment

1. What is the current if 4 Ω and 2 Ω resistors are connected in series and 6 V potential difference is applied?