Chapter:4
(The Measurement of Resistance)
Lecture:2

Presented by

Hasan Murad Munna

The Measurement of Low Resistance by Ammeter-Voltmeter Method:

MEASUREMENT OF LOW RESISTANCE

- AMMETER-VOLTMETER METHOD
- In this method, current through the resistance under test and the potential difference across the resistance are measured with the help of ammeter and voltmeter.
- The ratio of P.D. to the current gives the value of resistance $R = V / I\ \Omega$

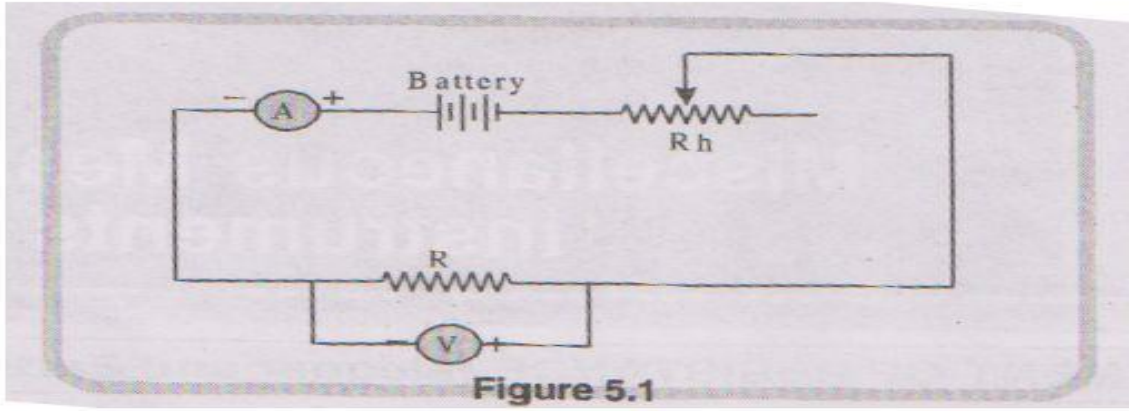

Figure 5.1

Effect of Volt-meter Loading or Shunting:

- What is the loading effect of the voltmeter?
- Loading effect in voltmeter:

- The loading effect is the degree to which a measurement instrument impacts electrical properties like the voltage, current, and resistance of a circuit. In general, the resistance of an ideal voltmeter is infinite so that the voltmeter does not alter the circuit current.

The Measurement of Low Resistance by Kelvin's Double Bridge Method:

Kelvin's Double Bridge Method

To Overcome the problem Of Kelvin Bridge, The New Bridge is the modified which is used for precise measurement of low resistance called Kelvin's Double Bridge.

Construction

- Consist of 2 ratio arms
- Connected resistances are P, Q, p,q,r,S,R.
- r is the resistance of slide wire
- R is the unknown resistance
- R_s is regulating resistance
- Galvanometer (G) is connected between point 'F' and 'H'.

Working

- By adjusting the balanced condition, we can find the unknown resistance