

**APPLIED PHYSICS LAB**

**Lab Report: Determine the Given High Resistance by Leakage method**

**Submitted To:**

Sir. Haseen Ullah Jan

**Submitted By:**

Ali Asghar

Section C

Registration No. 21PWCSE2059

Department Of Computer Systems Engineering

Fall 2021

**LEAKAGE METHOD**

Leakage method is one of the most effective and accurate methods used to measure the value of very high resistances.

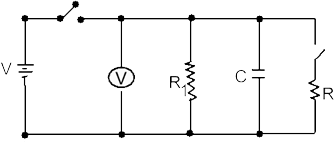
**BALLISTIC GALVANOMETER:**

The galvanometer used to show the amount of charge passing through it is known as ballistic galvanometer.

**PRINCIPLE USED:**

In leakage method, main concept used to calculate the value of resistance is the charging and discharging of a capacitor. A ballistic galvanometer is used to measure the amount of charge that the capacitor/condenser discharges.

**DIAGRAM:**

****

**APPARATUS USED:**

1. Ballistic galvanometer
2. Power supply / accumulator
3. Capacitor(1µF)
4. Resistor whose value is to be measured
5. Few connecting wires
6. Tapping key & morse key
7. Lamp and scale arrangement
8. Stop watch

**PROCEDURE:**

Following procedure is followed:

1. First of all, I calibrated the Ballistic galvanometer to its zero point to remove any error.
2. Then I drew out the dampening key so that current can pass through the galvanometer in order to take readings.
3. Then I pressed K1 so that the current is charging the capacitor.
4. Now I released key K1 and pressed K2 to discharge the capacitor.
5. I note the reading as θ.
6. Then again I inserted the dampening key to reset the ballistic galvanometer.
7. I charged the capacitor by putting key k1 in its place.
8. Then I released K1 and putting K3 back in its place for a known time T.
9. I note the time and released k3.
10. I pressed K2 and took reading on galvanometer as θt.
11. The resistance is calculated by the formula

**READINGS:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No. | Θ1 | θt | t |  |
| 1 | 74 | 57 | 2.84s | 10.8x106 ohm |
| 2 | 67 | 52 | 2.7s | 10.6x106 ohm |
| 3 | 78 | 58 | 2.99s | 9.1x106 ohm |
| 4 | 74 | 57 | 2.84s | 10.8x106 ohm |
| 5 | 72 | 58 | 2.47s | 11.4x106 ohm |
| 6 | 79 | 53 | 4.2s | 10.5x106 ohm |

**AVERAGE READING:**

x106

**PRECAUTIONS:**

Following precautions should be taken for this experiment:

1. Make connections tight and neat.
2. Capacitor should be charged fully.
3. Calibrate galvanometer very precisely.