**Experiment # 6**

To determine the angle of dip by earth inductor method

***APPARATUS:***

* Ballistic galvanometer
* Earth inductor
* H R B

***FORMULA USED :***

***Description Of Apparatus***

1. ***Ballistic galvanometer***

A ballistic galvanometer is a type of sensitive galvanometer; commonly a mirror galvanometer. Unlike a current-measuring galvanometer, the moving part has a large moment of inertia, thus giving it a long oscillation period. It is really an integrator measuring the quantity of charge discharged through it.

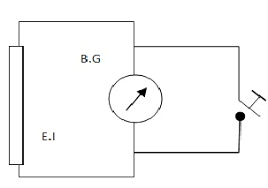
1. ***Earth inductor***

The earth inductor is a **coil that is rotated through 180-deg through the earth's magnetic field**. ... This can be used to calculate the magnetic field. The coil can be positioned to measure the horizontal, vertical or total magnetic field B. Use the dip needle to find the angle of inclination of the earth's magnetic field.

1. ***High resistance box***

The box which contains the resistors of different values for estimating and comparing the resistance is known as the resistance box. **The accuracy of the resistance box is very high**. The main application of the resistance box is to control the specific value of current to flow through the circuit.

# CIRCUIT DIAGRAMS



***Procedure***

Connections are made as shown in the figure.

1. Key is pressed to damp the ballistic galvanometer.
2. Galvanometer is calibrated.

1. Resistance is taken out from H.R.B.

1. Earth inductor is placed vertically with earth’s lines of force.
2. Again Earth inductor is placed

Horizontal with earth’s lines of force to take ballistic galvanometer readings.

1. Hv and Hh give angle of dip by the formula.

**Calculations:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No. | Hv | Hh | Hv/Hh |  |
| 1 | 65 | 55 | 65/55 =1.1818 | 61.18 |
| 2 | 60 | 45 | 60/45 =1.333 | 53.123 |
| 3 | 30 | 35 | 30/35 =0.857 | 40.596 |
| 4 | 75 | 40 | 75/40 =1.875 | 61.927 |
| 5 | 37 | 30 | 1.23 | 50.96 |
| 6 | 39 | 32 | 1.21 | 50.63 |

Average **Ө = 53.064**

**Precautions:**

Following precautions should be taken for this analytical experiment:

1. Earth inductor should be rotated a full 180 degrees for exact and accurate measuring.
2. Connections should be snug and rust free.

1. Ballistic galvanometer should be calibrated first.

Key should be placed in contact after each reading for calibrating again