

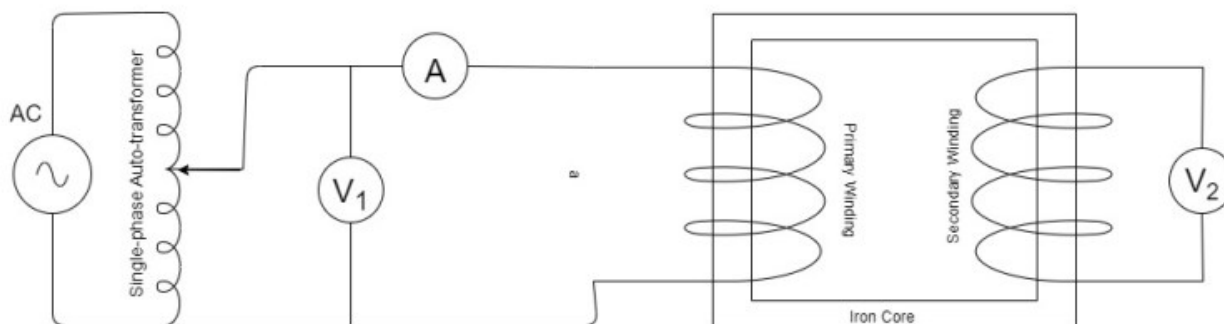
<b>Student Name</b>		
<b>Student Registration Number</b>		<b>Class &amp;Section:</b>
<b>Study Level : UG/PG</b>	UG	<b>Year &amp;Term: I &amp; I</b>
<b>Subject Name</b>	Engineering Physics Laboratory	
<b>Name of the Assessment</b>	Laboratory Report 5	
<b>Name of the Experiment</b>	B-H Curve	
<b>Date of Submission</b>		

**Objective:** To plot the hysteresis curve of a given solenoid.

**Experimental Setup:**

BH loop trainer kit comprising of a transformer, Variable Resistance, Connecting probes and a Cathode ray Oscilloscope.

**Circuit Diagram (if applicable):**



**Procedure:**

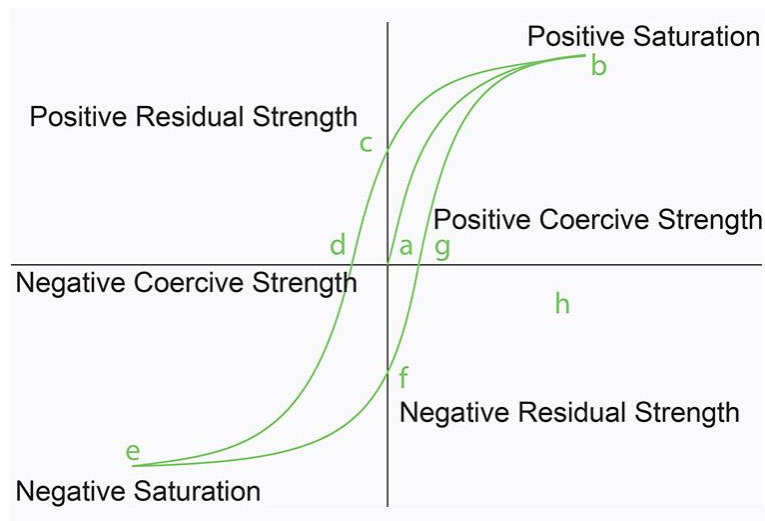
1. Connect the circuit ( i.e., Connect any resistance  $R_1, R_2$  or  $R_3$ , Primary terminals of the specimen to P and Secondary to S terminals).
2. Adjust the CRO to work on external mode (the time base is switched off).
3. Adjust the horizontal and vertical position controls such that the spot is at the centre of the CRO Screen. Connect terminals X to the horizontal input of the CRO. Connect terminal Y to the Vertical input of the CRO.
4. Switch on the power supply of the unit. The Hysteresis loop is formed.
5. Adjust the horizontal and vertical gains such that the loop occupies maximum area on the screen of the CRO.
6. Once this adjustment is made do not disturb the gain controls.
7. Trace the loop on a translucent graph paper. Estimate the area of the loop.
8. Remove the connection from CRO without disturbing the horizontal and vertical gain controls.
9. Determine the horizontal sensitivity (V/m) and vertical sensitivity (V/m) of the CRO, area of the loop of that resistance.
10. Repeat the experiment for different resistance.

### Results and Observations:

S.No.	Variable Resistance (R)	Sensitivities of the CRO	Area of the BH Curve (m <sup>2</sup> )	Energy Loss (J/s/m <sup>3</sup> )

### Graph:

#### Model Graph



**Paste the Graph here**

**Post lab discussion:**

**Conclusion:**

The energy loss due to hysteresis per unit volume of the Ferromagnetic material is observed to be

-----joule/sec/m<sup>2</sup>

**Viva Questions:**

1. What is the B-H curve, and what does it represent in the context of magnetic materials?
2. How do you determine the coercivity and retentivity from the B-H curve?
3. What is the significance of the hysteresis loop in the B-H curve?
4. Can you explain the difference between hard and soft magnetic materials based on their B-H curves?
5. What are some practical applications of the B-H curve in technology and industry?