Name : Hunaid Siamwala S.

Subject: Physics

Subject Code: 1020012 13

Class : 2-CE-1

Enrollment No: 1 2 00 20 40 70 10 67

24/6/21

★ Experiment-6 Hall Effect

Objective: Measurement of the magnetic field of electromagnet using Gauss & Tesla meter & InAs probe & also finding the poles of electromagnet with help of InAs probe.

Equipments needed :- Electromagnet, Gauss & Tesla meter, hall probe (InAs) & Constant current power supply.

Procedure :-

1. Take Gauss & Tesla meter from the set of Hall Effect Trainer.
2. Connect InAs probe & switch on the Gauss & Tesla meter.
3. Adjust zero reading on display by zero adjust potentiometer & keep range selector switch at X1
4. Now take Constant Current Power Supply & set Position. the current Adjust potentiometer at fully anti-clockwise position. Connect electromagnet with Constant Current Power Supply such that two coils of electromagnet is in series i.e. the direction of current in both coils should be same otherwise little or no magnetic field would results.
5. Switch on the power supply & set some low value of current.
6. Keep Hall probe (InAs) between electromagnet such that the flat face of probe is kept perpendicular to direction of M.F.

7. Increase the current from the Constant Current Power Supply & note the value of corresponding M.F. If the M.F is greater than 2k Gauss then meter will indicate the over range.
8. Multiply the display reading by 10 to get the Magnetic field Strength in both gauss & tesla.
9. Record your readings in following table & plot graph between magnetic field & current.

Result:-

The electromagnetic field increase with increasing the current of electromagnet. And for the direction of M.F if Gauss meter indicate positive value (without sign) of MF, the pole facing the sign of InAs probe marked N is "North pole & other side is south pole.

Conclusion:-

- We can conclude that how we can measure MF of electro magnet using Gauss & Tesla meter. And also with use of InAs probe.

Observation Table:-

Sr. No.	Current (A)	Magnetic field in Gauss	Magnetic field in Tesla
1	0.5	383	0.0383
2	1	712	0.0712
3	1.5	945	0.0945
4	1.9	1150	0.1150

Scale:-

X-axis = 1 unit : 0.5Ω

Y-axis = 1 unit : 100 Ω