## Experfment.3

## Magnetie Field of Circular coil

Aim: To sudy the variation of magnetic field along the axis of a circular coil carrying steady current.

Apparatus: Circular coil, Battery, Rheostat, one-way key, Reversing Fey, Ammeter, Magnetic compass,

Formula:  $B_x = B_H \tan \theta$ 

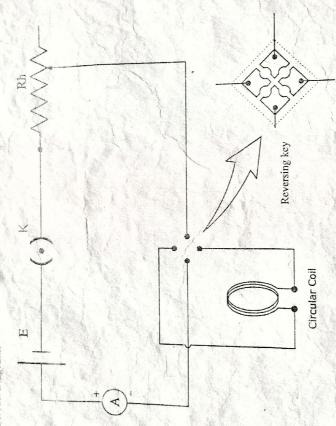
Where x = Distance between the center of the coil and the center of magnetic needle.

 $B_X = Magnetic$  field due to the current carrying Circular coil at X.

 $B_{H} = \text{Horizontal component of the earth's magnetic field (0.36×10<sup>-4</sup> Weberlm<sup>2</sup>)$ 

0= Deflection of the magnetic needle of the compass in degrees.

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Observation Table:

A	×	Deflec	Deflection (in degrees)	degrees)	San Property	Mean	Cont.	Bx
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2). At centre of coil;

	1	Deflee	tion (in	degrees)		Mean	fand	Bx
Obs. No. $(mA)$ $\theta_1$ $\theta_2$ $\theta_3$ $\theta_4$	(mA)	01	-02	$\theta_3$	04	0	tailo	(10-2 Wb/m²)
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Graphs:

1. Plot graph between magnetic field vs position 2. Plot graph between magnetic field vs current

Result: Radius of circular coil,

R = ......cm

Conclusion:

