* Exp 8: flux produced by field Coils

Flux Density → $B = \Phi / A$ ← Area of Section

flux in a Section of the magnetic Circuit

* If a Current flows in a conductor a flux is produced. (Direction : Right hand rule)
  thumb is direction of current and fingers = flux

* If Φ is Reduced ior increased : emf is induced in the Coil

emf → $E = N \frac{d\Phi}{dt}$ → Number of turns in Coil; → Change in flux (webere)

* If the Supply is off the Coil still produces a weak magnetic field due to residual magnetism

* Transformer has two coils . Both effect each other current flowing in one Coil causes a change in Φ linking 2nd Coil ; So an e.m.f is induced in the other Coil.

N_1 , N_2, V_1, V_2
K : voltage per turn

① : primary Coil
② : secondary.v

$V_1 = KN_1$, $V_2 = KN_2$

$V_1 / V_2 = K_1 N_1 / K_2 N_2 = N_1 / N_2$

$$\frac{V_1}{V_2} = \frac{N_1}{N_2}$$

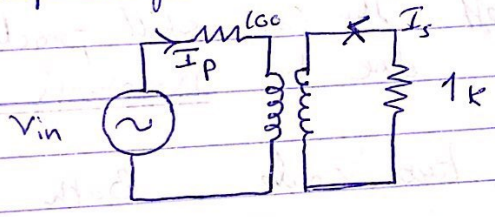
$I_1 N_1 = I_2 N_2$

* for an ideal transformer:-

$$\frac{V_1}{V_2} = \frac{I_2}{I_1}$$

- transformers :-
  - step up :- $N_{secondary} > N_{primary}$, $V_{sec} > V_{pri}$
  - step down : $N_{sec} < N_{pri}$, $V_{sec} < V_{pri}$
  - one to one : $N_{sec} = N_{pri}$, $V_{sec} = V_{pri}$

* Note: Z_p (reflected impedance) $= V_{in} / I_p$



turn's ratio :- $= a = I_s / I_p$