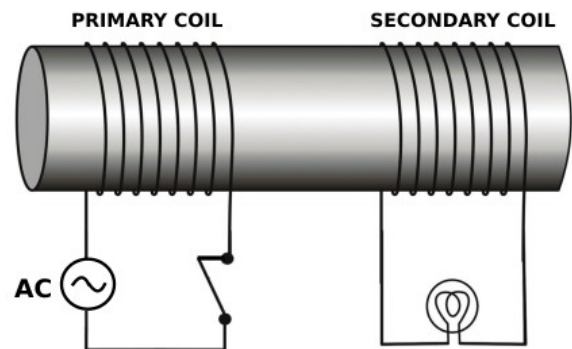


3. Electromagnetic Induction.

CLASS.5

Mutual induction

Two coils are wound on a soft iron core as shown. When AC is passed through the first coil, the lamp in the second circuit glows. The variable current passing through the first coil produces a variable magnetic field (having change in direction and magnitude) around the coil. This variable magnetic field causes change in magnetic flux linked with the second coil and hence current is induced in it. The current induced in this manner is called mutual induction.



When a variable current is passed through one of the two adjacent coils, the magnetic field around the coil is changed. As a result, an emf is induced in the second coil. This phenomenon is called mutual induction. The coil through which variable current passes is known as **primary coil** and the coil in which the emf induced is called **secondary coil**.

If a DC source is connected in the primary coil instead of AC as shown, there will not be mutual induction as the field generated around the coils is invariable.

But the lamp just flashes when the switch in the primary circuit is either turned On or OFF. It is due to the formation of a variable magnetic field for a short interval of time.

Note: It is the presence of variable current (variable magnetic field) through the primary coil that causes mutual induction and not merely the presence of current (magnetic field).

