

St.Xavier's College Physics Club

(SXCPC)



## Maitighar, Kathmandu

## **Question Of the Month-October Series**

An LC circuit, short for "inductor-capacitor circuit," is a simple electrical circuit consisting of an inductor (L) and a capacitor (C) connected in series or parallel. It exhibits oscillatory behavior and is often used in electronic applications to store and exchange electrical energy at a specific resonant frequency.



## **Questions:**

a) According to faraday's law, the induced emf produced in presence of changing magnetic flux is given by:

$$e = -\frac{d\phi}{dt}$$

Where,  $\phi$  is the total magnetic flux passing through an inductor.

Using the given information, derive the expression for energy stored in an inductor and explain the working mechanism of an inductor in an LC circuit.

b) Illustrate the generation of electromagnetic waves using the oscillation produced in an LC circuit.

Principal's Signature