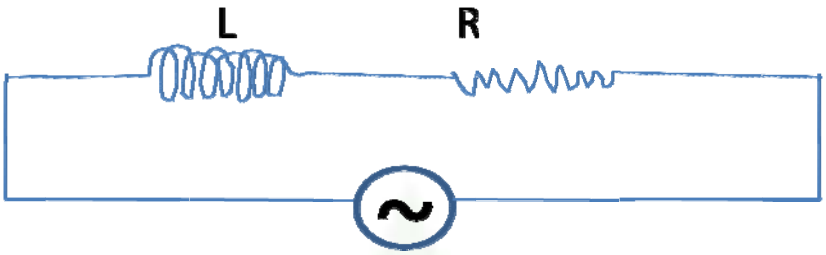
L-R circuit:



Total resistance offered to the flow of A.C by this L-R circuit is known as impedance.

$$z = \sqrt{R^2 + X_L^2} = \sqrt{R^2 + (\omega L)^2}\,\text{ohm}$$

Receprocal of impedance is known as admitence(A)

$$A = \frac{1}{z} = \frac{1}{\sqrt{R^2 + (\omega L)^2}}\,mho$$

The emf across the circuit leads the current by a phase angle ϕ i.e. The current lags the emf by phase angle ϕ where

$$\tan\phi = \frac{\omega L}{R}$$