

# GIST OF CONCEPT MAP ON ALTERNATING CURRENT

- 1) THE Potential difference also called AC Voltage.  $V_m$  = Peak value of emf,  $\omega$  = angular frequency
- 2) Across a Resistor the Voltage and current in phase with each other
  - 2a) Phasor diagram shows that  $v$  &  $I$  are in same phase.
  - 2b) Power will be consumed across a resistor when a resistor is connected across a AC source
- 3) Across an Inductor the Voltage leads the current by  $\pi/2$ 
  - 3a) Phasor diagram shows that  $v$  is ahead of  $I$  by  $\pi/2$
  - 3b) The average power consumed by an inductor over one complete cycle is Zero
- 4) Across a Capacitor the Voltage lags the current by  $\pi/2$ 
  - 4a) Phasor diagram shows that  $I$  leads  $v$  by  $\pi/2$
  - 4b) The average power consumed by a Capacitor over one complete cycle is Zero
- 5) Across a LCR Series Circuit Current leads Voltage by phase  $\phi$ .
  - 5a) Phasor diagram shows that  $I$  leads  $v$  by  $\phi$
  - 5b) The quantity  $\cos \phi$  is called power factor
- 6) The Principle of the Transformer is Mutual Induction.
  - 6a) There are 4 types of energy losses in transformer
- 7) If  $X_L = X_C$  circuit goes to resonance and impedance will be minimum and current will be maximum
  - 7a) The Frequency of Oscillations in LC circuit depends on  $L$  and  $C$

# CONCEPT MAP ON ALTERNATING CURRENT

