



## **INTERMEDIATE**

# Alternating Current

*Hand Notes For JEE Mains, Advance, NEET UG, Class 11 & 12 etc...*

## **Hand Notes**

**Page Length : 10**

**Note :** We also providing IIT JEE, Advance, NEET, JEE UG, GATE, IES, PSUs & Competitive Exam Materials [Handnotes, Shortnotes & Books], All Reports [Seminar Reports & PPT]

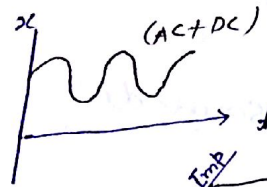
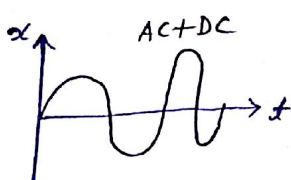
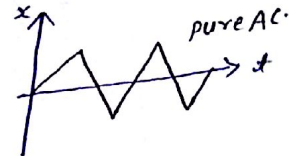
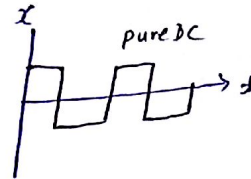
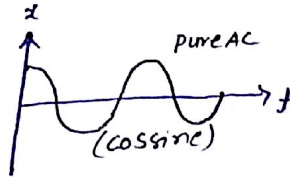
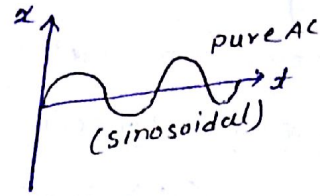
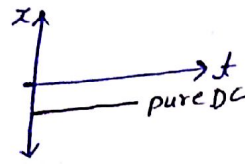
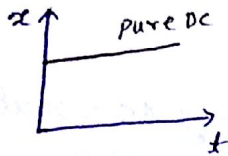
**Goto : [www.martcost.com](http://www.martcost.com)**

# ALTERNATING CURRENT

## Electrical signal

→ Direct (unidirectional,  $\phi$  const)

→ Alternating (Bidirectional, periodic, positive peak equal to negative peak position.)



\* AC measured by Hot wire instrument  
→ Heating Effect of current prove AC.

\* DC measured by moving coil galvanometer.  
→ proved by magnetic Effect of current.

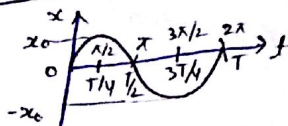
## Fundamental Alternating signal.

$$x = x_0 \sin(\omega t + \phi)$$

$x$  → Instantaneous value  
 $x_0$  → peak value  
 $2x_0$  → peak to peak value  
Phase Angle →  $\omega t + \phi$   
 $\omega$  → Angular frequency.

$\phi$  = phase difference b/w current & voltage.

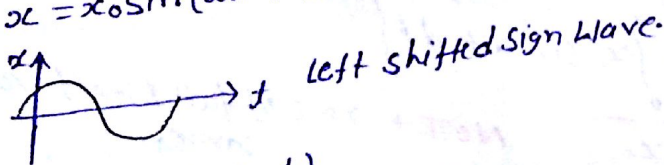
Case-I  $x = x_0 \sin \omega t$



$$2x_0 = T$$

Eg →  $\frac{\pi}{3} = \frac{T}{6}$  → In one cycle, direction change twice  
 $\frac{\pi}{4} = \frac{T}{8}$  → 0 - T/2 ⊕ve Half cycle.  
 $\frac{\pi}{6} = \frac{T}{12}$  → T/2 - T ⊖ve half cycle.

Case-II  $x = x_0 \sin(\omega t + \phi)$



Case-III  $x = x_0 \sin(\omega t - \phi)$

