Alternating current

V_0 or I_0

V or I

1 cycle
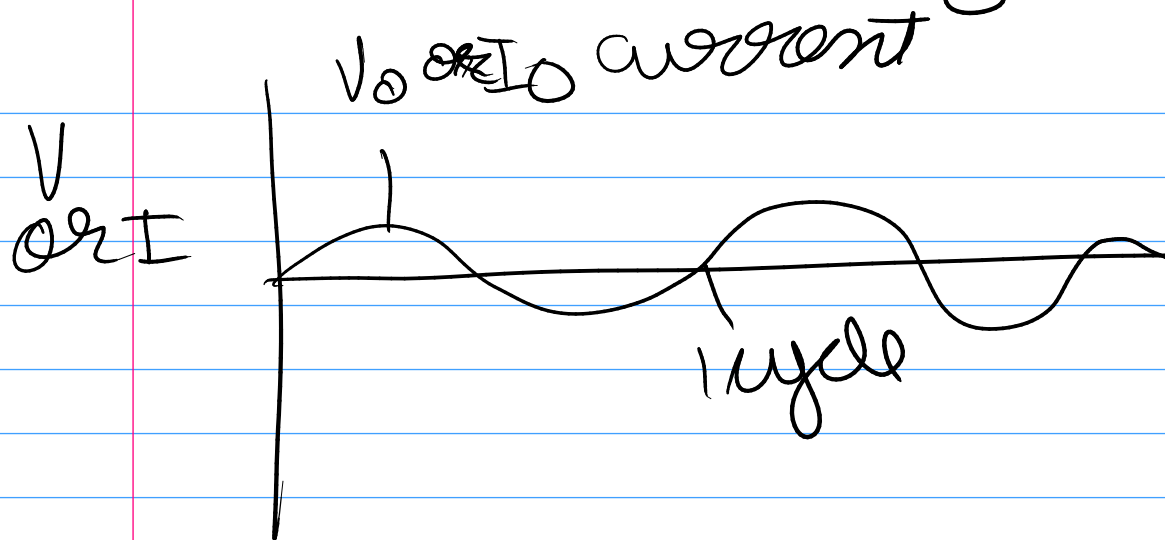
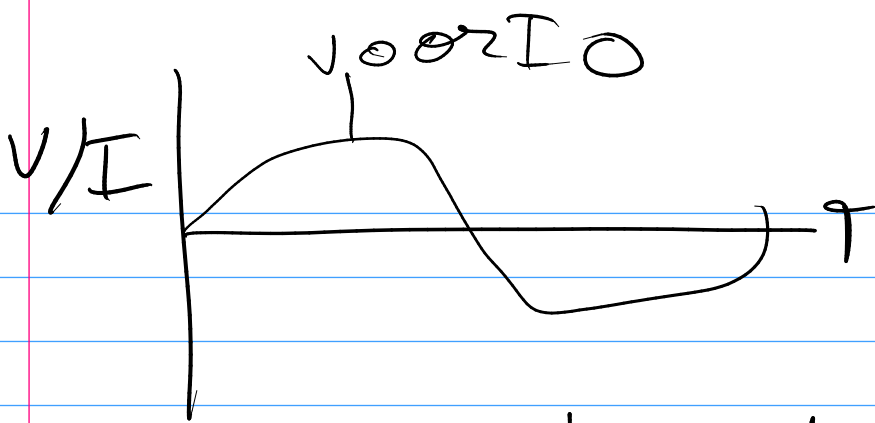Time Period (T) → The time taken for voltage or current to complete one cycle.

frequency (f) → The number of cycles per second performed by voltage & current.

peak value → The maximum value of the current or the voltage in one cycle. It has got a +ve or -ve value.

If x_0 is the peak value of I or V then the instantaneous value (x) at any time (t) is given by

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

sinusoidal A.C voltage

V/I

V oor IO

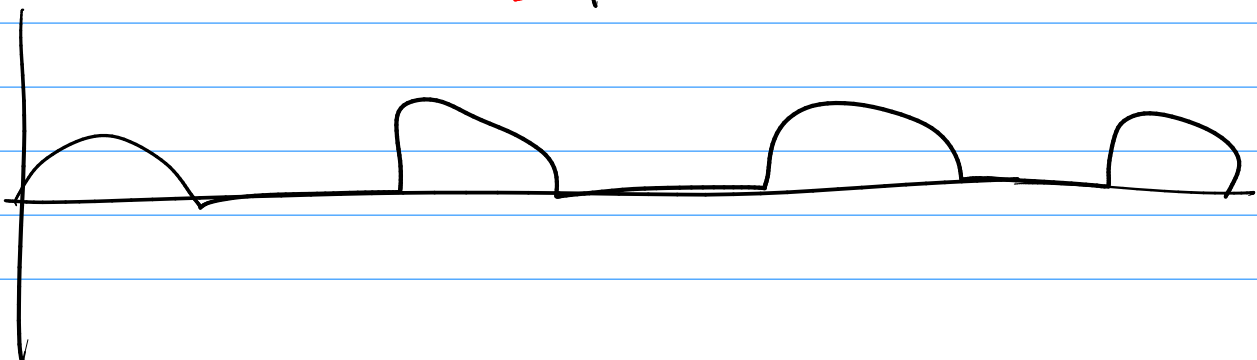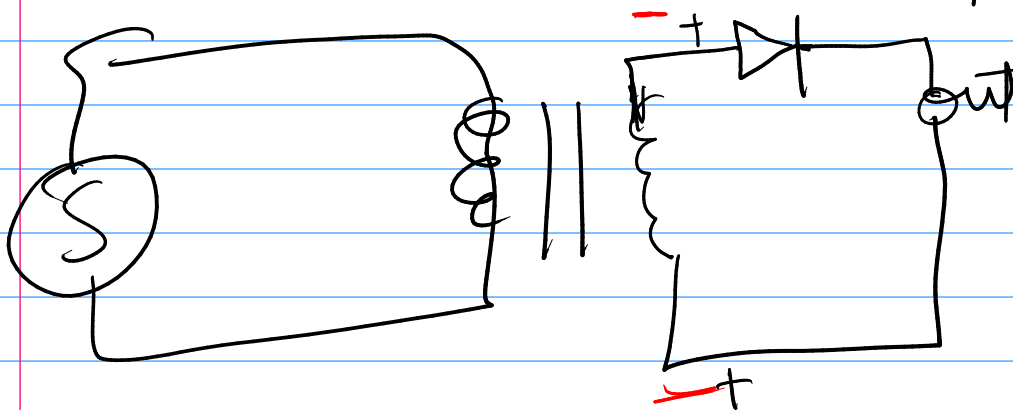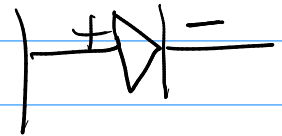$$I_{RMS} = \frac{IO}{\sqrt{2}} \qquad U_{RMS} = \frac{VO}{\sqrt{2}}$$

$$P_{max} = IO \cdot VO \left.\right) \quad P_{mean} = \frac{IO \cdot VO}{\sqrt{2} \times \sqrt{2}}$$

$$= \frac{IO \cdot VO}{2}$$

$$= \frac{P_{max}}{2}$$

Half wave Rectifiers

Full wave Rectifier
(Bridge Rectifier)

+ -

A
B
C

smoothing
capacitor

out

capacitor discharge

smoothed out put