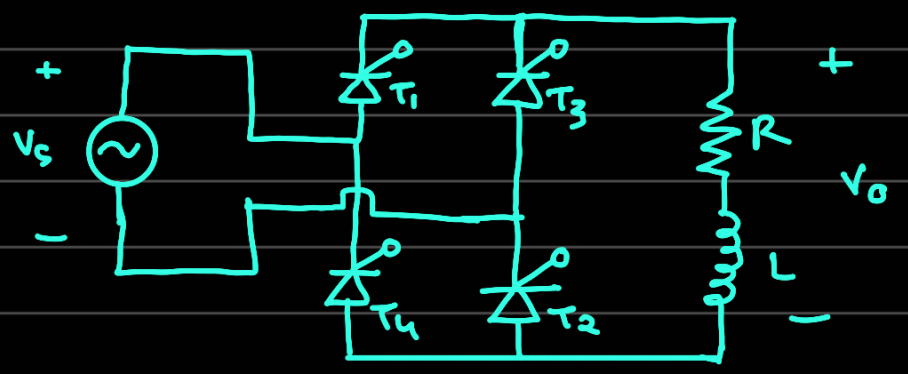
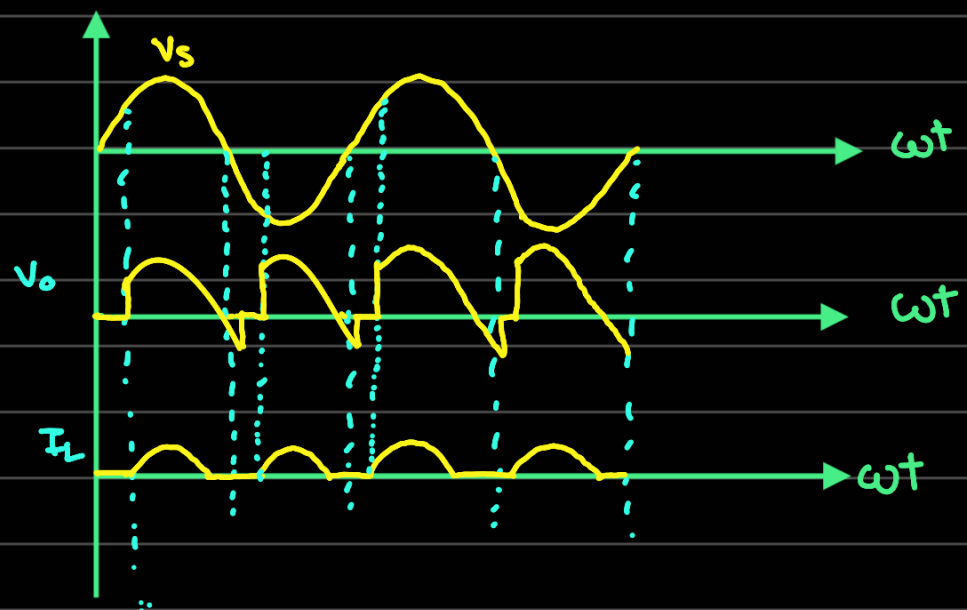
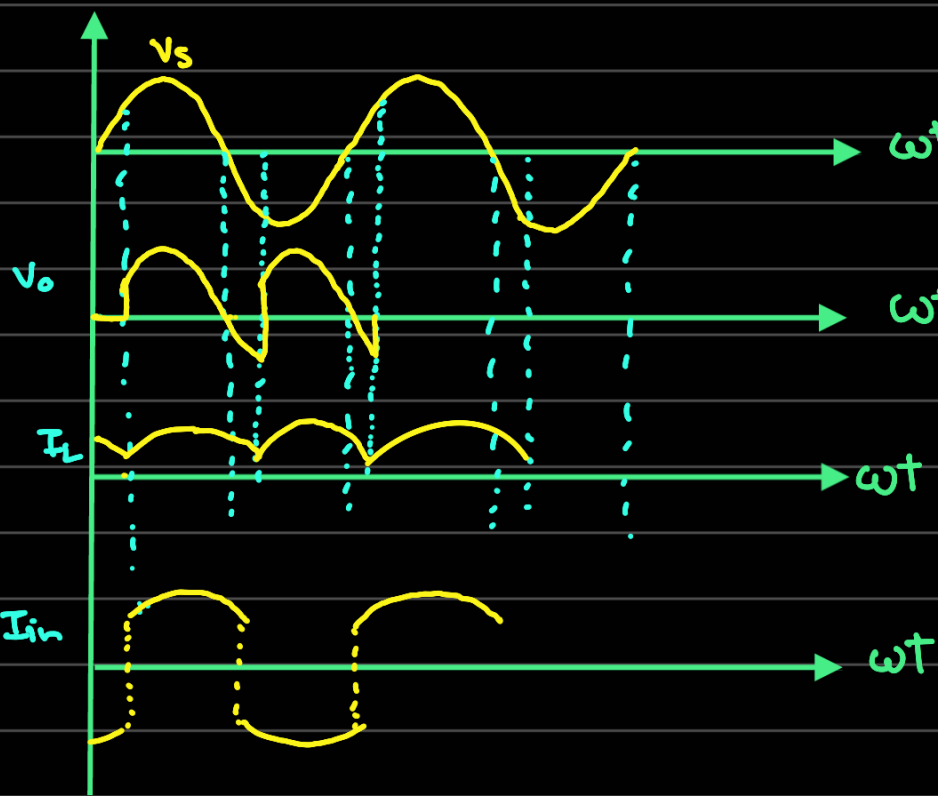
Day-8





Assumed I_L is discontinuous



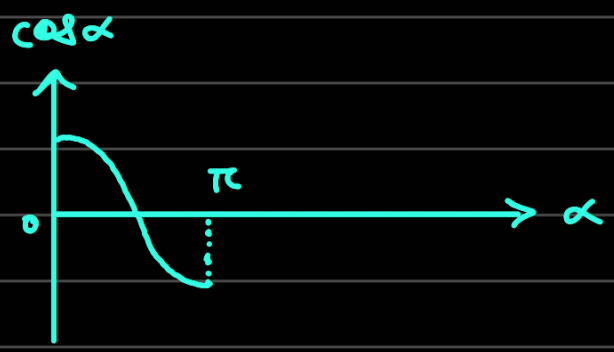
$V_s = V_m \sin \omega t$

If continuous conduction,

$$V_o = -V_m \sin \omega t, \quad 0 < \omega t < \omega t_1$$
$$= V_m \sin \omega t, \quad \omega t_1 < \omega t < \pi + \omega t_1$$
$$= -V_m \sin \omega t, \quad \pi + \omega t_1 < \omega t < 2\pi + \omega t_1$$

$$V_{o\,avg} = \frac{1}{T} \int_0^T V_o \, dt$$

$$= \frac{2V_m}{\pi} \cos\alpha$$



$V_{o\,avg}$ can be -ve. Not possible with diodes. Power can be pushed back to source.

(Inverter!)