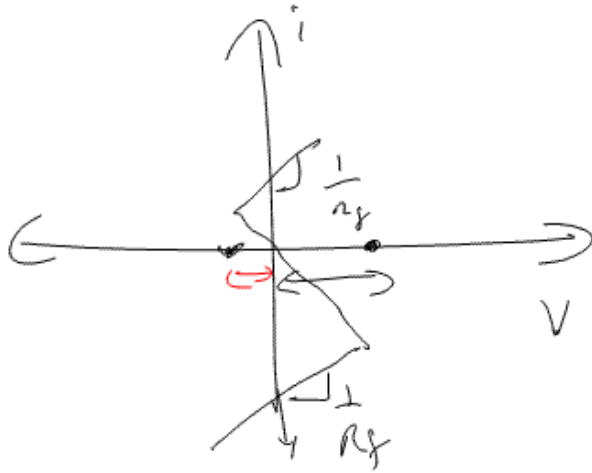
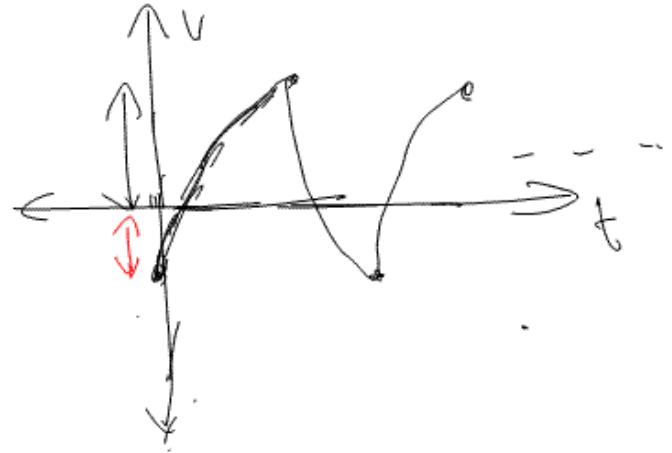


Discussion Notes - 5

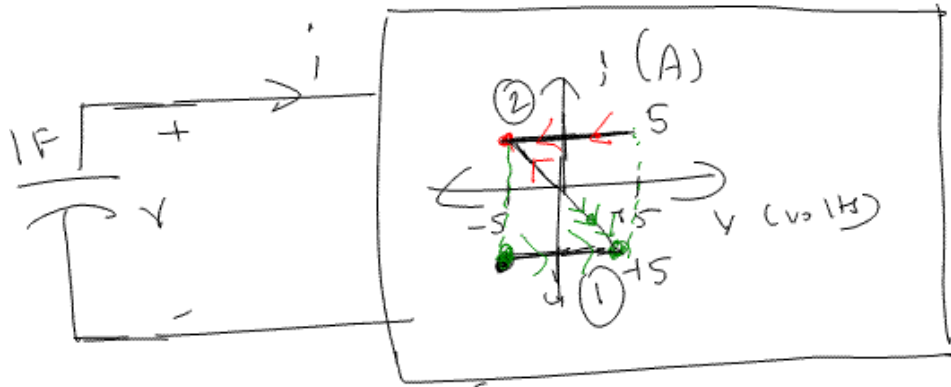
(Q.i.)



Asymmetrical.



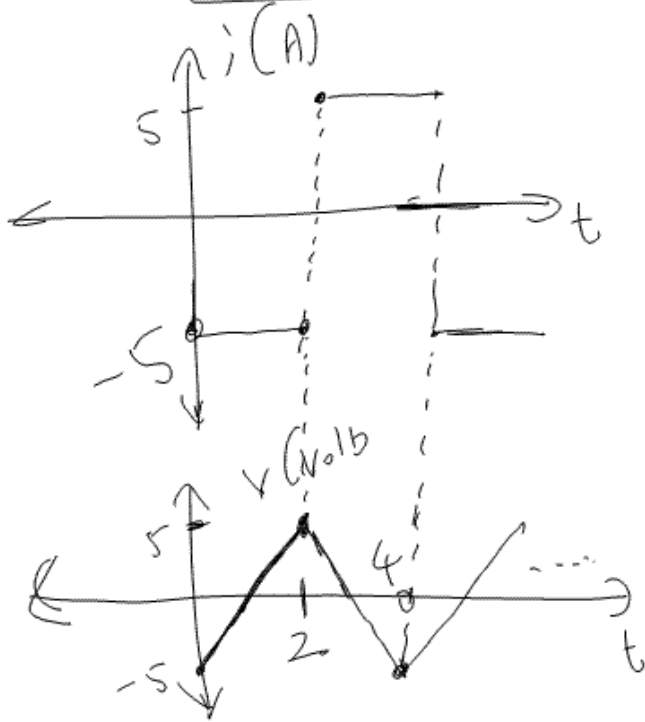
(Q.ii) Sketch $i(t)$, $v(t)$, find T_p . Assume $i(0) = -5A$
& $v(0) = -5V$



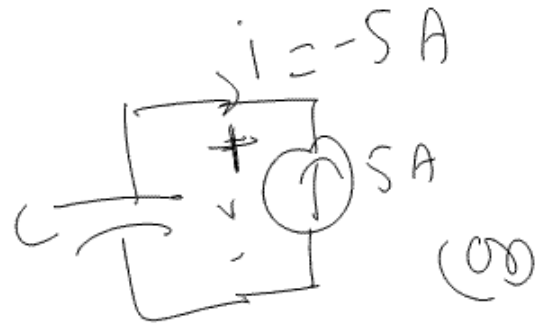
$$i = -C \frac{dv}{dt}$$

$$i > 0, v'(t) < 0$$

$$i < 0, v'(t) > 0$$

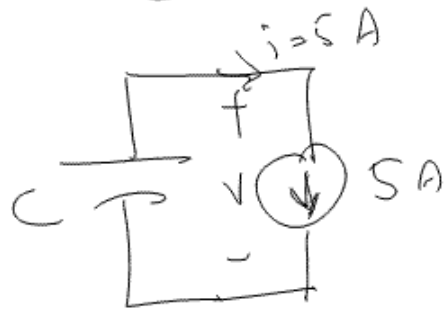


Notice v is just a straight line. This is because, $i-v$ graph slope in ① & ② is zero!



$$\Rightarrow R_{eq} = \frac{1}{\text{slope}} \Rightarrow \infty$$

$$\therefore i = -C \frac{dy}{dt}$$



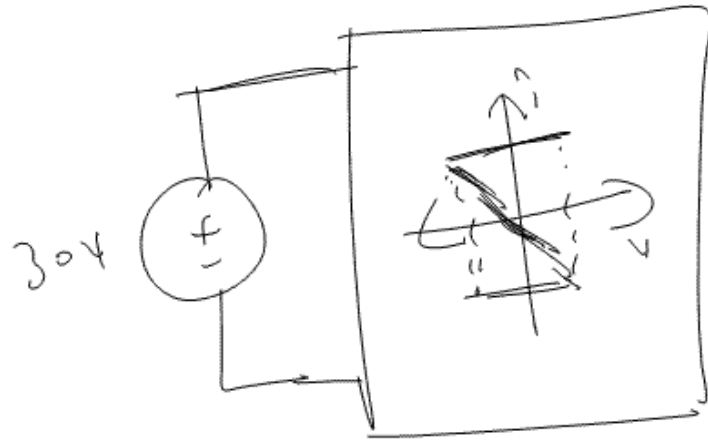
Region ①: $i = -5A$

$$\Rightarrow -5 = -\frac{(1F)(5 - [-5])}{\Delta t}$$

$$\Rightarrow \boxed{\Delta t = 2 \text{ sec}}$$

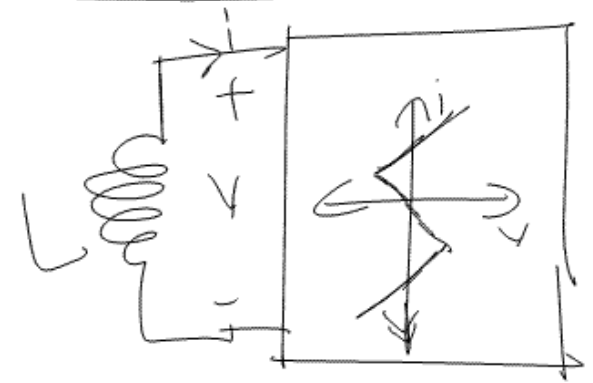
$$\therefore \boxed{T_p = 2\Delta t = 4 \text{ sec}}$$

(Q.1)



invalid!
 $v = 30V$ is
not on the $i-v$
graph!

(Q.2)



Find eq. points \underline{x}
sketch dynamic route.
Also classify eq. points
as stable (or) unstable

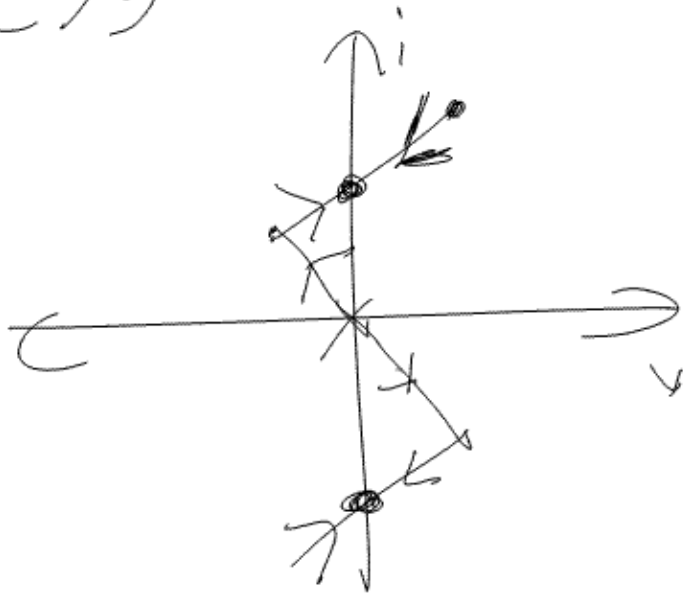
$$v = -L \frac{di}{dt}$$

(L > 0)

Eq. points:

$$\frac{di}{dt} = 0$$

$$\Rightarrow \boxed{v = 0}$$



$$v > 0, i'(t) < 0$$

$$v < 0, i'(t) > 0$$

∴ • → stable, X → unstable