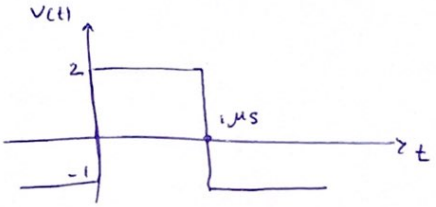
یا لطیف

رضا دینی پور
۹۸۱۴۳۰۳
امتحان اول تکنیک پالس

#1

$t_{ri} = t_{fi} = 50\ ns$
$f_H = 5\ MHz$
$f_L = 10\ KHz$



a) $t_{ro}, t_{fo} = ?$
$\%tilt = ?$

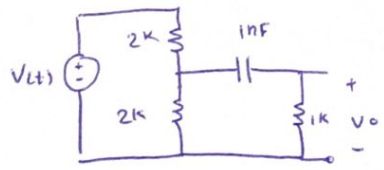
$$t_{ro} = \sqrt{t_{ri}^2 + \left(\frac{0.35}{f_H}\right)^2} = \sqrt{(50\times10^{-9})^2 + \left(\frac{0.35}{5\times10^6}\right)^2}$$

$$\simeq 8.60\times10^{-8} = 86\ ns$$

$$\%tilt = \pi \frac{f_L}{f_{in}}$$

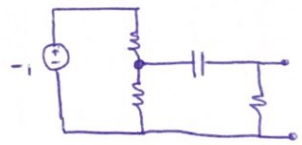
$$f_{in} = \frac{1}{T} =$$

b)



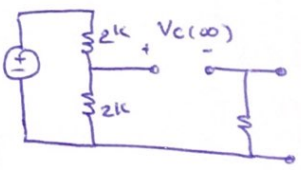
$V_o(0^-) = 0$

for $t<0$:

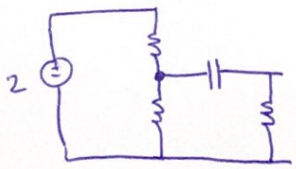


$V_c(0^-) = V_c(\infty) \Rightarrow$

$V_c(0^-) = \frac{2(-1)}{4} = \frac{-2}{4} = -0.5V$



for $t>0$



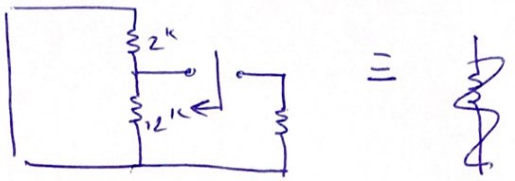
~~$V_c(0^-) = V_c(0^+) = -0.5V$~~

$V_c(0^+) = \frac{2(2)}{4} = 1V \rightarrow \Delta V = 1V$

$\Rightarrow V_o(\infty) = 1V$

برش دائمه

$\Rightarrow \tau = RC$:



$\equiv$

$\tau = (2^k \| 2^k) + 1^k = 2^k \Rightarrow \tau = 2^k \times 1^{nF} = 2^{\mu s}$

$v_o(t) = v_o(\infty) + [v_o(0^+) - v_o(\infty)] e^{-\frac{t}{2}}$

$= 1 + (0 - 1) e^{-\frac{t}{2\mu s}}$