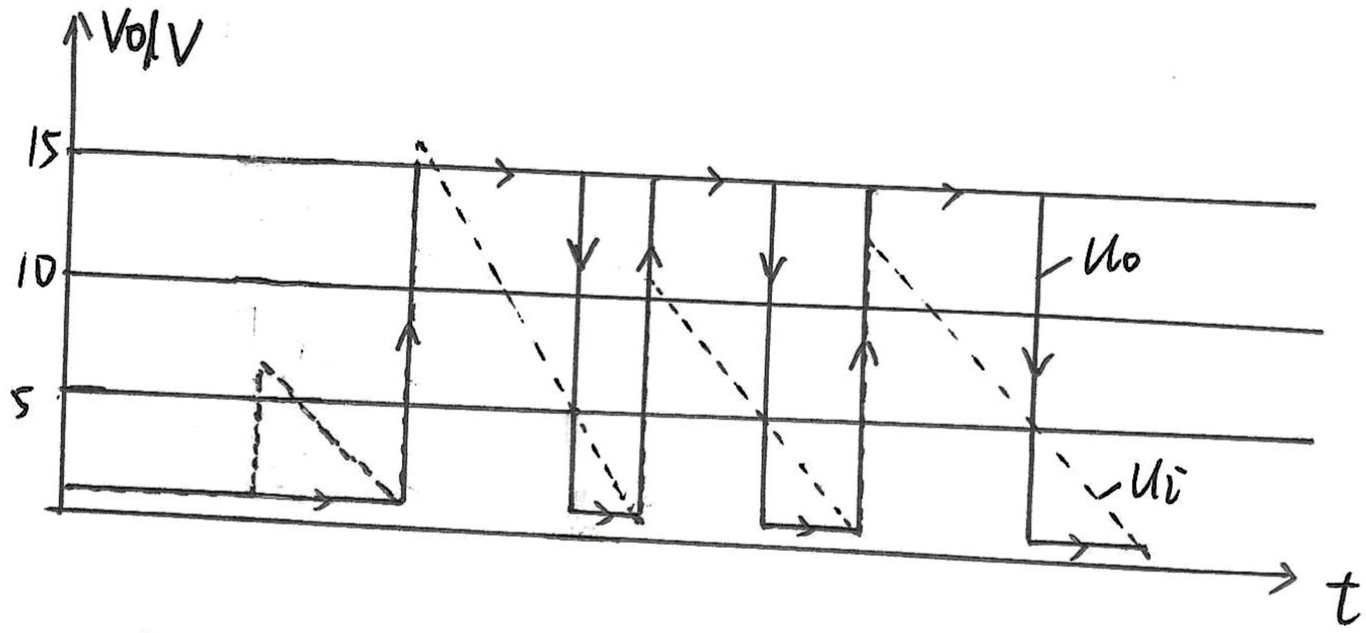
题7.3 (1) $V_{T+} = (1+\frac{R_1}{R_2})V_{TH} = (1+\frac{R_1}{R_2})\cdot\frac{V_{DD}}{2} = 10V$

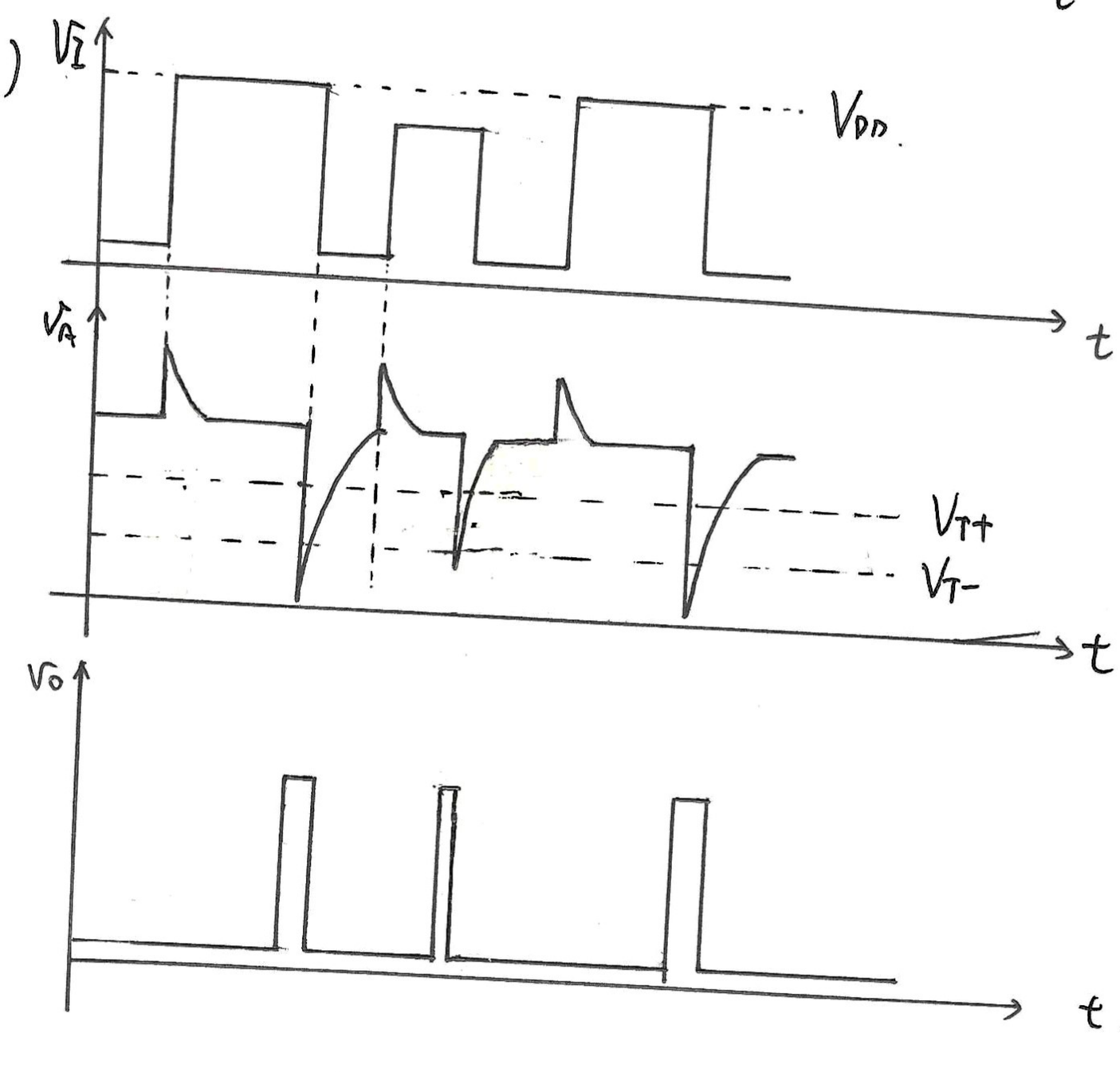
$V_{T-} = (1-\frac{R_1}{R_2})V_{TH} = (1-\frac{R_1}{R_2})\cdot\frac{V_{DD}}{2} = 5V$

$\Delta V_T = |V_{T+} - V_{T-}| = 2V_{TH}\cdot\frac{R_1}{R_2} = 5V$

(2)



题7.6 (1)



(2) 由于输出脉冲宽度与输入信号幅值有关，不仅仅取决于阻容参数.

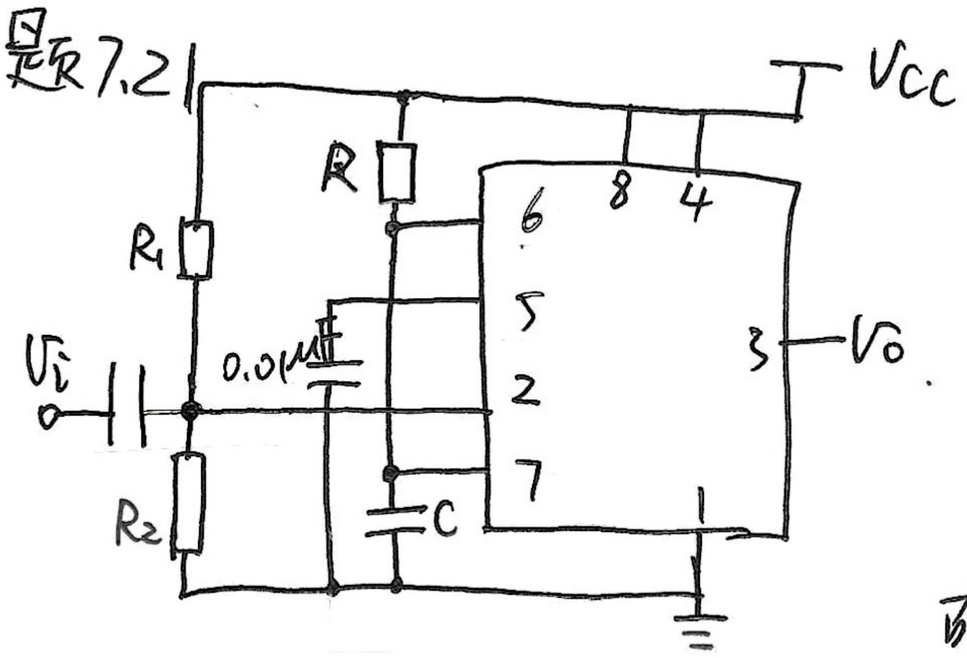
故电路不能作为单稳态电路使用.

题7.10 $t_W = RC\ln\frac{V_C(\infty)-V_C(0)}{V_C(\infty)-V_C(t)} = RC\ln\frac{0-V_{OH}}{0-V_{TH}} = 2.7\mu s$

题7.14 $f = \frac{1}{T} = \frac{1}{2.2R_FC} = .50KHz$

题7.16 $2nt_{pd} = \frac{1}{f}$ 得 $t_{pd} = .10ns$

题7.21



其中R_1 R_2分压使输入为高电平时，有2端输入电压略高于$\frac{1}{3}V_{DD} = 5V$ 可取 $R_1 = R_2 = 10K\Omega$，

使得 $V_{I2} = .7.5V$，触发时 $V_{I2} = 4.2V$，有效。

$t_W = RC\ln 3$

故C取10μF，则 $R_{min} = .\frac{t_{W(min)}}{C\ln 3} = .91K\Omega$.

$R_{max} = \frac{t_{W(max)}}{C\ln 3} = .910K\Omega$.

题7.25 左侧为一方波密特触发电路，右侧为一多谐振荡电路

左侧充电至$\frac{2}{3}V_{DD}$时，G1反向器输出高电平，右侧开始振荡。

故延迟时间为 $t_{W1} = RC\ln\frac{V_{CC}-0}{V_{CC}-\frac{2}{3}V_{CC}} = 1M\Omega \cdot 10\mu F \cdot \ln 3 = 10.986S$

振荡电路振荡频率即扬声器发声频率

$t_{W2} = T_1 + T_2 = (R_1+R_2)C\ln\frac{V_{DD}-\frac{1}{3}V_{DD}}{V_{DD}-\frac{2}{3}V_{DD}} + R_2C\ln\frac{0-\frac{2}{3}V_{DD}}{0-\frac{1}{3}V_{DD}} = (R_1+2R_2)C\ln 2$

$f = \frac{1}{t_{W2}} = \frac{1}{(R_1+2R_2)C\ln 2} = \frac{1}{3\times 5K\Omega \times 0.01\mu F \times \ln 2} = 9618Hz$