**Baskent University, Faculty of Engineering**
**BME 222-01 – Electronics (Spring Semester 2004/2005)**
**Quiz 1 – March 21, 2005**

**Student Name**_____

**Faculty No:** _____

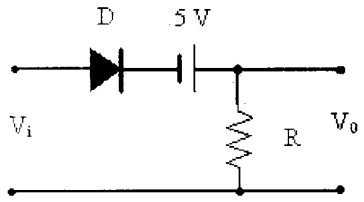



Fig. 1

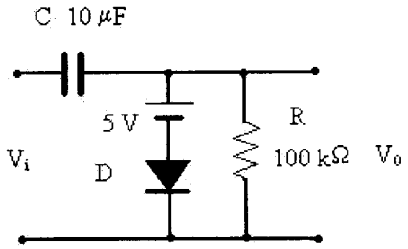


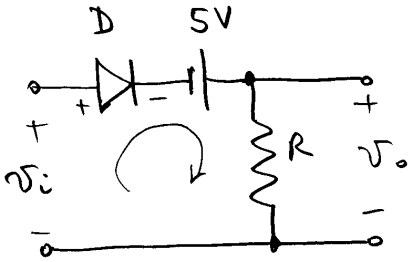

Fig.2

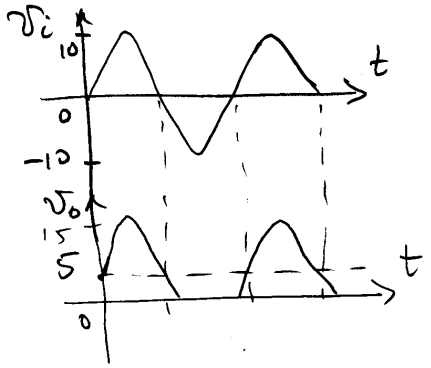
Determine the output $V_0$ for the networks of Fig. 1, 2, if the input $V_i$ is sinusoidal signal with peak-to-peak magnitude of 20 V, and frequency of 1000 Hz. Assume ideal diodes.

5 points.

**Good Luck!**

# Solutions




1. Transition level

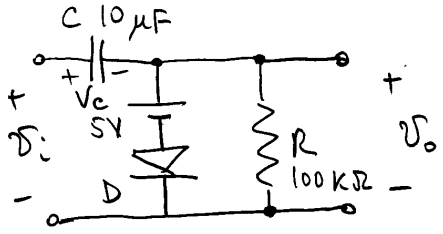
$-v_i + V_D - 5 + v_o = 0$

$V_D = 0$; $I_D = 0$; $V_o = 0$

$-v_i - 5 = 0$; $v_i = -5\ V$

2. If $v_i = 0$, then $v_o = 5V$.

If $v_i = 10$, then $v_o = 15V$




1. $\tau = RC = 100 \cdot 10^3 \cdot 10 \cdot 10^{-6} = 1\ S$

$T = 1/f = 1/1000 = 1\ mS$

$\tau >> T$ – presented network is clamper

2. Capacitor charges when positive halfwave acts in the input of the network.

$-v_i + V_c + 5 = 0$; $V_c = V_m - 5 = 10 - 5 = 5V$

$V_o = 5\ V$