

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

Student Name _____

Faculty No: _____

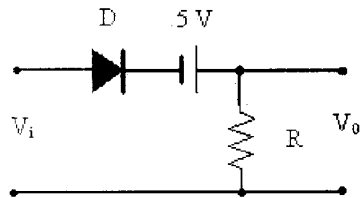


Fig. 1

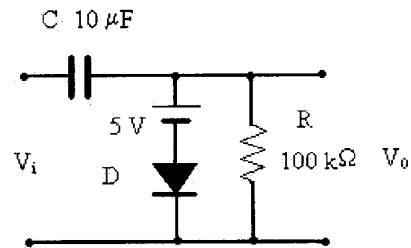


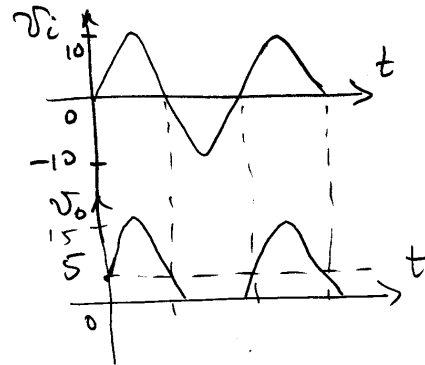
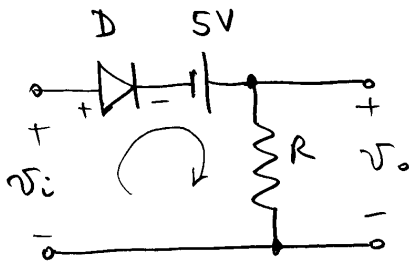
Fig. 2

Determine the output V_o 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

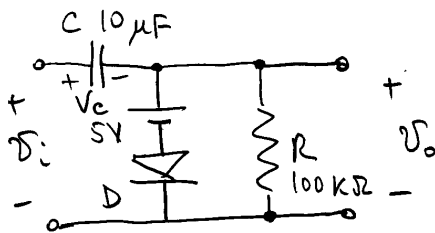
$$-v_i + V_D - 5 + v_o = 0$$

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

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

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

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



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

$$T = 1/f = 1/1000 = 1ms$$

$\tau \gg T$ - presented network is clamper

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

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

$$V_o = 5V$$

