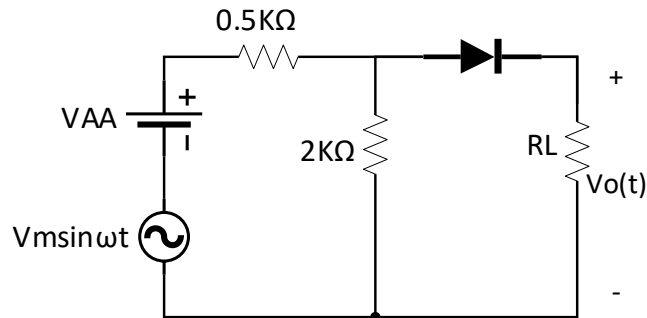
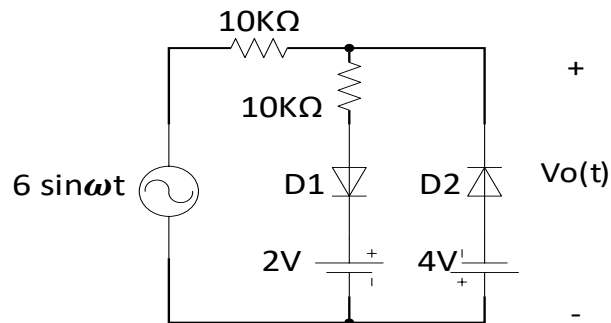


Electronic Devices
Sheet #3

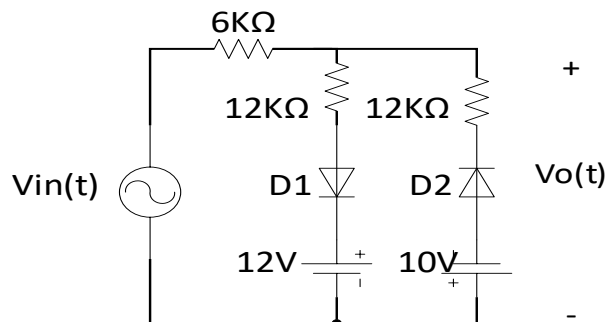
1. For the circuit shown $V_{AA} = 8V$, $V_m = 0.5V$, and $R_L = 1k\Omega$. In the large signal model of the diode $V_\gamma = 0.7V$, $R_f = 20\Omega$ and $\eta = 2$, Determine:
- The alternating component of the voltage across R_L .
 - The total voltage across R_L .



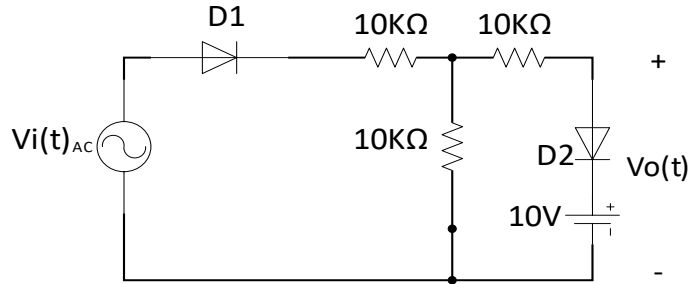
2. Find the output of parallel based clipper shown in figure for simplicity assume diodes are ideal.



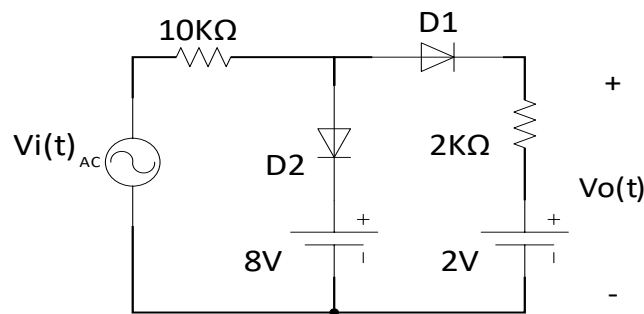
3. a) Obtain the voltage transfer characteristics of the circuit shown, assuming diodes are having $V_\gamma = 0.6V$ and $R_f = 0$.
b) Sketch one cycle of the output voltage, assuming that the input voltage $V_{in}(t) = 20 \sin \omega t$.



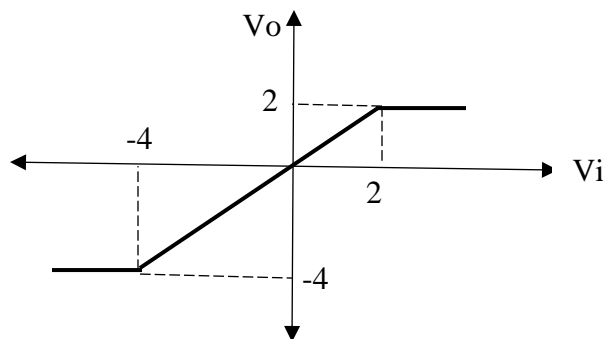
4. The diodes shown in two-level clipper shown in the following figure are ideal. Sketch transfer characteristic (V_o vs. V_i) and indicate the state of each diode.



5. The diodes shown in the two-level clipper shown in the following figure are ideal. Write the transfer function (V_o as a function of V_i).



6. a) The voltage transfer characteristics of diode network is shown sketch the output voltage for $V_i(t) = 5\sin\omega t$.
 b) Design a simple diode network, using ideal diodes that have the transfer function given.



7. a) The voltage transfer characteristics of diode network is shown sketch the output voltage for $V_s(t) = 2.0 + 3\sin\omega t$.
b) Design a simple diode network, using ideal diodes that have the transfer function given.

