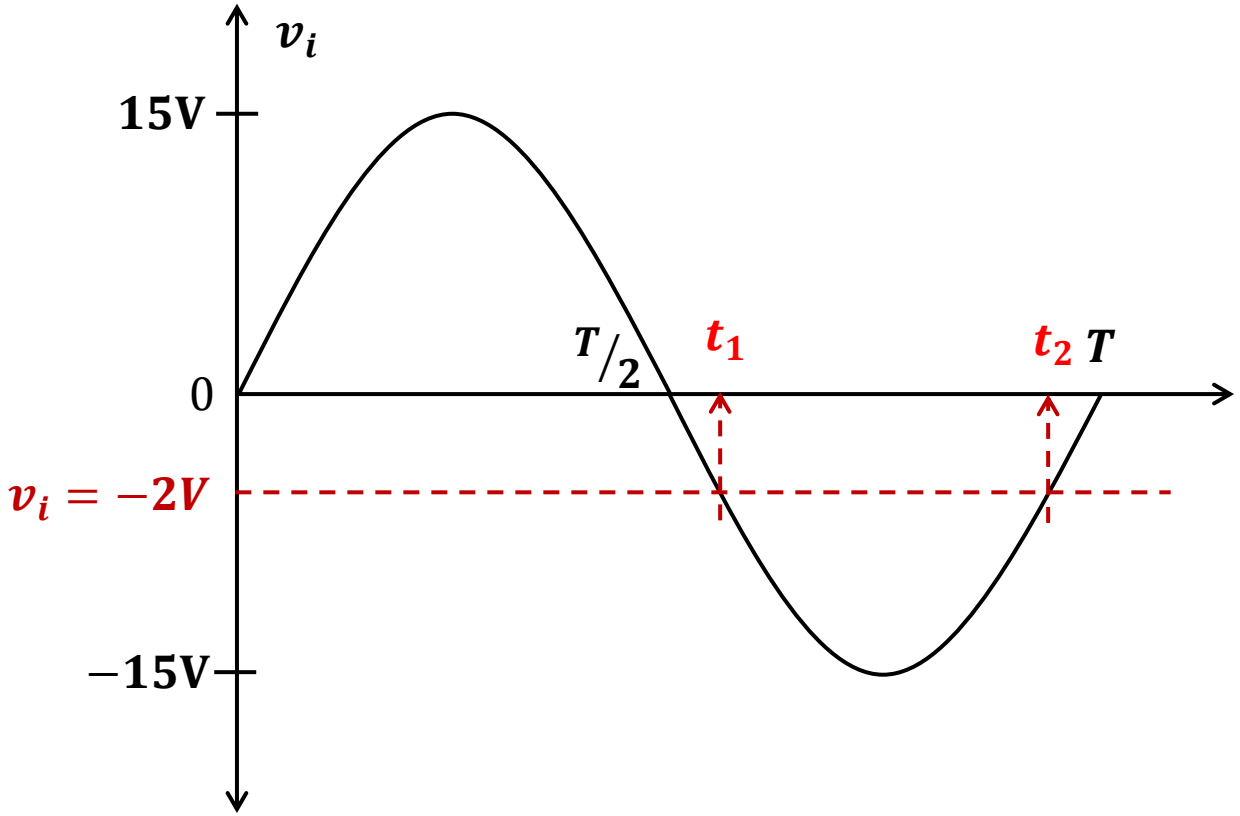
Diode AC Analysis short questions

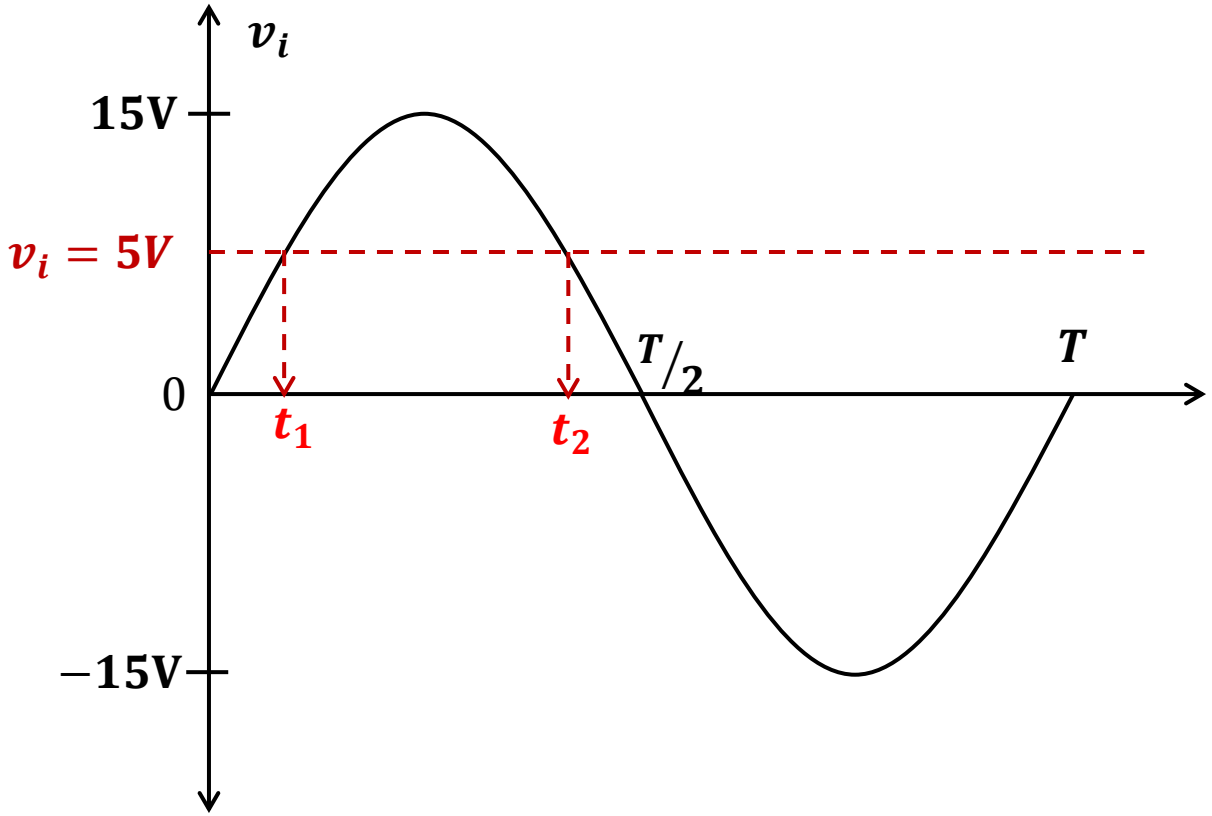
$\boldsymbol{v_0/v_i}$ relationship for the signal $\boldsymbol{v_i}$ are given below. Sketch $\boldsymbol{v_0}$ in correspondence to $\boldsymbol{v_i}$.

1. $v_0 = v_i$. For $0 < t < T$.
2. $v_0 = 2v_i$. For $0 < t < T$.
3. $v_0 = \frac{1}{3}v_i$. For $0 < t < T$.
4. $v_0 = v_i$. For $0 < t < \frac{T}{2}$ and $v_0 = 0$. For $\frac{T}{2} < t < T$.
5. $v_0 = -v_i$. For $0 < t < \frac{T}{2}$ and $v_0 = 0$. For $\frac{T}{2} < t < T$.
6. $v_0 = 2$. For $0 < t < \frac{T}{2}$ and $v_0 = v_i + 2$. For $\frac{T}{2} < t < T$.
7. $v_0 = -3$. For $0 < t < t_1$ & $t_2 < t < T$,
   $v_0 = v_i - 1$. For $t_1 < t < t_2$.
8. $v_0 = v_i$. For $0 < t < t_1$ & $t_2 < t < T$,
   $v_0 = -2V$. For $t_1 < t < t_2$



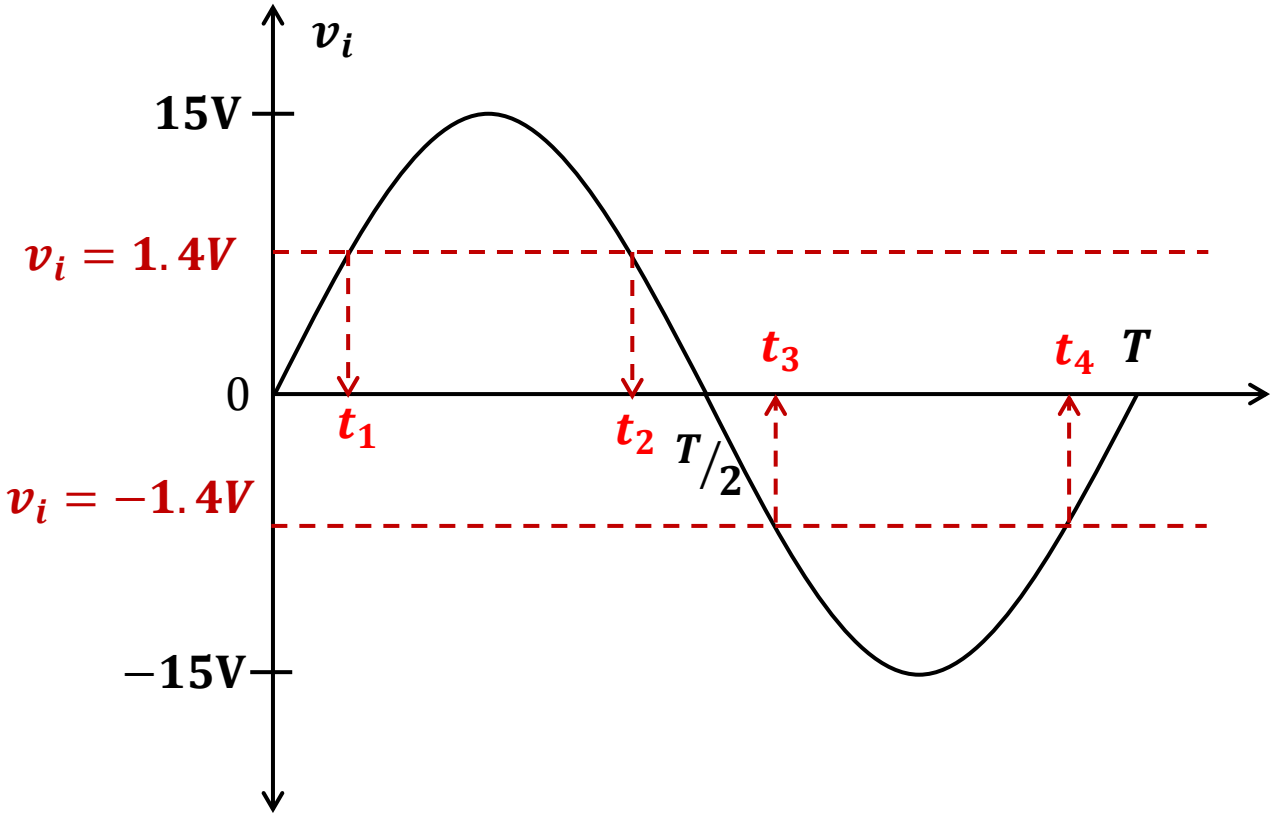
$\boldsymbol{v_0/v_i}$ relationship for the signal $\boldsymbol{v_i}$ are given below. Sketch $\boldsymbol{v_0}$ in correspondence to $\boldsymbol{v_i}$.

1. $v_0 = v_i - 3$, For $0 < t < t_1$ & $t_2 < t < T$,
   $v_0 = 2$. For $t_1 < t < t_2$.
2. $v_0 = 0$. For $0 < t < t_1$ & $t_2 < t < T$,
   $v_0 = v_i - 5$. For $t_1 < t < t_2$
3. $v_0 = 2$. For $0 < t < t_1$ & $t_2 < t < T$,
   $v_0 = v_i - 3$. For $t_1 < t < t_2$

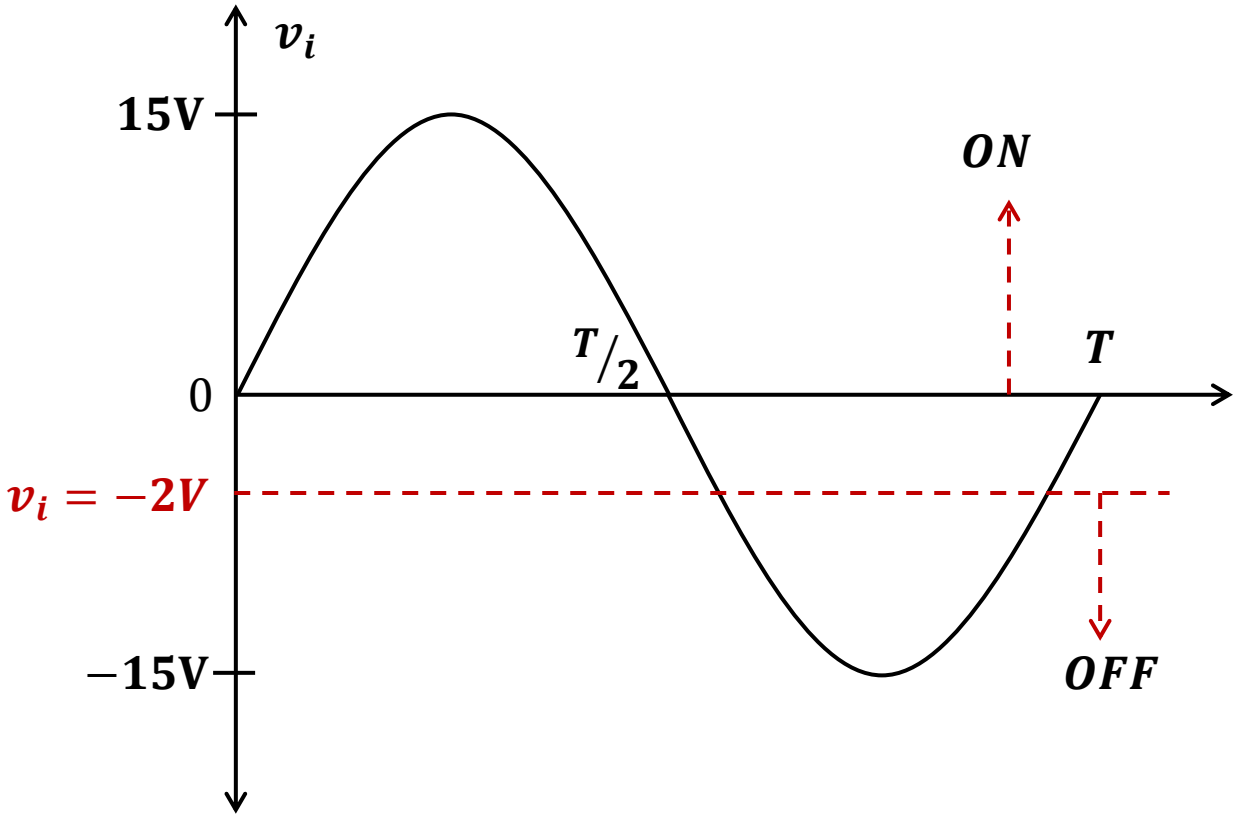


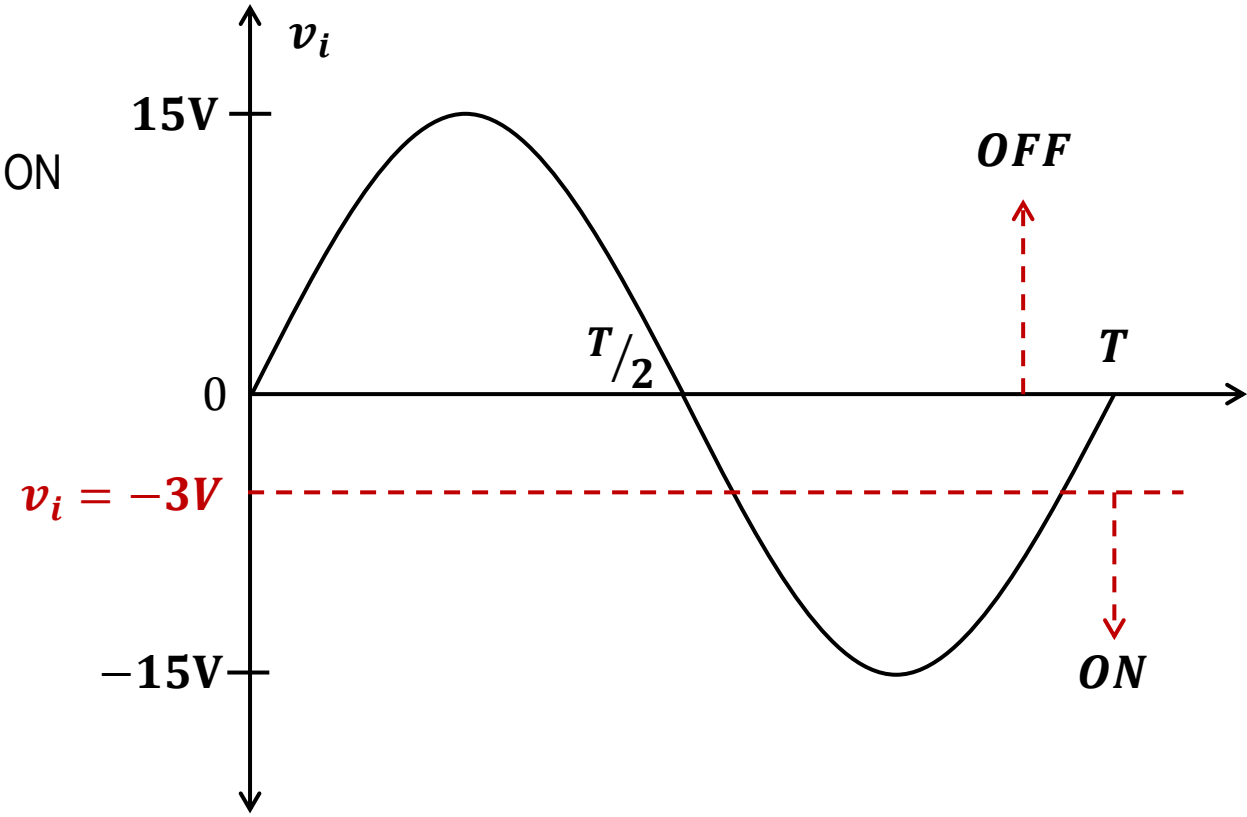
$\boldsymbol{v_0/v_i}$ relationship for the signal $\boldsymbol{v_i}$ are given below. Sketch $\boldsymbol{v_0}$ in correspondence to $\boldsymbol{v_i}$.

1. $v_0 = 0$. For $0 < t < t_1$, $t_2 < t < t_3$ & $t_4 < t < T$,
   $v_0 = v_i - 1.4$. For $t_1 < t < t_2, v_0 = -(v_i + 1.4)$

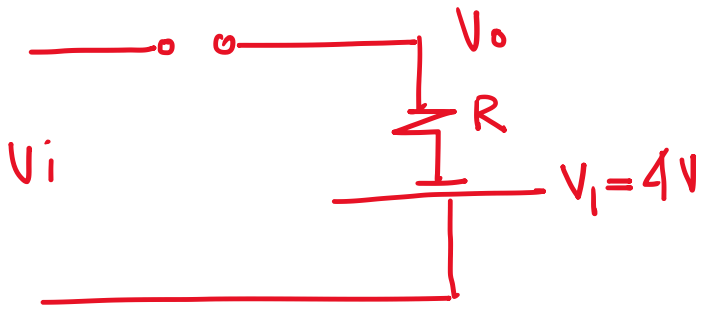


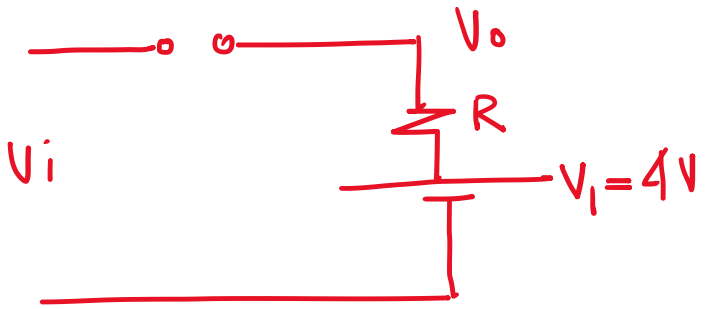
Transition state voltage lines are drawn on the signals shown in the figures. Write the intervals and ranges of v_i for which the diode will ON and OFF.

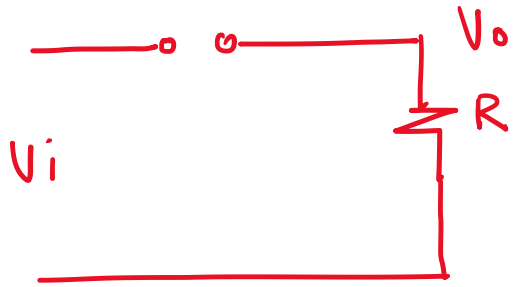


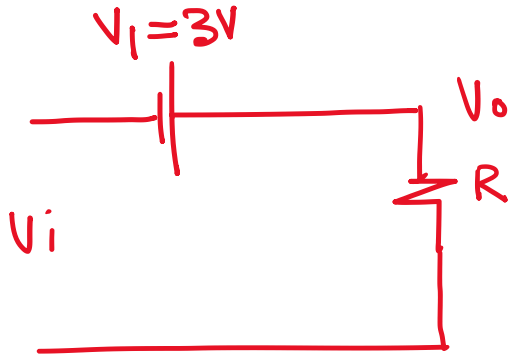


Obtain the v_0/v_i relationship for the circuits shown in Figures below:

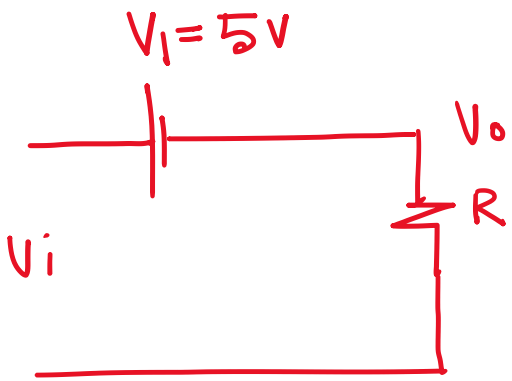


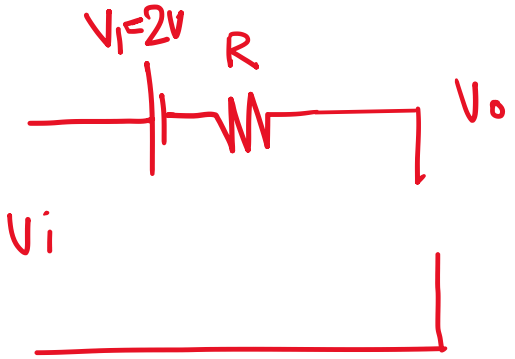






Obtain the $\boldsymbol{v_0/v_i}$ relationship for the circuits shown in Figures below:





Determine the transition state voltage for the circuits shown in Figures below. Consider the diodes are Si diode