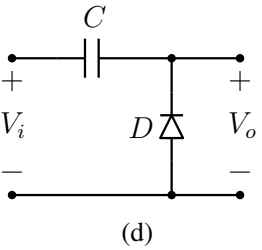
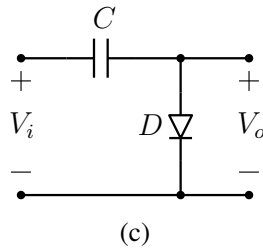
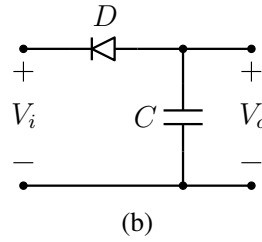
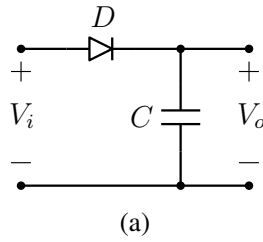


EE 112 (MBP): HW 5 (February 17, 2017)

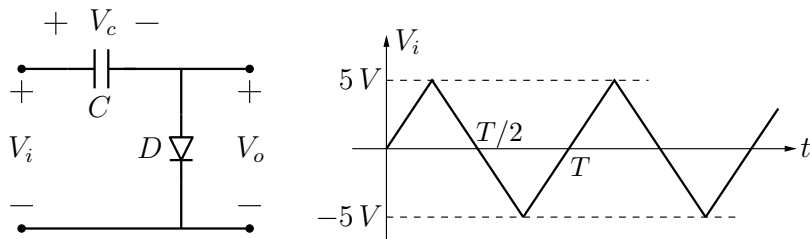
1. An input voltage $V_i(t) = V_1 + V_m \sin \omega t$ is applied to the circuits shown in the figure. If $V_{\text{on}} = 0.7 \text{ V}$ for the diode, $V_1 = 2 \text{ V}$, and $V_m = 5 \text{ V}$, plot $V_o(t)$.



2. In the circuit shown in the figure, assume the diode to be ideal, with $V_{\text{on}} = 0 \text{ V}$. The capacitor voltage V_c is initially 0 V .

- (a) Sketch $V_c(t)$ and $V_o(t)$ for the first two cycles (i.e., $0 < t < 2T$).
 (b) Repeat for $V_{\text{on}} = 0.7 \text{ V}$.

[5]



3. In the circuit shown in the figure, $V_s = 24 \sin \omega t \text{ V}$, $V_Z = 6 \text{ V}$, $V_{\text{on}} = 0.7 \text{ V}$, and $RC \gg T$.

