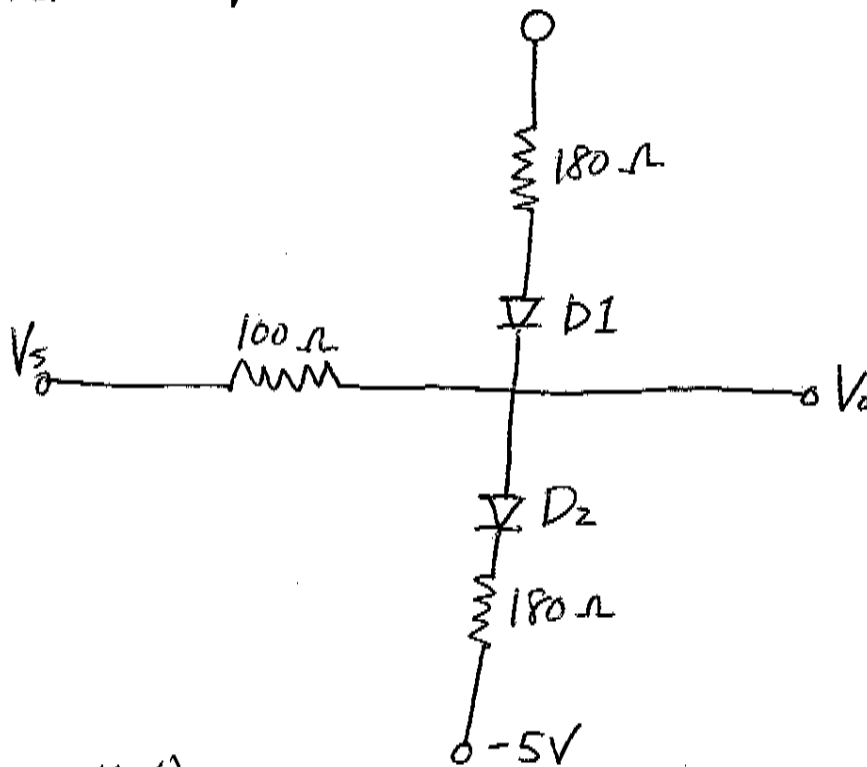


13.4 In the diode shown, the diodes are ideal except that each is modeled by a voltage source of $0.5V$ in series with a (diode) resistance of $r_d = 20\ \Omega$, when forward biased. A sinusoidal signal V_s with input impedance $R_s = 100\ \Omega$ is connected to the diode circuit. Determine the maximum value of V_s such that V_o remains sinusoidal, with no distortion. Also, find the amplitude of the output signal V_o .



MAXIMUM VALUE $V_s(t)$

- $V_s(t) = -5 \cos(\omega t)$
- $V_s(t) = 5 \cos(\omega t)$
- $V_s(t) = -5 \sin(\omega t)$
- $V_s(t) = 9 \sin(\omega t)$

Amplitude of the output signal V_o .

- $v_o(t) = 0.3 \cos(\omega t)$
- $v_o(t) = 0.3 \sin(\omega t)$
- $v_o(t) = 3.33 \cos(\omega t)$
- $v_o(t) = 5 \sin(\omega t)$