



Introduction to Electronics

TUTORIAL 3: DIODE APPLICATIONS

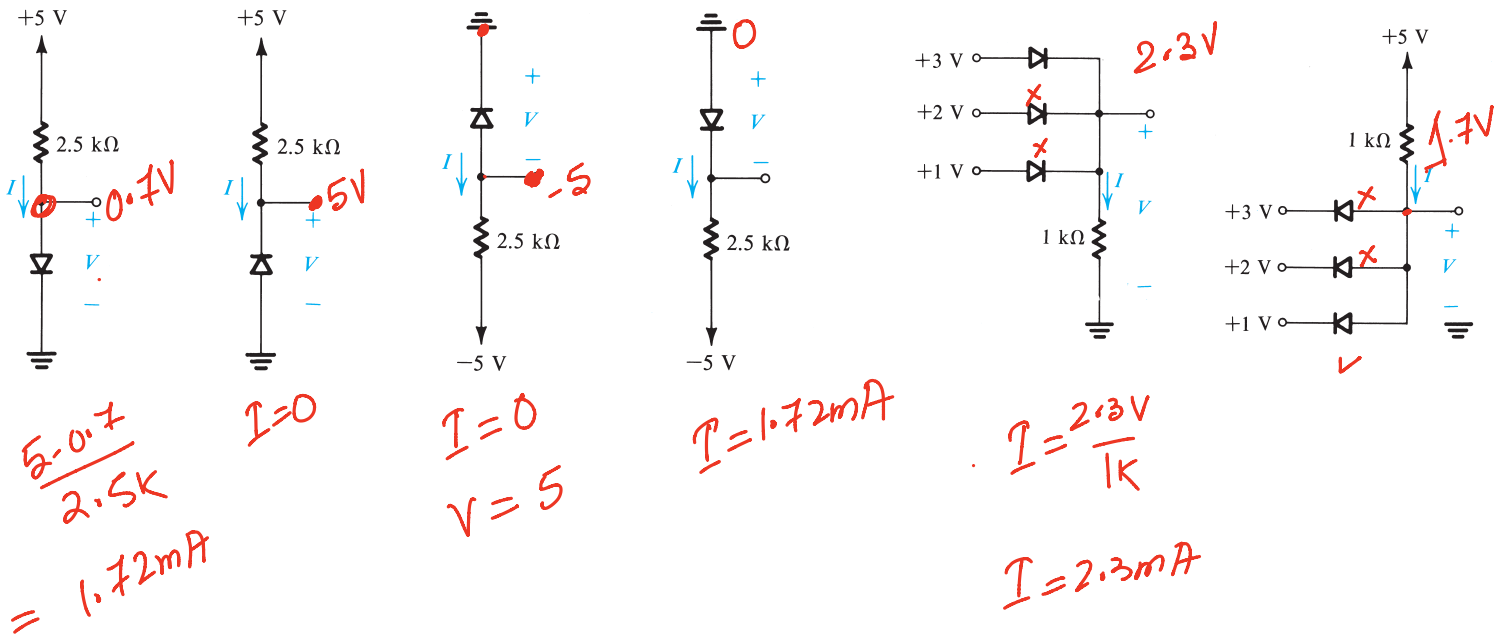
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Problems

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Q1: Find the values of I and V in the circuits shown in the figures.

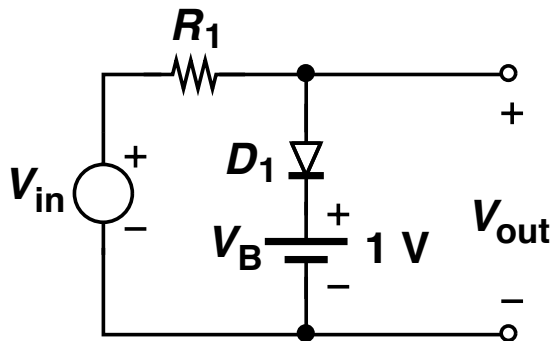
Consider $V_D = 0.7V$ for the diodes.



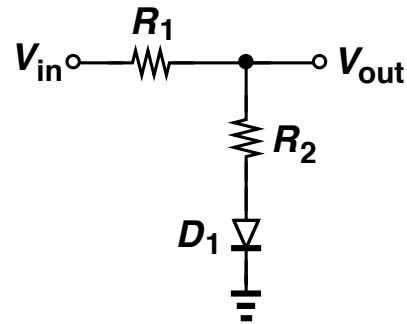
Problems

3

Q2: Find the input-output characteristic of the following circuits?
Given $V_D = 0.7$ V, $R_1 = R_2 = 1$ k Ω . Also draw the waveform if V_{in} is a sinewave generator with an amplitude of 3 V.



(a)



(b)

Problems

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Q3: A center tap full-wave rectifier has a transformer with turn ratio of 20:1 and its center is grounded. If the power supply is 220 V_{rms} and find the PIV and amplitude of the rectified waveform. Consider V_D=0.7 V.

$$V_A = 220 \times \sqrt{2} = 311 \text{ V}$$

$$V_s = 311 \times \frac{1}{20} \times \frac{1}{2}$$

$$\text{PIV} = 2V_s - V_D$$

Amplitude of rectified
waveform
 $V_s - V_D$

2

