

**ECE 2201
Term A-2023**

Problem Set 1

Due: Friday, September 1, 2023

NOTES:

(1) *You must show all work to receive credit. Answers alone are not sufficient.*

(2) *The book problems have been used before and I am sure solutions are floating about. Be sure you know how to do these problems ON YOUR OWN, since you will be tested in each area*

Section 4.1: Ideal Diode (pg. 230)

NOTE! Use the “0.7 Volt Diode Model” for the following problems, instead of the “Ideal Model” mentioned in the book.

1. 4.2
2. 4.3
3. 4.4 Do parts (a), (c), (e), (g), (h) and (i).
4. 4.8

SIMULATION

5. Using a circuit simulation package (PSPICE, Multisim, etc.), create graphs depicting both the input and output voltage signals as a function of time for the circuits of Problem 4.4 AND COMPARE them to your hand analysis. Use the default diode parameters (I_s , n , etc...) provided in the *virtual* simulation model.

Section 4.2: Terminal Characteristics of Junction Diodes (pg. 233)

6. 4.18
7. 4.20
8. 4.22 (b) only
9. 4.23 (a) only
10. 4.27 *HINT! Consider one of the useful forms of Shockley’s Diode equation presented in class.*

Section 4.3: Modeling the Diode (pg. 235)

11. 4.35 *Graphical Analysis*
12. 4.36 *Iterative Analysis*