Homework 6

EE 362 Electronic, Magnetic, & Optical Properties of Materials (Spring 2025)

Wednesday, March 19, 2025

1) 6.3 First, find the electron and hole concentration at thermal equilibrium.
2) 6.6
3) 6.9 First, find the electron and hole concentrations at thermal equilibrium.
4) 6.12 First, find the electron and hole concentrations at thermal equilibrium. Second, find the minority charge carrier concentration as a function of time. Then, do parts a) & b).
5) 6.21 First, find the excess minority carrier concentration for $x \geq 0$. Then, find the diffusion current densities for $x \geq 0$. Hint: What is the ambipolar diffusion coefficient (use to find diffusion current densities)?
6) 6.32 First, find the electron and hole concentrations at thermal equilibrium.

Due Monday, March 24, 2025

Notes:

- Carry *at least* **6** significant figures on constants/parameters in calculations. Give answers with **4-5** significant figures.
- If a solution requires the use of a graph, include the graph with work shown.
- Unless otherwise specified, assume a 300 K temperature.