

Homework 4

EE 362 Electronic, Magnetic, & Optical Properties of Materials (Spring 2026)

Friday, February 13, 2026

- 1) 4.1a Also, calculate N_c and N_v (don't use Table 4.1 values) as well as $k_B T$ at each temperature.
- 2) 4.12a
- 3) 4.20
- 4) 4.23b
- 5) 4.34ce
- 6) 4.45
- 7) 4.48
- 8) 4.53

Due Friday, February 20, 2026.

Notes:

- Carry *at least 8* significant figures on constants/parameters in calculations. Give answers with **5-6** significant figures.
- Consult Table 4.1 and/or Table B.4 in Appendix B for semiconductor properties.
- Assume 300 K unless otherwise specified.
- Assume E_g , m_n^* , & m_p^* are temperature independent unless otherwise specified.
- Unless otherwise specified, scale measured/given values of N_c and N_v at 300 K to get N_c and N_v at other temperatures.