EE331 Devices and Circuits 1
Spring 2014

Homework 1
Assigned on Friday, April 4 2014.
Due in class on Friday, April 11, 2014.

For this problem set, use B=2.24x10^{31} for Si (rather than 1.08x10^{31}) in calculating n$_i$ (to give n$_i$=10^{10}cm^{-3} at 300K).

1. Jaeger & Blalock Problem 2.5 (a).

2. Jaeger & Blalock Problem 2.6. Only do calculations for germanium.

3. Jaeger & Blalock Problem 2.16.

4. Jaeger & Blalock Problem 2.22 (a,b). Refer to the periodic chart of Table 2.2 on p. 45 to help formulate your answers.

5. Jaeger & Blalock Problem 2.27 (a,b,c). Use Eq. (2.1) to find n_i at the needed temperatures and take room temperature to be T = 300 K.

6. Jaeger & Blalock Problem 2.32. Based on your results, check if $n = N_D - N_A$ is valid. Why or why not?

7. Jaeger & Blalock Problem 2.35.

8. Jaeger & Blalock Problem 2.50.

9. Jaeger & Blalock Problem 2.52.