Solid state physics 2018 Problem Set #7. Due May. 2

1. Kittel, Chap. 6. Problem 1
2. Kittel, Chap. 6. Problem 2
3. Kittel, Chap. 6. Problem 3
4. Calculate the probabilities for an electronic state to be occupied at 20 °C, if the energy of the state lies 0.11 eV above and 0.11 eV below the Fermi level.
5. The electronic specific heat of zinc is $\approx 1.5 \times 10^{-4}\ T$ cal/(mol·K). Find the Fermi energy of zinc.
6. A conducting rod contains 8.5×10^{28} electrons/m^3. Calculate its resistivity at room temperature if the collision time for electron scattering is 2×10^{-14} s.