**Primer on Semiconductors: Lecture 3.1 Short Problem**

Mark Lundstrom

Purdue University, Fall 2018

Provide a numerical answer to the question below.

1a) Use the Fermi function to compute the probability that a state at  is occupied when the temperature is 300 K and .

1b) Repeat 1a) but this time use the nondegenerate approximation to the Fermi function.

1c) Repeat 1a), but this time assume, 

1d) Repeat 1b), but this time assume 