10/19/07

ECE 495N, Fall'07 MSEE B010, MWF 330P – 420P

Fundamentals of Nanoelectronics

Note: Exam II on Monday Nov.5 in class.

All exercises, section numbers and page numbers refer to

S.Datta, Quantum Transport: Atom to Transistor, Cambridge (2005)

HW#7: Due Wednesday Oct.31 in class.

Problem 1: A two-dimensional sheet having an E(k) relationship $E = Bk^2$ is rolled up along the x-axis to have a circumference 'c'. Find the density of states as a function of energy.

Problem 2: What is the minimum resistance of a two-dimensional conductor of width 1 μm having an electron density of 1e13 /cm^2 ? Assume T = 0K (Ref. Section 6.3).

Problem 3: Exercise E.7.5, p.182