

Name: _____

Student ID #: _____

EECS 170A Section B

Homework #1

HW will be collected in DISCUSSION ONLY.

Do not turn your HW in anywhere else, or it will not be accepted.

You are encouraged to turn it in at your own discussion section.

You may turn it in at any discussion section.

Last option to turn in: Right after Thursday discussion section October 7, 2004.

DUE: 9 AM Thursday, October 7, 2004.

Please *staple* this sheet to the front of your homework.

1a	1b	2a	2b	3	Total
/20	/20	/20	/20	/20	/100

- 1) Copper (Cu) has an FCC crystal structure. The lattice constant is 3.61 Angstroms.
 - a. Find the number of atoms/cm³ in Cu.
 - b. Find the number of atoms/m³ in Cu.

- 2) A current of 1 μ A flows through a wire of diameter 1 mm.
 - a. How many electrons per second flow past a plane perpendicular to the wire.
 - b. What is the current density in the wire.

- 3) In a modern integrated circuit, such as a Pentium, there are 10^8 transistors. If the total power dissipated by the Pentium is 100 W, how much power is dissipated by each transistor, assuming the power is divided equally?