Name:_____

Student ID #:_____

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/cm^3 in Cu.
   b. Find the number of atoms/m^3 in Cu.

2) A current of 1 µA 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?