Week 6 Quiz 1: Recombination-Generation
ECE 606: Solid State Devices
Mark Lundstrom
Purdue University, Spring 2013
(Revised 2.17.13)

Answer the four multiple choice questions below by choosing the one, best answer. Then ask a question about the lecture.

1) Trap-assisted recombination is most efficient for traps located where in the bandgap?
   a) In the upper half of the bandgap.
   b) In the lower half of the bandgap.
   c) Near the middle of the bandgap.
   d) Very close to the conduction band.
   e) Very close to the valence band.

2) The inverse process of Auger recombination is what process?
   a) Trap assisted recombination.
   b) Radiative recombination.
   c) Impact ionization.
   d) Photo generation.
   e) Surface recombination.

3) Which of the following is a property of equilibrium?
   a) Detailed balance holds.
   b) Steady-state conditions hold, but not detailed balance.
   c) Total recombination = 0.
   d) Total generation = 0.
   e) Recombination = generation.

4) The probability that a defect will capture an electron is proportional to what?
   a) The emission rate.
   b) The capture cross-section.
   c) The minority carrier lifetime
   d) The trap energy.
   e) The density of free holes.

5) What question(s) do you have about this lecture?

Turn in to Ms. Wanda Dallinger, EE-326 before 4:30 PM Monday, Feb. 18.