ECEn 662R - Electromagnetic Properties of Materials

Fall 2010

Quiz 5
Indicate here the color of your original attempt: _____ (first 20 minutes of class)
Indicate here the color of your attempt with the help of your classmates: _____

1. Draw wavefunctions for the described energy state in each of the following cases:
   a) Ground state of infinite potential well.
   b) First three states of harmonic oscillator.
   c) First state of infinite asymmetric well.
   d) Free state with energy above well-depth.

2. I have a harmonic oscillator system consisting of electrons that I am trying to characterize. It has a fundamental frequency of 10 GHz.
   a) What is the energy of the first and second lowest quantum states?
   b) What would be the classical amplitude of the oscillation? (Please find K)
   c) Relative to the center of the potential well, where would you expect to find the electron in the ground state and at state n=1000?