**Physics 214 Quiz 4-5 Week 5**

An electron is confined to an infinite potential well of width *L*. The energy of the electron in the first excited state (*n* = 2) is 15 eV.

1. What is the energy of the electron in its ground state (e.g., its lowest energy state)?

2. What is the width *L* of the well?

3. What is the minimum energy photon that could be absorbed so that the electron can transition from the first to the fourth (*n* = 5) excited state?

4. Consider the case where the electron’s ground state wave function is given by the Gaussian  where *C*= 5 and *a* = 500 nm. For what value of *x* does the probability per unit length *P* = 1.5 x 10-5?