Chemistry 141 - 4081 Name .

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Quiz 7A (20 points) October 10, 2007

c = λν = 3.00 x 108 m/sec, E = hν, h = 6.626 x 10-34 J sec

1. (9 points) One type of sunburn occurs on exposure to UV light of wavelength in the vicinity of 325 nm.
   1. What is the frequency of this radiation?
   2. What is the energy of this radiation?
   3. What is the energy of one mole of photons?
2. (6 points) Given a single electron atom with the following energy levels, determine the E for a transition from
   1. n=5 to n=6

— n = 6, −1 Joules

— n = 5, −2 Joules

— n = 4, −6 Joules

— n = 3, −12 Joules

— n = 2, −21 Joules

— n = 1, −35 Joules

* 1. n=4 to n=2

1. (2.5 points) What are some properties of light that make us believe it has some particle nature?
2. (2.5 points) What are some properties of electrons that make us believe they have some wave nature?