**CHEM 1114**

**Challenge problem 2**

**Due Wednesday 19 September 2012 in class**

**(4 pts)**

**2. The energy of a photon = ΔE=hf =hc/λ in Joules**

**From your text (p. 72) the electronic transitions in an H atom obey Bohr’s derived equation:**

**ΔE = 2.187\*10-18**$(1/$**nfinal2 – 1/ninitial2)**

**What is the wavelength of light (in meters)**

**Associated with ninitial = 3🡪nfinal = 1 ?**

**ΔE = 2.187\*10-18 (1/12 – 1/32)=1.94\*10-18 = h\*c/λ = (6.63\*10-34)\*(3\*108)/λ**

 **1.94\*10-18 = 1.989\*10-25/λ(m)**

 **λ(m) = 1.989\*10-25 /1.94\*10-18**

 **= 1.025\*10-7m**