

Pre-Lab.

LAB-03 Bohr's Model

Name: _____ **Sec/Group** _____ **Date:** _____

1. Calculate the wavelengths of the first five emission lines of the Balmer series for hydrogen

2. What is the shortest wavelength that can be emitted by a hydrogen atom?

3. For helium, let's label the emission wavelengths, $\lambda(n_f, n_i)$ where n_f and n_i are, respectively, the principal quantum numbers of the final and the initial states. Calculate the following emission wavelengths: $\lambda(3,4)$, $\lambda(4,6)$, $\lambda(4,7)$, $\lambda(4,8)$ and $\lambda(4,9)$

LAB-03**Bohr's Model****Extra Credit: 5 points****Name:** _____ **Sec/Group** _____ **Date:** _____

Point the input end of the fiber cable towards the fluorescent light on the ceiling. Adjust the orientation of the fiber until you see a good spectrum (line intensities are in the tens of thousands range). Record the spectrum as in the case of hydrogen and helium. The fluorescent light tubes contain low pressure mercury vapor and some inert gas among other trace elements. From the spectra sheet (ask you TA for one) see if you can detect any presence of mercury vapors in the fluorescent tube.