PHYS 321 H Spectra            Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Expain the origin of light? <https://www.youtube.com/watch?v=7BFM46vJbrI>

2. Energy levels of the electron of the [hydrogen atom](http://lectureonline.cl.msu.edu/~mmp/kap29/Bohr/app.htm) are shown below. Calculate and list the energy values, $E\_{n}=-\frac{13.6}{n^{2}}$eV, with the orbitals, shown (not to scale).

3. Show the transitions of electron for the Lyman (🡪1), Balmer (🡪2), and Paschen (🡪3) series in the above diagram.

4. Calculate the 4 of the highest wavelengths (λ) of the Balmer series.
 $∆E=\frac{hc}{λ}$; h = 6.63x10-34J.s and c = 3x108m/s. 1eV=1.6x10-19J