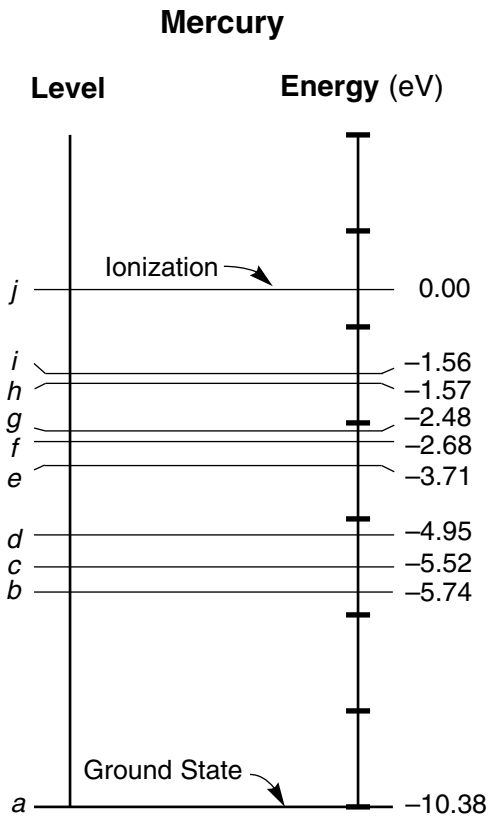
Name: _____ Period _____

Emission Spectra

1. For the mercury (Hg) energy level diagram below, determine the energy released (in eV) for each of the following electron transitions, as well as the wavelength of the emitted photon (in nm):



Transition	Photon Energy (eV)	Photon λ (nm)
Level j to g		
Level e to b		611
Level f to b		405
Level h to e		
Level j to g	2.48	
Level j to f		
Level f to d	2.27	546
Level e to c		

2. On the following spectrum, draw a line at the wavelengths where you would likely see emitted radiation (light) from a mercury gas lamp using your answers from the table above.

3. Now assume that a quantity of mercury gas is bombard by white light (all wavelengths). Which wavelengths are likely to be absorbed? Right, the same wavelengths that were emitted by electrons falling to lower energy levels can be excited to higher energy states by light of those same wavelengths. If all the wavelengths of light incident upon the gas makes it through the gas EXCEPT for the light absorbed to make electrons move to higher energy states, what will the spectrum of light making it THROUGH the gas look like?