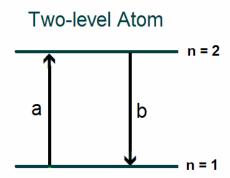
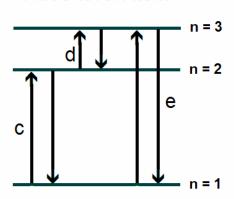
## ASTR 1101-001 Spring 2008 Review for Exam #3

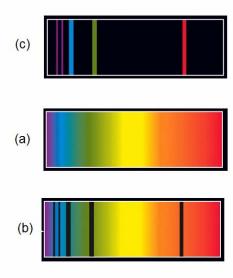
- 1. In the two-level atom shown below, which electron transition is associated with the emission of light? Which transition is associated with the absorption of light?
- 2. If the "c" transition marked in the three-level atom is associated with the absorption or emission of a *red* photon, what color photon would be absorbed in making the transition marked "d"? [Choose from: purple, blue, orange, infrared.]
- 3. Assume the electron in the three-level atom is sitting in its ground state (orbital level marked n = 1). If the n = 1 to n = 3 transition marked "e" is associated with the absorption of a *purple* photon, what color photon would have to be absorbed to ionize the atom? [Choose from: ultraviolet, blue, orange, red, infrared.]



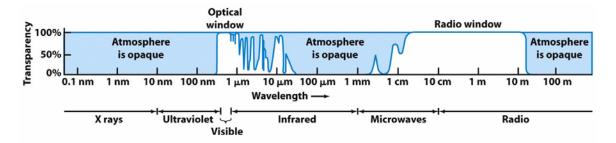


Three-level Atom

4. Make up your own questions regarding the following figure, which contains three spectra: (a) a blackbody continuous spectrum; (b) an absorption-line spectrum; and (c) an emission-line spectrum.



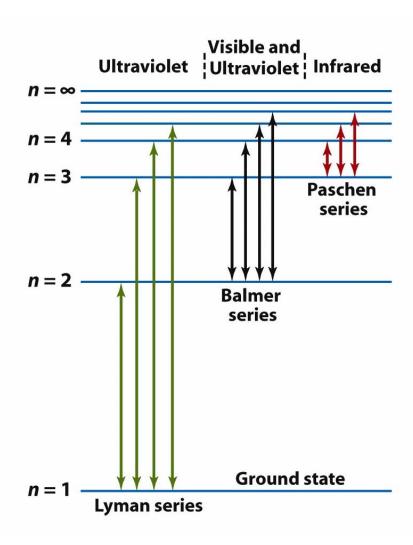
5. Make up your own questions regarding the following figure, which shows the relative transparency of the Earth's atmosphere.



6. Make up your own questions regarding the following figure, which shows a visible absorption-line spectrum of Hydrogen.

Visible Absorption-Line Spectrum of Hydrogen

7. Make up your own questions regarding the following figure, which shows details about the electron orbital levels in Hydrogen atoms.



8. Make up your own questions regarding the following figure, which summarizes the Chapter 6 discussion of modern astronomical telescopes.

