Line Spectra of Elements

SCH3U_2012-2013

Purpose
To observe the line spectra of some elements and to identify two elements by their line spectra.
Materials
gas discharge tubes, incandescent light bulb, gas discharge tubes, power source, spectroscopes.
Procedure
1. Observe the incandescent light bulb throughout the spectroscope and sketch the spectrum in the space provided below in the Observation table.
2. Observe the spectra produced b each of the gas discharge tubes and sketch their spectra below in the Observation Table.
3. Record the name of the gas in the discharge tube, and indicate the colour of each observed line.
4. Observe the spectrum of each unknown tube and sketch. Record the number given to each of the unknown tube. Indicate the colour of the observed lines in the spectrum of the unkown.
5. Compare the spectra of the unknowns with those of the known spectra alredy observed, hence, identify each of the unknown gas.
Observation Table

Observed Spectra	Element
	Unknown #
	Unknown #

Conclusion

Discussion
1. What is a spectrum?
2. How is a line spectrum different from a continuous spectrum?
3. How is a line spectrum formed? Explain using the Bohr model.
4. How can line spectra be used to identify an element?
5. What was the identity of each unknown?
6. What do the different colours in a line spectrum represent?
7. Why do different substances show different spectra?

Line Spectra: Use the following website address to review:

http://astro.u-strasbg.fr/~koppen/discharge/