

Prelab #3—Spectroscopy

Name _____

Lab section: M T W Th F

1. Define (refer to the lab manual, but use your own words):

Fluorescence _____

Black body radiation _____

2. Surfing the web, you stumble across a record of someone who did Part 1 of this experiment. They put a various metal salts in a flame and saw that the flame changed color. They observed flames with wavelengths of 400nm, 500nm, and 700nm. What color corresponds to each of these reported wavelengths? Use the diagram of the visible region of the electromagnetic spectrum in your text (Zumdahl Figure 12.3, p.512).

λ	Color
400nm	
500nm	
700nm	

3. Draw an example of what you expect to see through your spectroscope when you look at the atomic lamps in Part 2 of this experiment. A very simple drawing should suffice. Explain in one sentence.

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4. Hypothesis. List one thing that you expect to find in Part 2 of this experiment. Explain why in one sentence.

5. State Beer's Law: _____ In part 3 of this experiment, you will measure the absorption spectrum of two solutions with different concentrations. According to Beer's Law, how would you expect the maximum absorbance to change if you diluted the solution by a factor of two (half the original concentration)?

6. Let's say you're performing Part 3 of this lab and are given a yellow solution. What do you expect its visible absorption spectrum to look like? Sketch a possible spectrum (absorbance vs. wavelength). Remember that the absorbed colors are the ones that you don't see when you look at it. Be sure to label and indicate a scale for your wavelength axis.