Worksheet Spectrophotometry & Colorimetry I

Chemistry, 3e

Name _____ Date _____ Section _____

1. 1. Determine the % transmission of a Cu^{+2} sample if it has an absorbance of .5673.

2. A sample of red dye measured in a 2.00 cm. cell had a 54.32% transmission at 450 nm. The molar absorptivity of this dye is 3.45×10^5 L mol^{-1} cm^{-1}. Determine the concentration of this dye.

3. A chromium compound in solution has a concentration of 3.45×10^{-2} M and an absorbance of .348 (at wavelength max.). Determine the concentration of another solution of the same compound if it's absorbance is .198 .

4. A sample of a colored compound was found to have a % transmission of 38.9% at it's wavelength of maximum absorbance (635 nm.). Determine the absorbance value of this sample. What color would this sample not have when viewed under normal lighting conditions.

5. A 0.00651 M. Ni^{+2} solution has an absorbance of 1.296 when measure in a 2.50 cm. cell at 475nm. Determine the molar absorptivity (extinction coefficient) of this solution.

6. List the 5 major components of a spectrophotometer and indicate their major uses.