Name: _____ **Fall 2014**

QUIM3025L Section: _____ **Date:_____**

Experiment 5: Preparation of Analytical Solutions I

Pre-lab Exercise (10 pts)
***Include References**

1. What is a "stock" solution? (2pts)

2. Briefly explain what a "Direct Calibration Method" is and mention its advantages and disadvantages. (2pts)

3. Distinguish between the following concepts related to UV-Vis spectroscopy: (2 pts)
   a. chromophore VERSUS auxochrome

   b. absorbance VERSUS transmittance

4. Calculate the concentration of the solutions prepared as described: (3 pts)

   a. A 25.00 mL aliquot of 1.00 X10-3 M methylene blue (MB) was added to a 100.00 mL volumetric flask, and diluted with water to the mark. This solution was named MB-1. What is the concentration of methylene blue in this diluted solution?

   b. A new solution labeled MB2 was prepared by adding a 10.00 mL aliquot of solution MB-1, 10.00 mL of ethanol (0.10M), and diluting with water to the mark. What is the concentration of methylene blue in MB2? What is the concentration of ethanol in MB2?

5. Considering the structure of methylene blue, identify with a circle which part of the molecule would be mostly responsible for absorbance of UV-Vis radiation? (1pt)