1. (5 points) A 6.25 x 10^{-4} M solution of compound X in ethanol is poured into a 1 cm UV cell and the UV spectrum obtained. The dominant absorption is at $\lambda_{\text{max}} = 247$ nm with an absorbance of 0.50. **Calculate the value of $\varepsilon$ for this absorption.** Show work for partial credit.

\[
A = (\varepsilon) (l) (c)
\]
\[
\varepsilon = A / (l) (c)
\]
\[
= 0.5 / (1 \text{ cm} \times 6.25 \times 10^{-4} \text{ M})
\]
\[
= 800 \text{ M}^{-1} \text{ cm}^{-1}
\]

2. (5 points) Page 2 of this quiz contains the $^{13}$C and $^1$H NMR spectra for a C$_9$H$_{10}$O compound that has a $\lambda_{\text{max}} = 210$ nm. **Provide the structure of this compound** and show work for partial credit.

**Degrees of Unsaturation = 5**

3. (5 points) Page 3 of this quiz contains the $^{13}$C and $^1$H NMR spectra for a C$_{10}$H$_{12}$O$_2$ compound. **Provide the structure of this compound** and show work for partial credit.

**Degrees of Unsaturation = 5**

peak at 178 ppm indicates ester