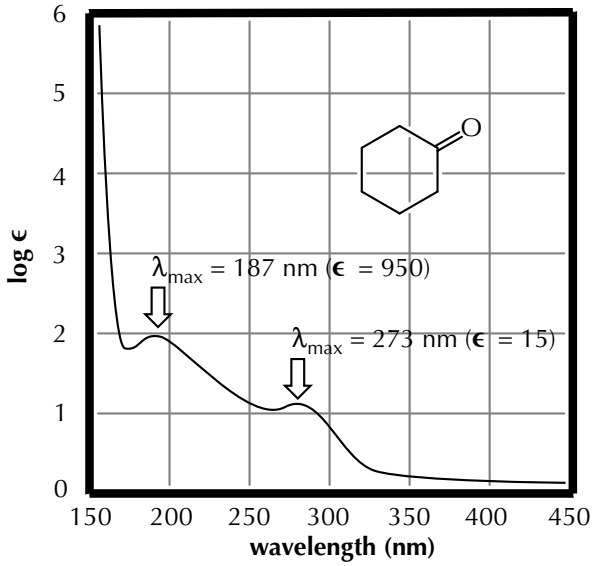
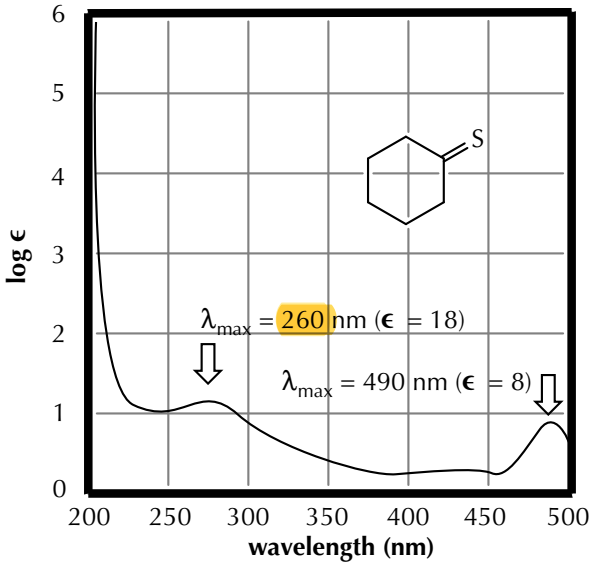
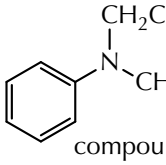
PRACTICE QUESTIONS

AP07.01 Thiones are the sulfur analogues of ketones. Unlike their oxygen counterparts, which are colorless, the thiones are pale yellow in solution. The UV-vis spectra for cyclohexanone and cyclohexanethione are given below. Explain fully the color difference, including reasons for the differences in the spectra.





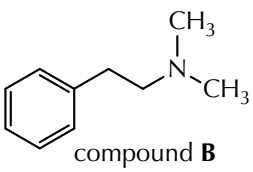
AP07.02 The UV spectra for these two isomeric compounds **A** and **B** each show additional λ_{max} absorptions outside of their high energy σ to σ* absorptions. In one case, there are two distinct absorption areas at λ_{max} 275 among multiple peaks (ε = 20,000) and λ_{max} 310 (ε = 2500), while in the other case there is one distinct area at λ_{max} 260 (ε = 300), also with multiple peaks. Which data go with which compound and why?



compound **A**

☐ λ_{max} 275 & 310

☐ λ_{max} 260



compound **B**

☐ λ_{max} 275 & 310

☐ λ_{max} 260