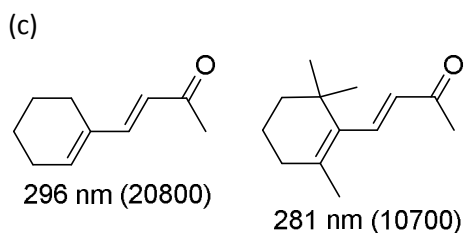
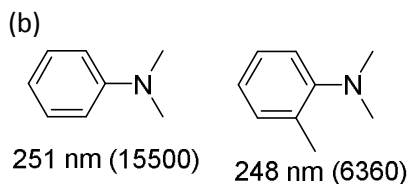
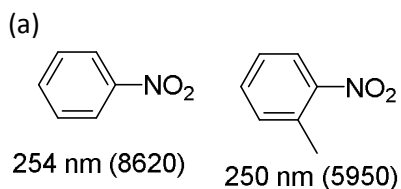


Assignment 7 UV-Vis spectroscopy (20 marks)

1. What wavelength region correspond to UV region and what wavelength region correspond to visible region? (2 marks)
2. Acrolein shows two bands, at 210 nm (11,500) and 315 nm (15). Assign these bands. (2 marks)
3. Mesityl oxide, $(\text{CH}_3)_2\text{C}=\text{CHCOCH}_3$ shows two bands at 230 nm (12600) and 327 nm (98). But its isomer, $\text{CH}_2=\text{C}(\text{CH}_3)-\text{CH}_2\text{COCH}_3$, does not show any bands above 210 nm. Explain. (2 marks)
4. Aniline absorbs at 230 nm (8600) in water. However in an acidic solution the band is seen at 203 nm (7500) and is comparable to benzene. Explain. (2 marks)
5. Explain the hypsochromic shifts observed in the following compounds upon introduction of methyl groups. (2 marks each)



6. Using Woodward's rule for enones predict the UV maximum (λ_{max}) for the starting compound and the product in the following reaction. How can UV-Vis spectroscopy be used for following the kinetics of this reaction? (6 marks)

