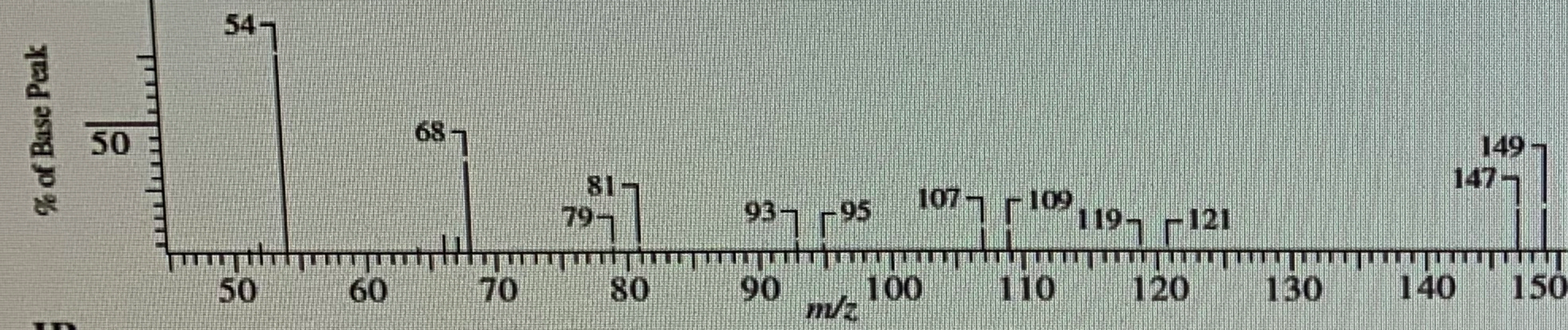
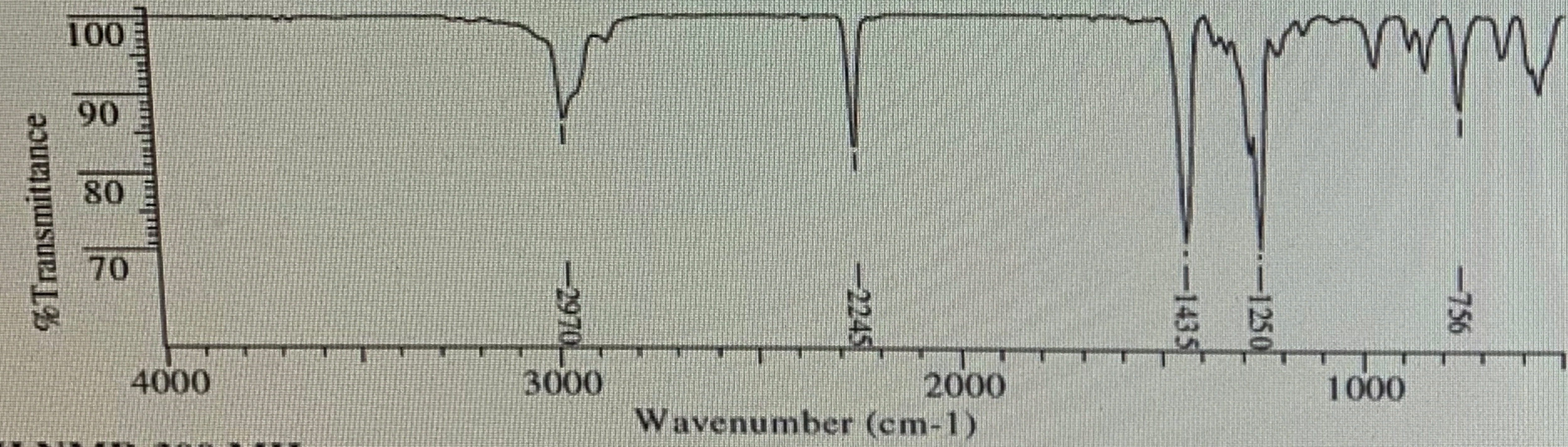


Use the following the MS, IR, ^1H NMR, and ^{13}C NMR (DEPT-90, DEPT-135, and broadband-decoupled) spectra. (hint: a ratio of the integrations is 1:1:1 as indicated as step curves.). Propose a structure based upon the following spectra.

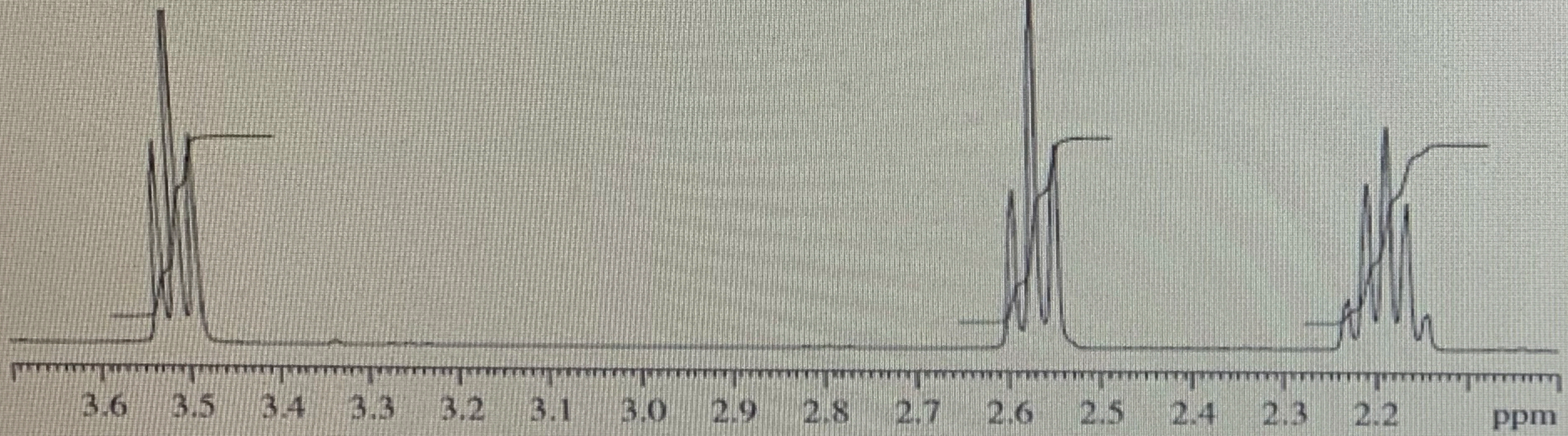
MASS



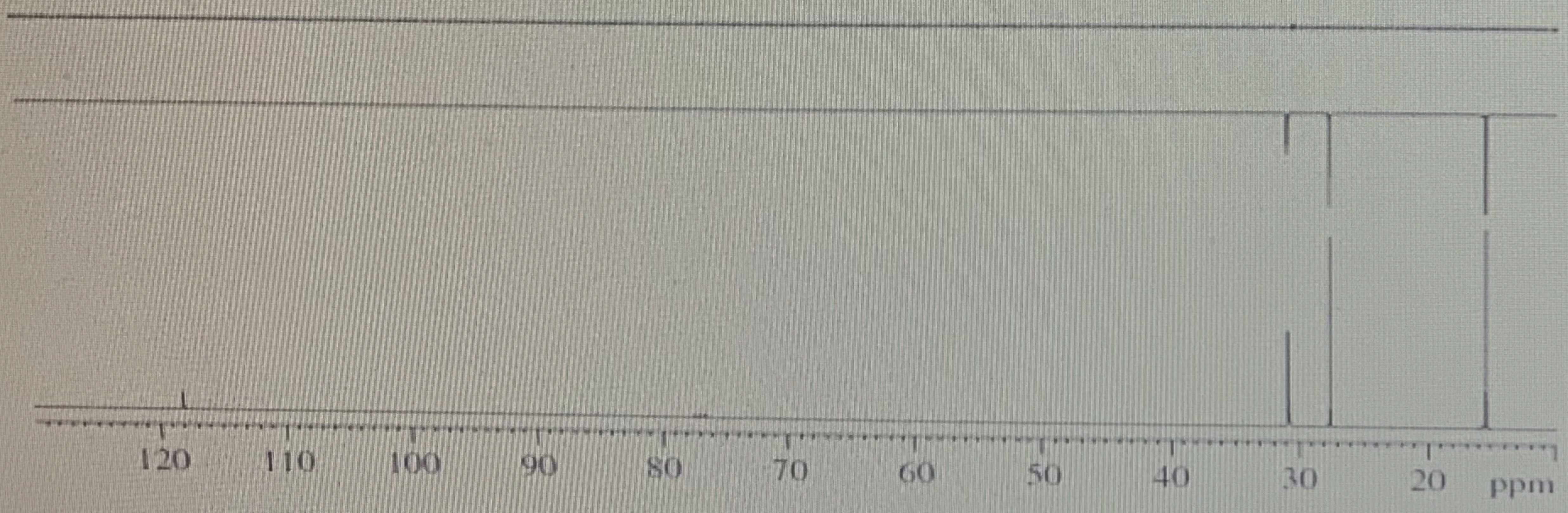
IR



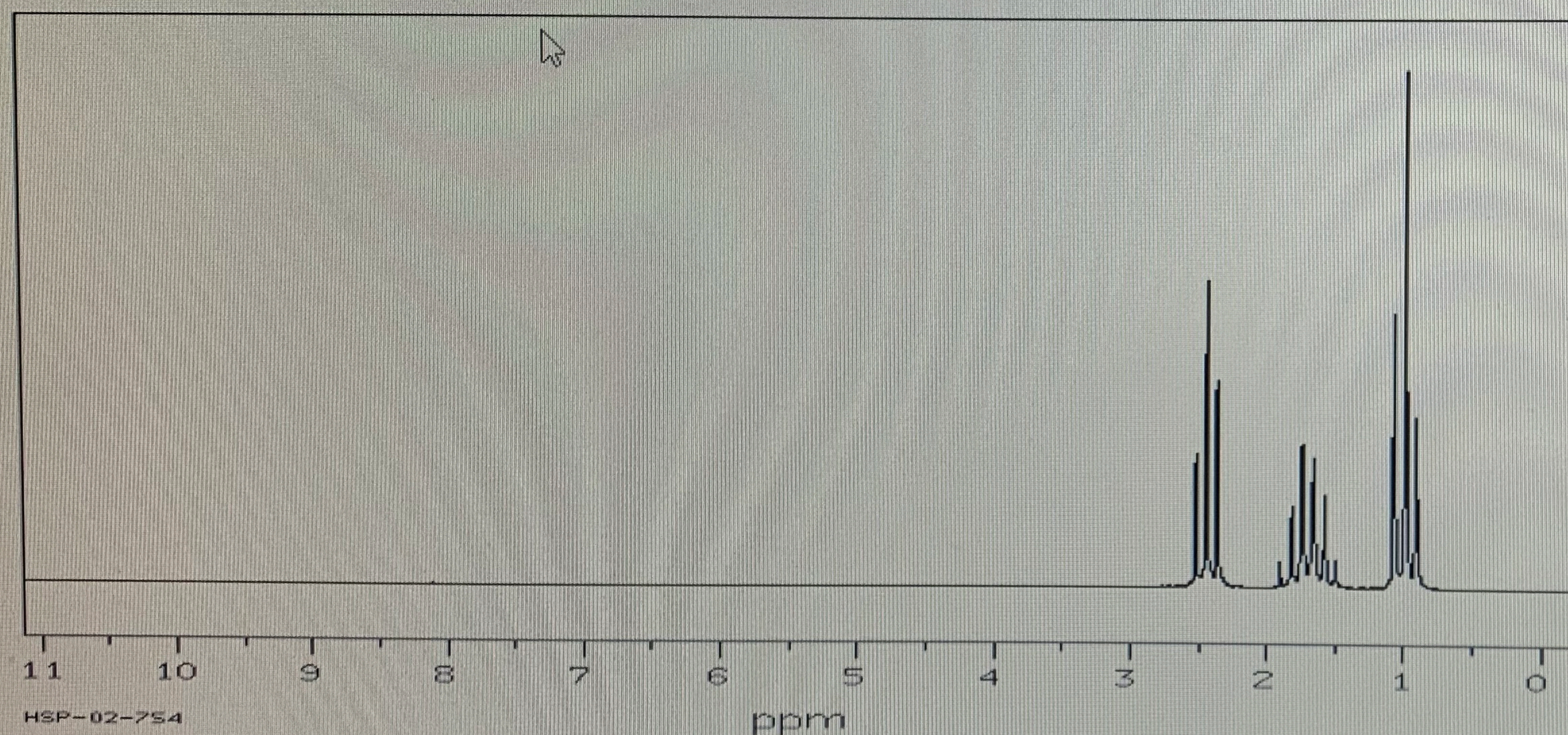
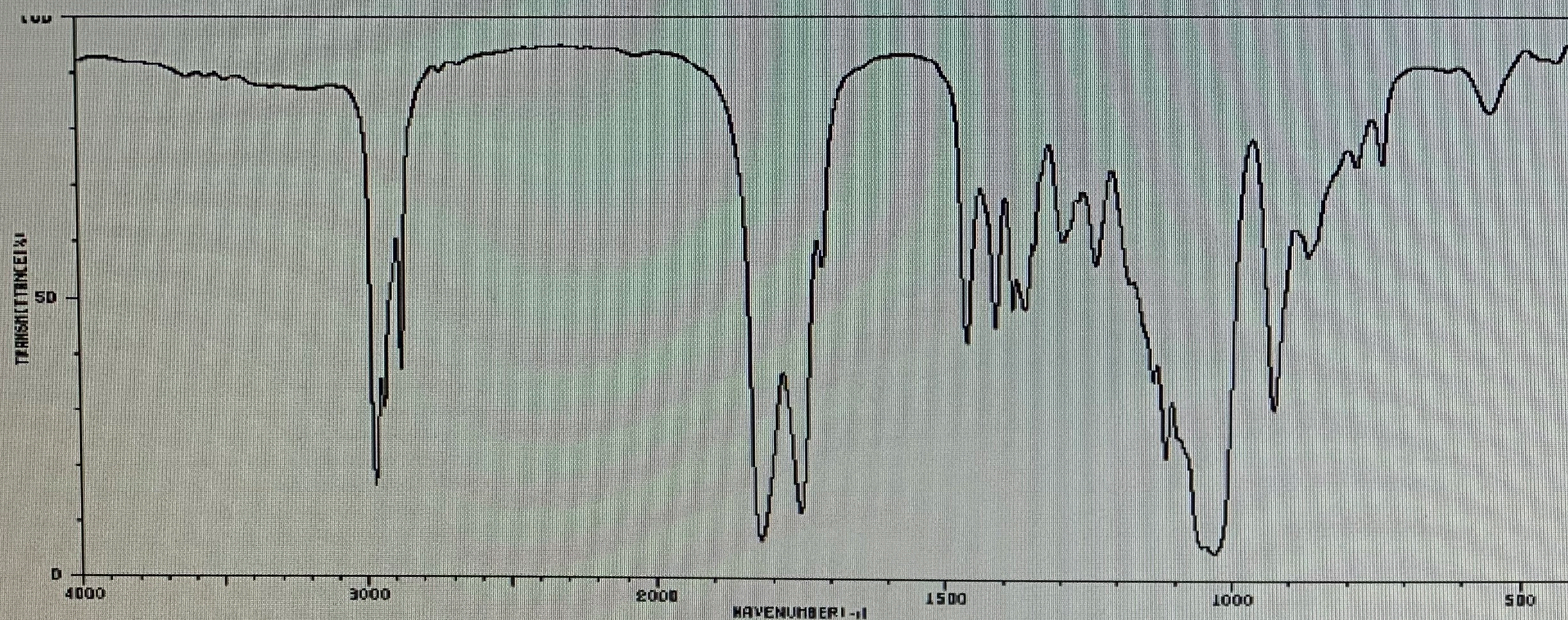
^1H NMR 300 MHz



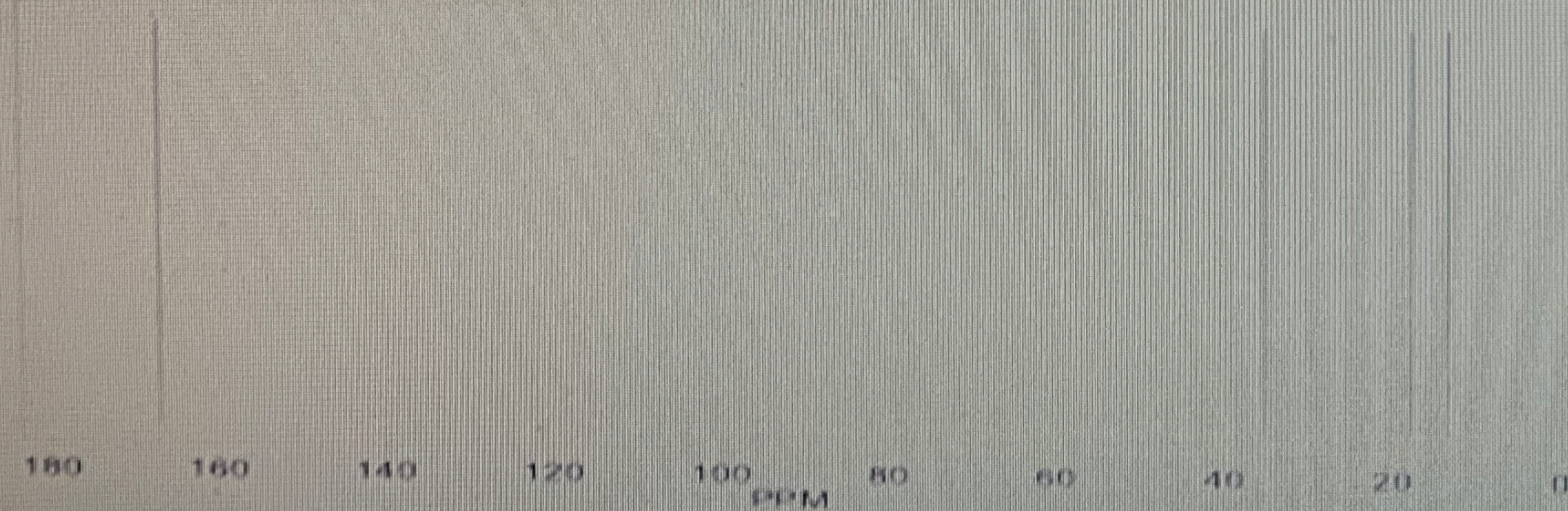
^{13}C /DEPT NMR 75.5 MHz



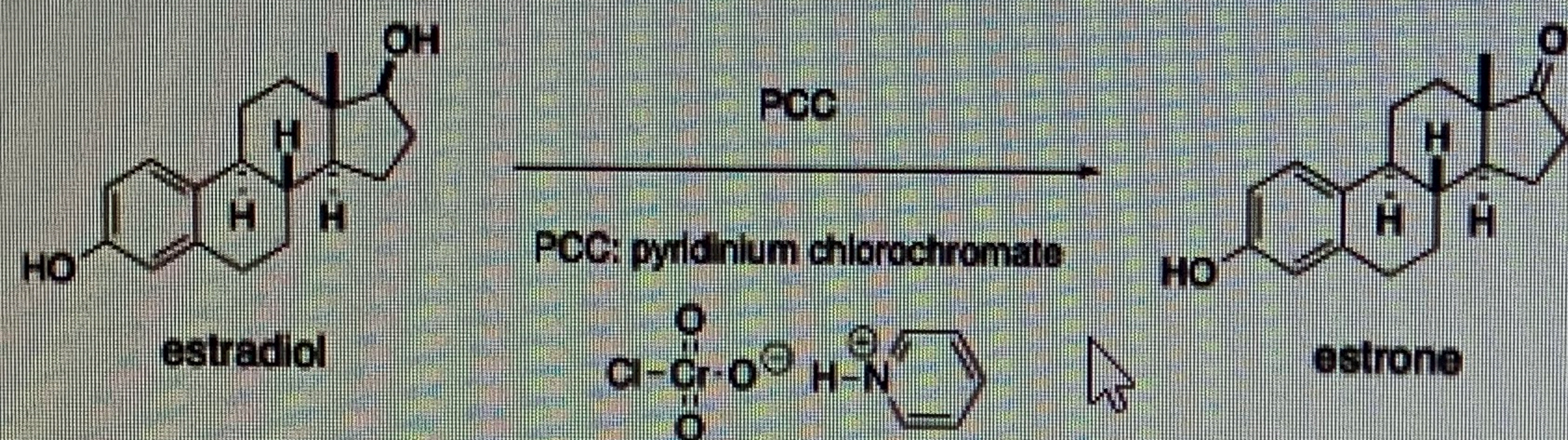
Use the following the IR, ^1H NMR, and ^{13}C NMR spectra of a compound (molecular formula $\text{C}_8\text{H}_{14}\text{O}_3$). Propose a structure based upon the following spectra. (Note: a ratio of the integrations is 2:2:3 (downfield to upfield)).



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For the following hydration reaction, which of the following is consistent with the IR spectrum of the product, estrone?



- ☐ Absorption at 3400 cm^{-1} should disappear and absorption at 1600 cm^{-1} should appear.
- ☐ Absorption at 3300 cm^{-1} and 2150 cm^{-1} should appear.
- ☐ Absorption at 1720 cm^{-1} should appear.
- ☐ Absorption at 3400 cm^{-1} should appear.
- ☒ Absorption at 2150 cm^{-1} should disappear and absorption at 3300 cm^{-1} should appear.

Question 5

Select a compound that best fits the following IR spectrum.

