

An example from the Fall 1997 Final Examination:

8. (25 points)

The infrared, ^1H NMR and ^{13}C NMR (broadband ^1H decoupled) spectra of compound A ($\text{C}_4\text{H}_{10}\text{O}$) are shown below. Clearly assign all the resonances that you can identify with certainty and draw the structure of compound A. (Correlation tables are included separately.)

The infrared spectrum is unavailable due to copyright considerations.

8. (continued)

The ^1H NMR and ^{13}C NMR spectra are unavailable due to copyright considerations.

8. (continued)

Infrared absorption assignments:

wave number (cm⁻¹)	functional group	type of vibration (stretch or bend)
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¹H NMR assignments:

chemical shift (ppm)	assignment	explanation of multiplicity
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¹³C NMR assignments:

chemical shift (ppm)	assignment	explanation of multiplicity
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structure of compound A:

An example from the Spring 1998 Final Examination:

6. (25 points)

The infrared, ^1H NMR and ^{13}C NMR (broadband ^1H decoupled) spectra of compound A ($\text{C}_5\text{H}_{11}\text{Br}$) are shown below. Clearly assign all the resonances that you can identify with certainty and draw the structure of compound A. (Correlation tables are included separately.)

The infrared spectrum is unavailable due to copyright considerations.

6. (continued)

The ^1H NMR and ^{13}C NMR spectra are unavailable due to copyright considerations.

6. (continued)

Infrared absorption assignments:

wave number (cm⁻¹)	functional group	type of vibration (stretch or bend)
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¹H NMR assignments:

chemical shift (ppm)	assignment	explanation of multiplicity
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¹³C NMR assignments:

chemical shift (ppm)	assignment	explanation of multiplicity
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structure of compound A: