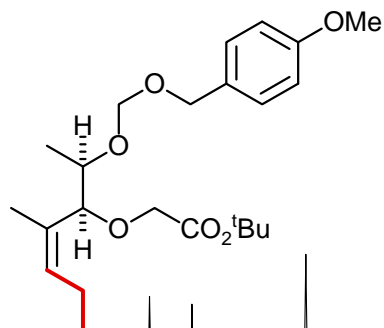
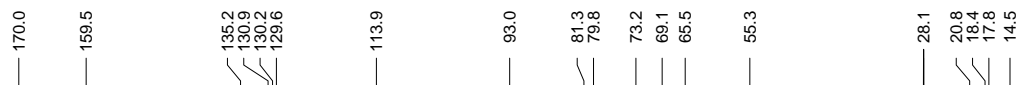


Problem R-07C ($C_{19}H_{28}O_6$)125.76 MHz ^{13}C NMR Spectrum in $CDCl_3$

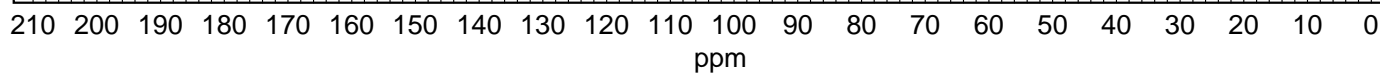
Source: Kevin Lee/Burke (Reich digitized hard copy) g



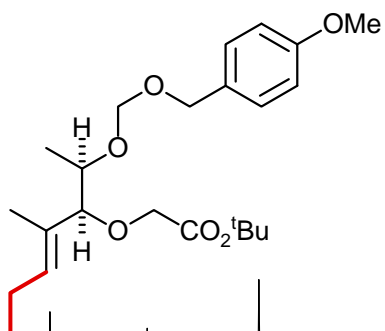
DEPT 135



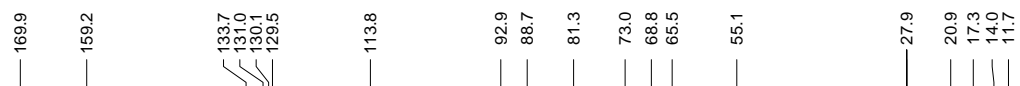
Normal

**Problem R-07D** ($C_{19}H_{28}O_6$).125.76 MHz ^{13}C NMR Spectrum in $CDCl_3$

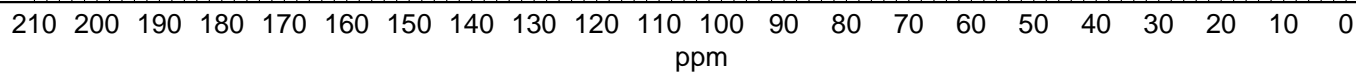
Source: Kevin Lee/Burke



DEPT 135

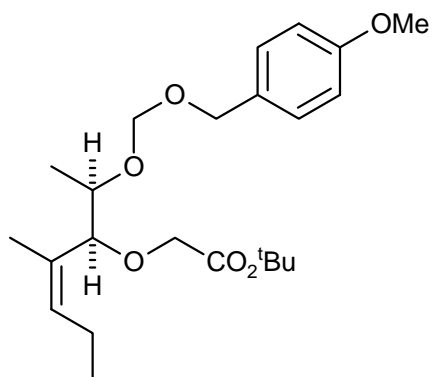


Normal

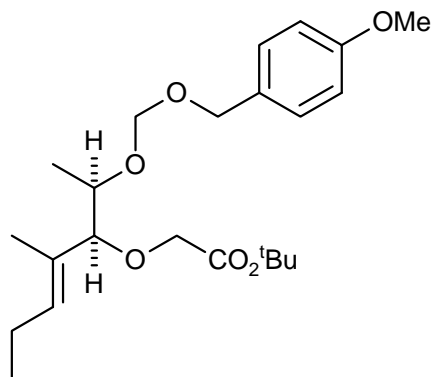


Problem R-07C/R-07D ($C_{19}H_{28}O_6$). You are provided with the ^{13}C NMR spectra of two isomers, and asked to distinguish them.

The structures of compounds **1** and **2** are shown below.



1 = R-07__

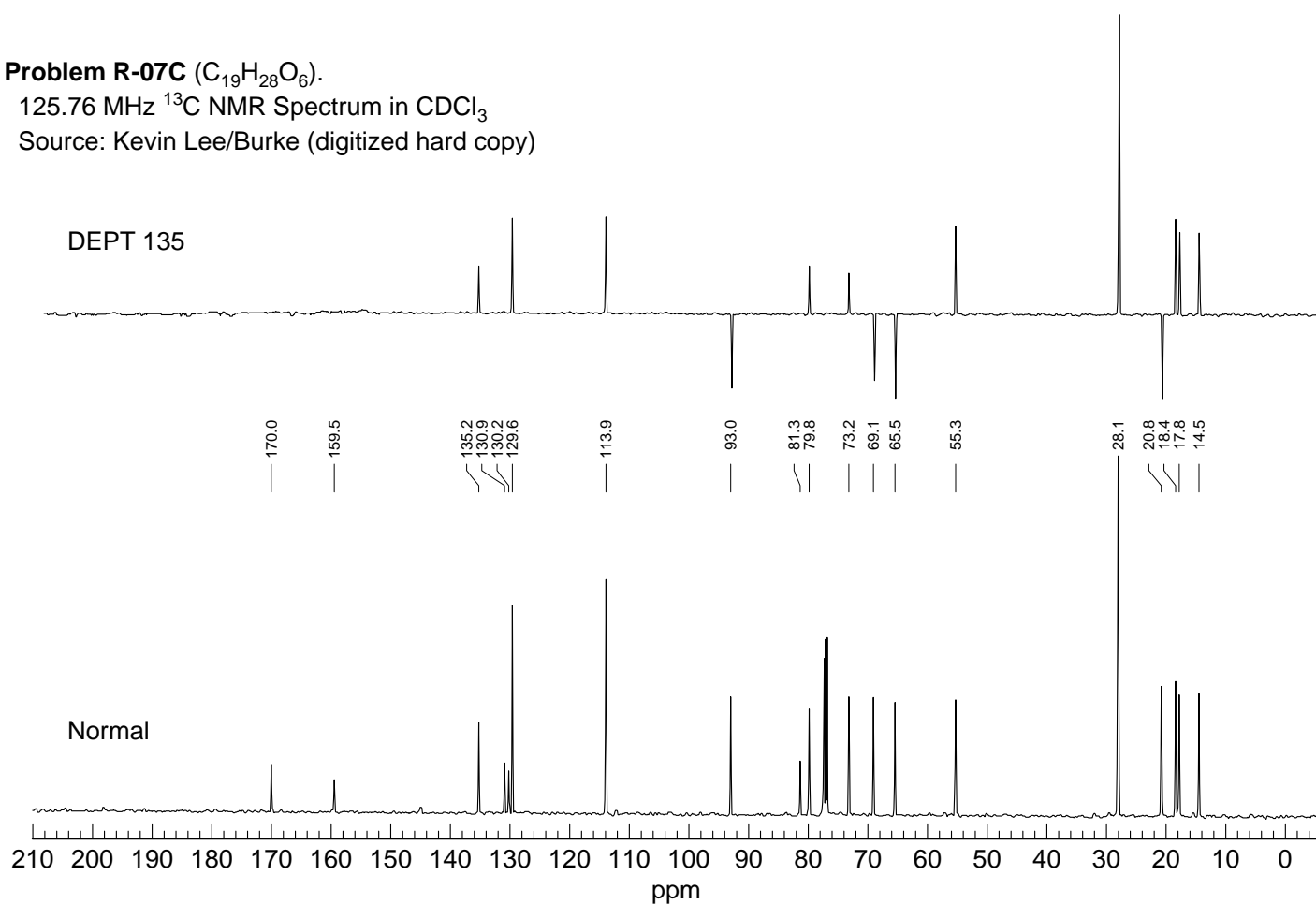


2 = R-07__

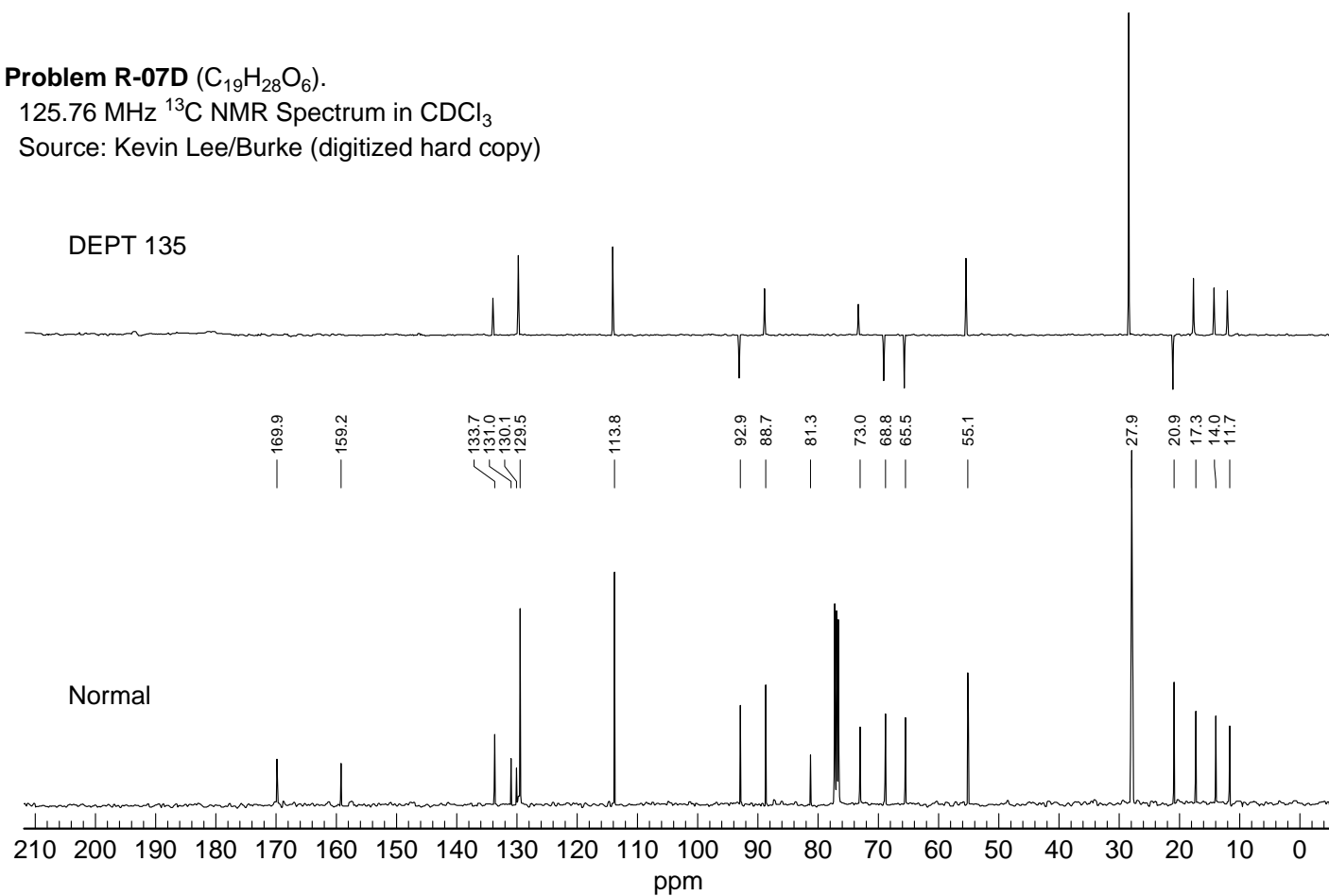
Identify difference(s) in the spectra of the two isomers that allow you to reliably distinguish the isomers **1** and **2**. Clearly state your argument and give chemical shifts of the carbons involved. Mark the structures with **C** and **D** indicating your assignment.

Problem R-07C ($C_{19}H_{28}O_6$).125.76 MHz ^{13}C NMR Spectrum in $CDCl_3$

Source: Kevin Lee/Burke (digitized hard copy)

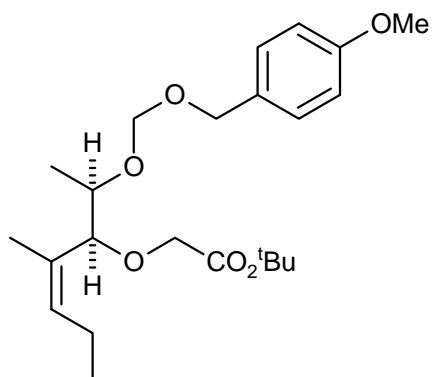
**Problem R-07D** ($C_{19}H_{28}O_6$).125.76 MHz ^{13}C NMR Spectrum in $CDCl_3$

Source: Kevin Lee/Burke (digitized hard copy)

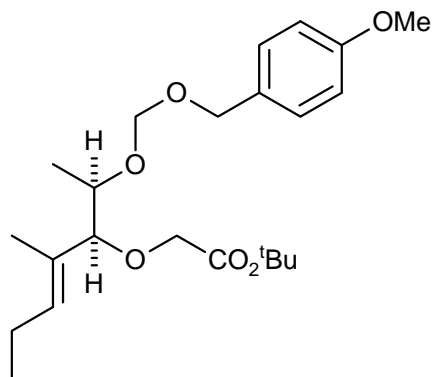


Problem R-07C/D ($C_{19}H_{28}O_6$). You are provided with the ^{13}C NMR spectra of two isomers, and asked to distinguish them.

The structures of compounds **1** and **2** are shown below.



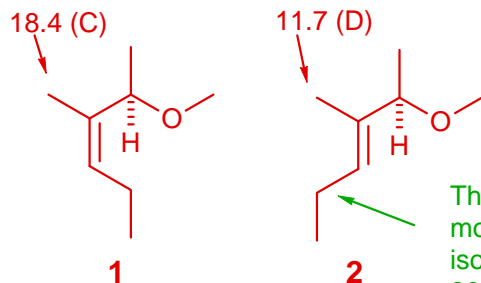
1 = R-07 C



2 = R-07 D

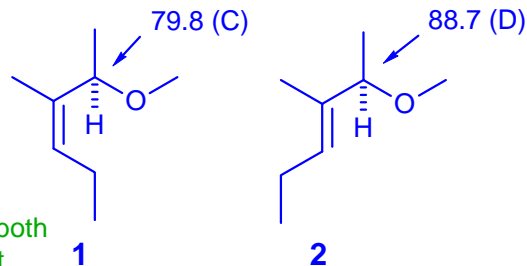
Identify difference(s) in the spectra of the two isomers that allow you to reliably distinguish the isomers **1** and **2**. Clearly state your argument and give chemical shifts of the carbons involved. Mark the structures with **C** and **D** indicating your assignment.

(could also be 17.8)



Expect the marked methyl signal in **2** to be upfield of that in **1** (cis γ -effect). The other CH_3 signals should not move much, the CH_3 at 18.4 seems to have moved to 11.7. Thus **1** = C, **2** = D.

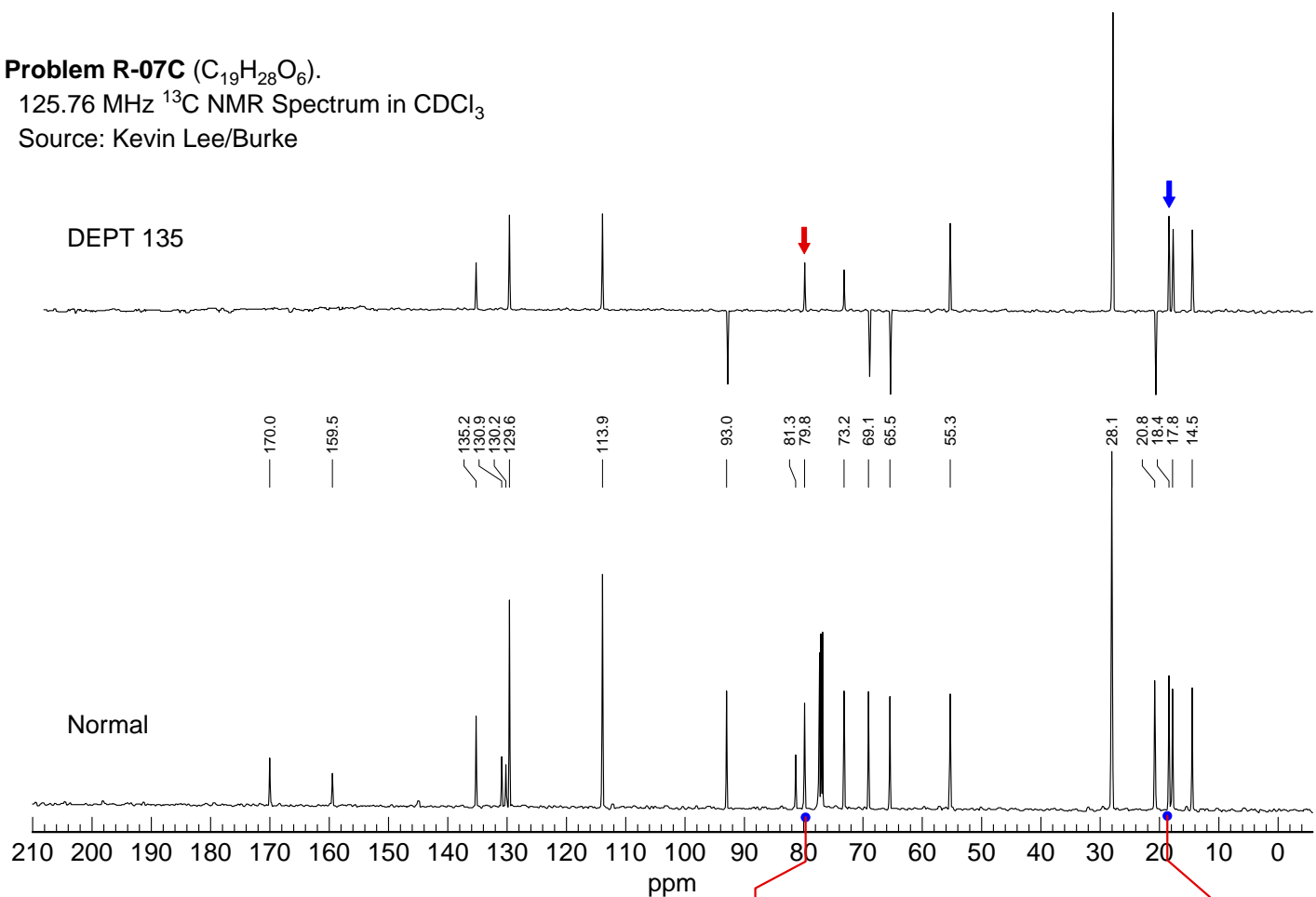
8



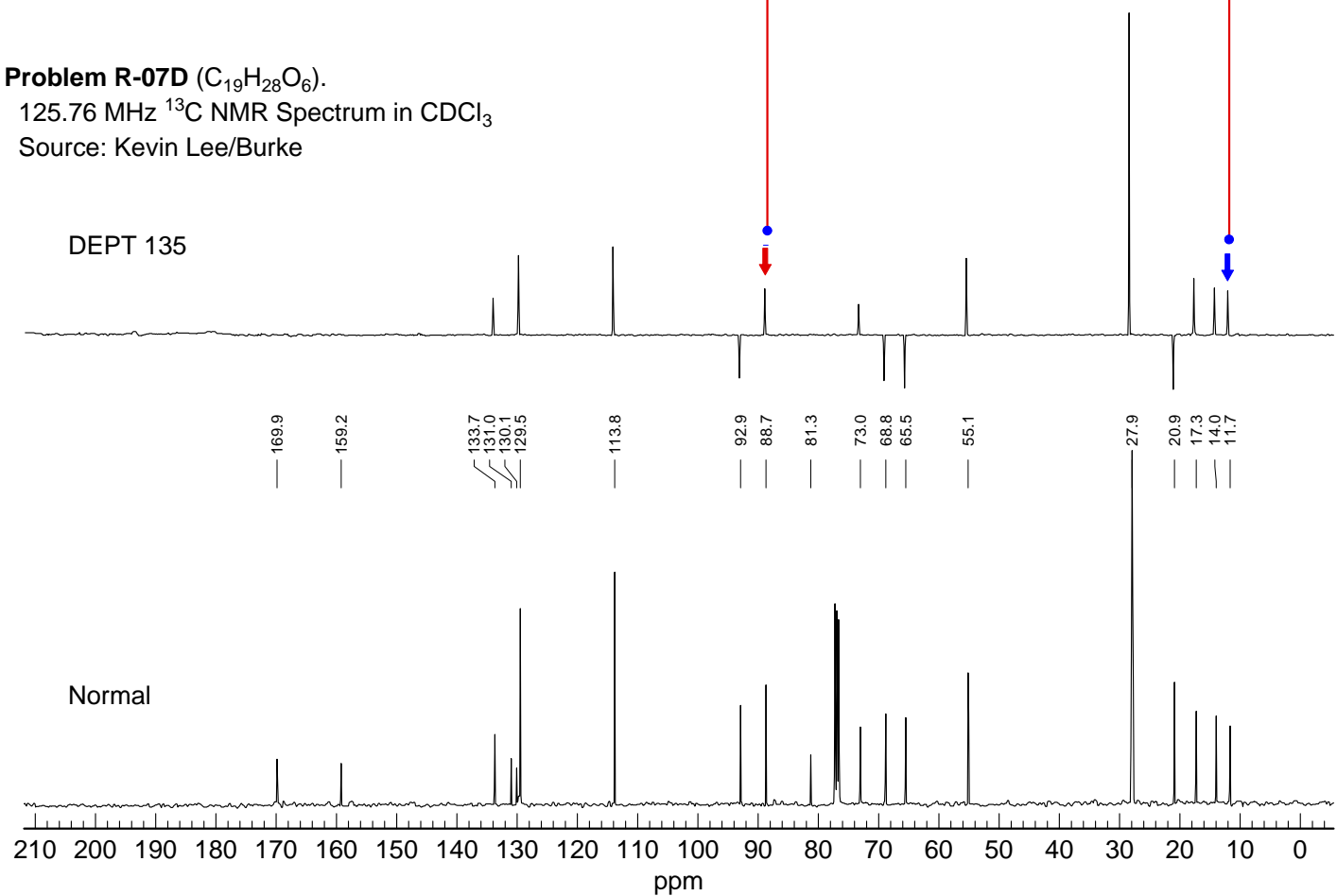
Similarly, expect the marked CH signal in **1** to be upfield of that in **2** (cis γ -effect). This one should be the most downfield of the sp^3 CH signals. Thus **1** = C, **2** = D.

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Problem R-07C ($C_{19}H_{28}O_6$).
 125.76 MHz ^{13}C NMR Spectrum in $CDCl_3$
 Source: Kevin Lee/Burke



Problem R-07D ($C_{19}H_{28}O_6$).
 125.76 MHz ^{13}C NMR Spectrum in $CDCl_3$
 Source: Kevin Lee/Burke



Problem R-07C/D

