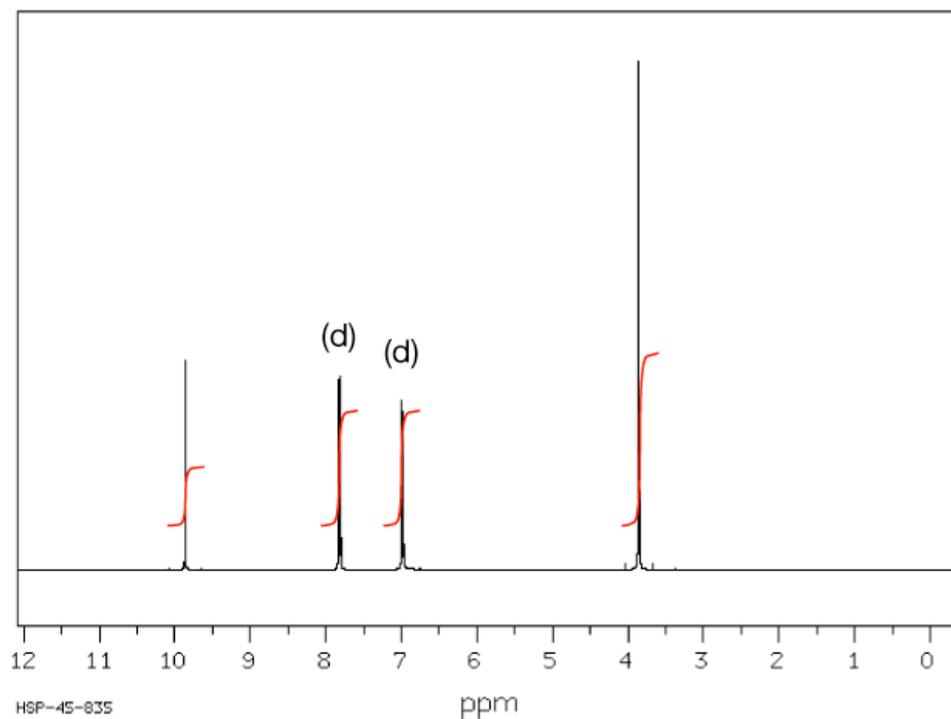
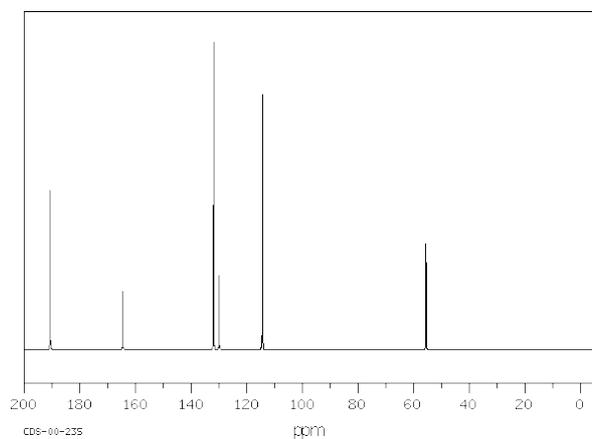


(11) 次のスペクトルを与える化合物の構造式を示せ。

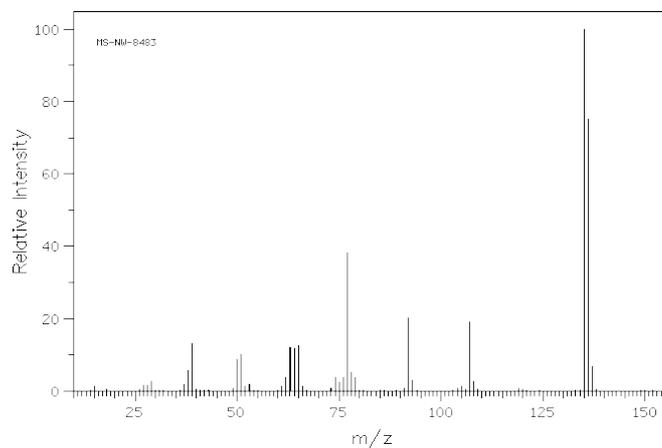
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



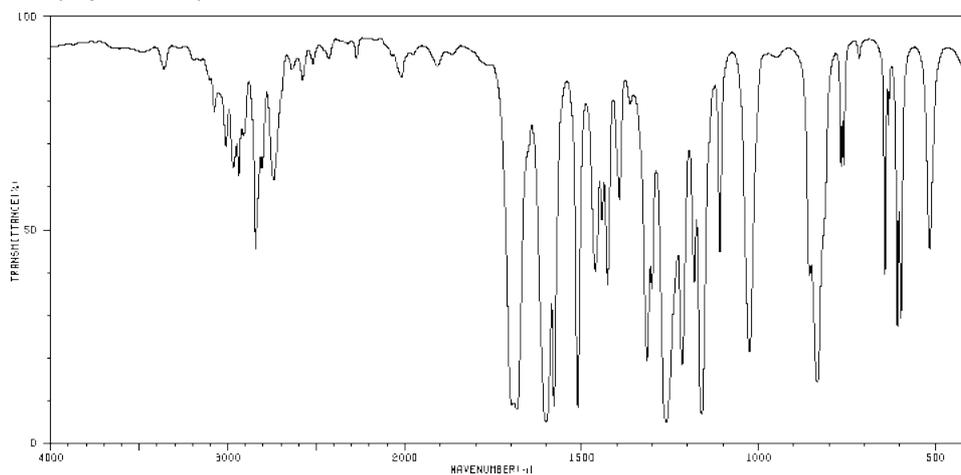
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

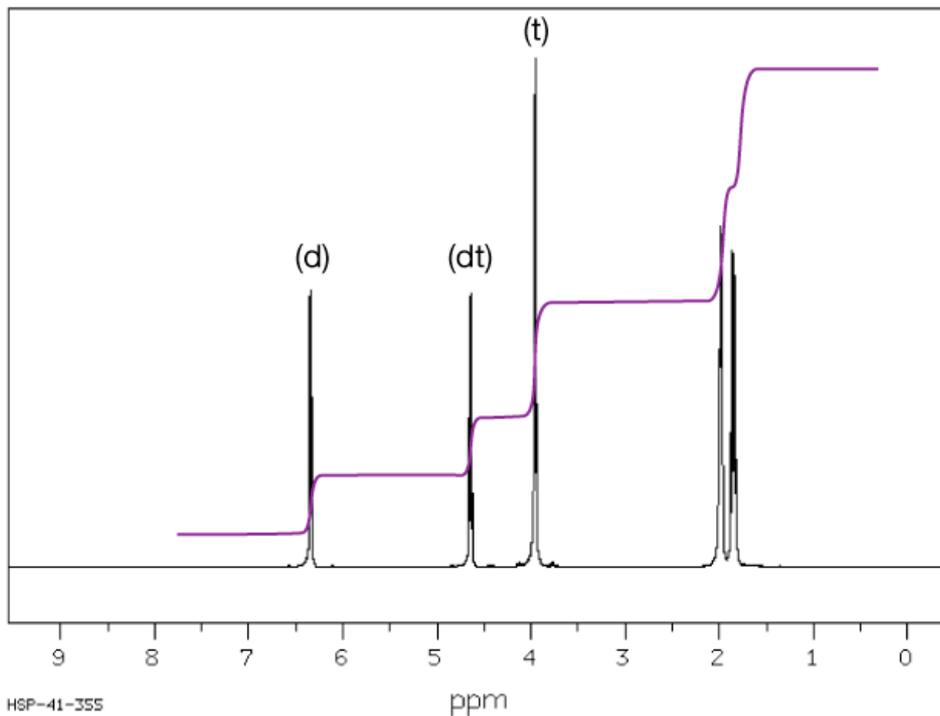


IR (liquid film)

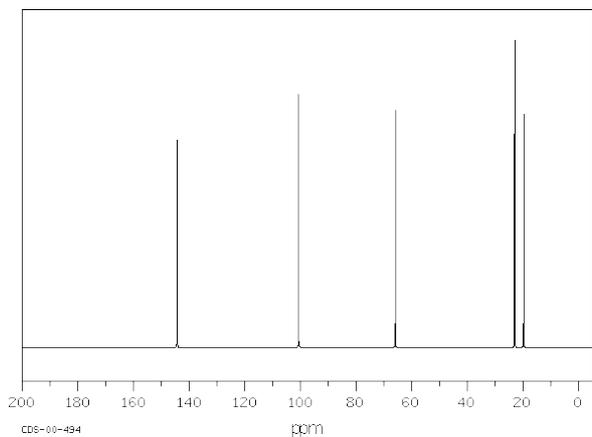


(12) 次のスペクトルを与える化合物の構造式を示せ。

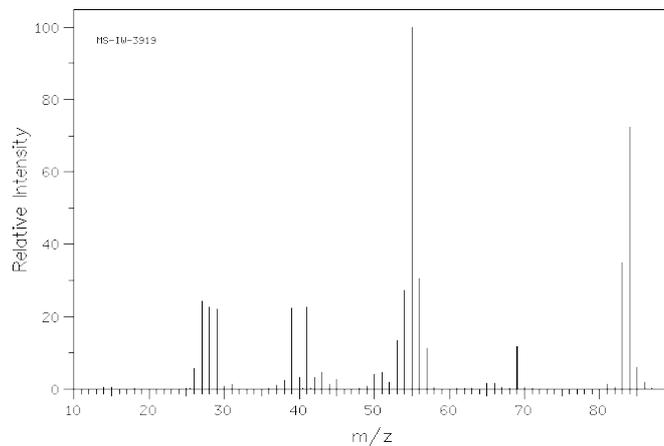
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



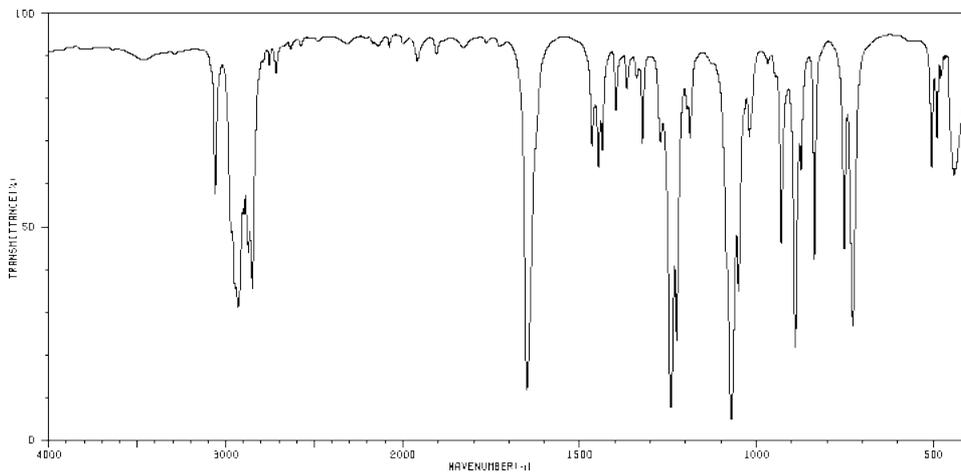
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

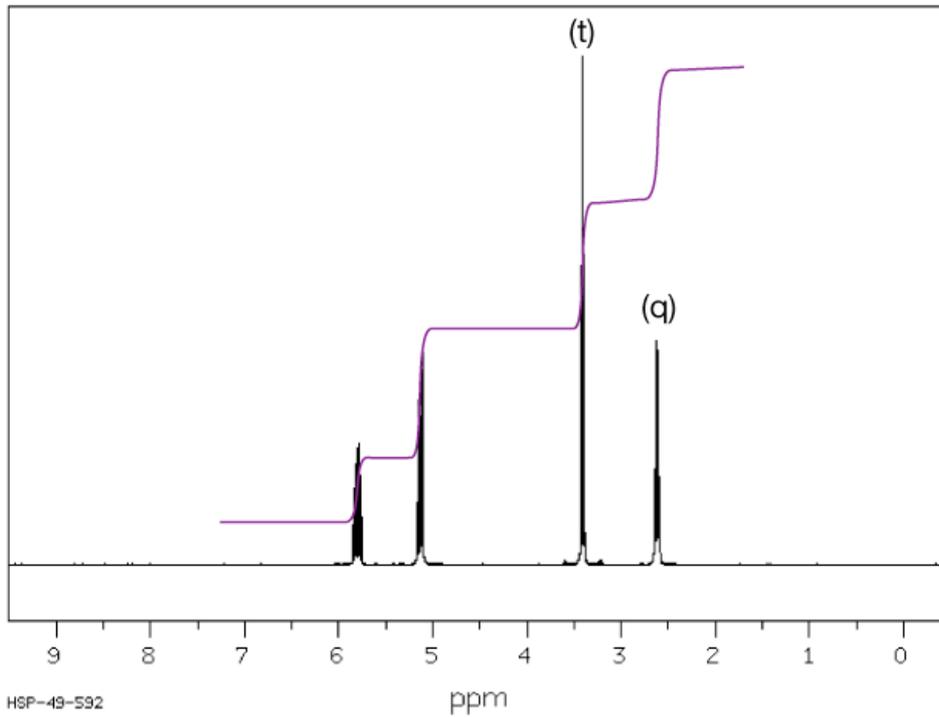


IR (liquid film)

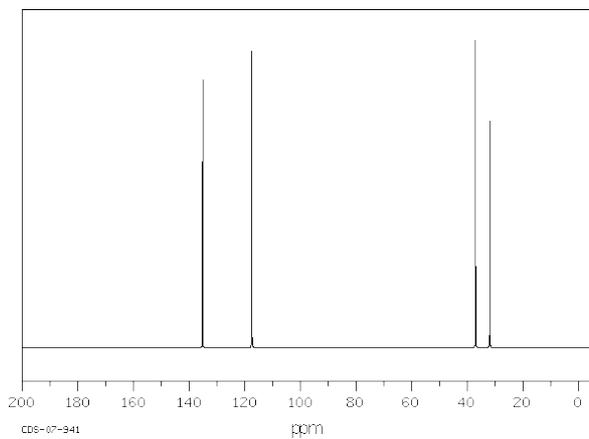


(13) 次のスペクトルを与える化合物の構造式を示せ。

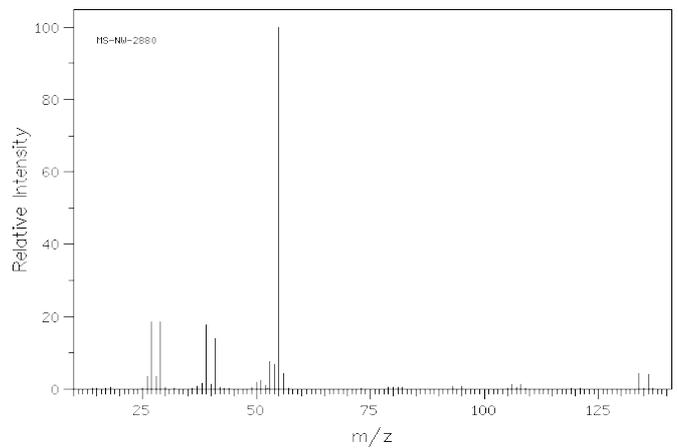
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



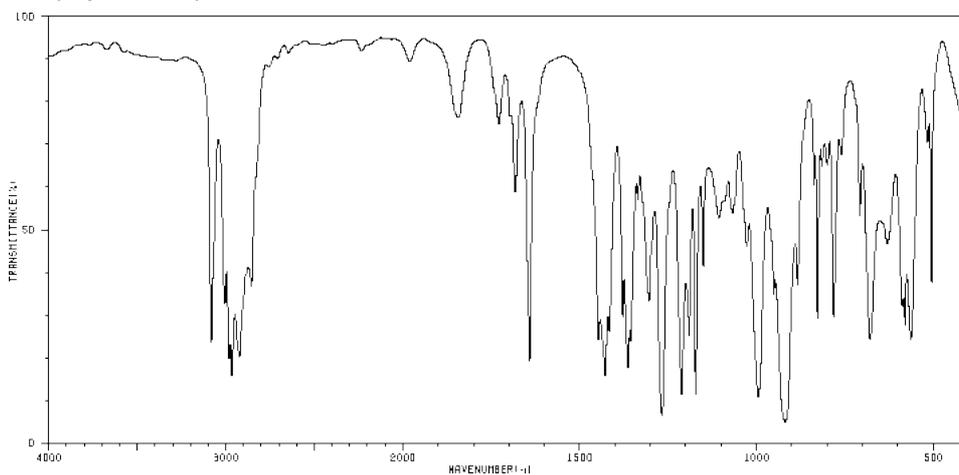
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

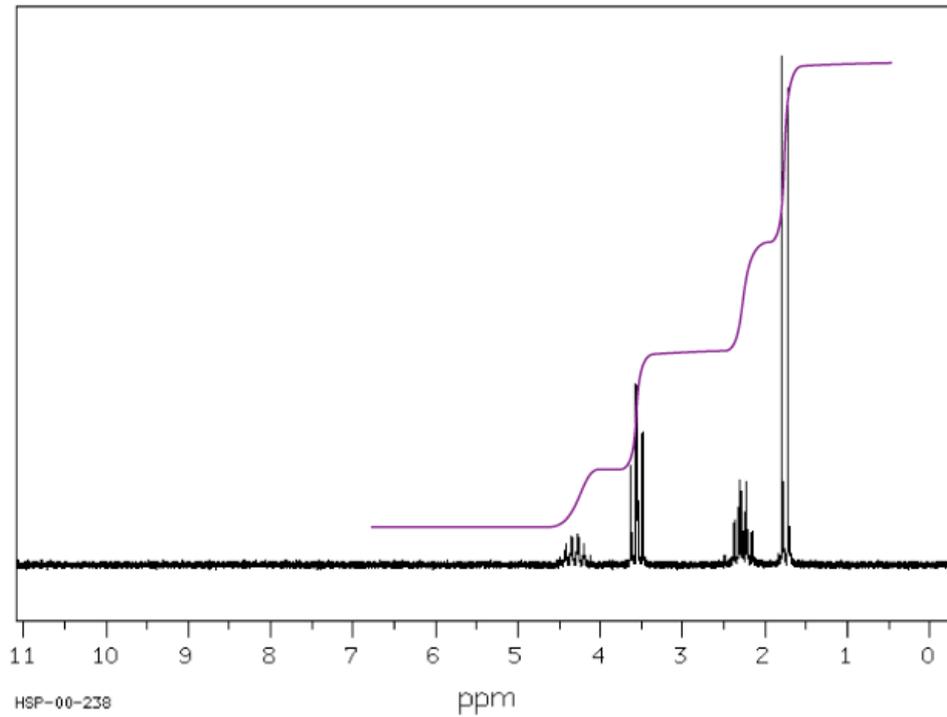


IR (liquid film)

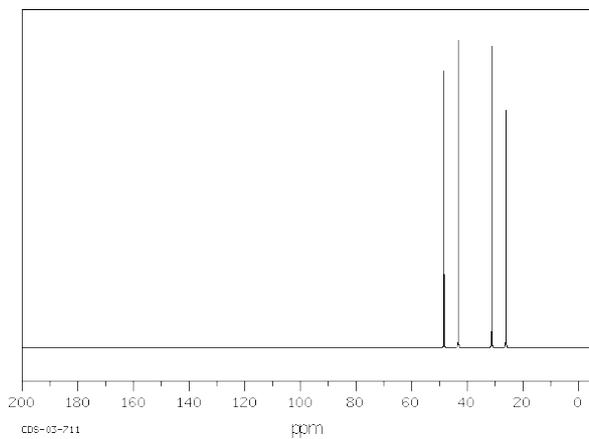


(14) 次のスペクトルを与える化合物の構造式を示せ。

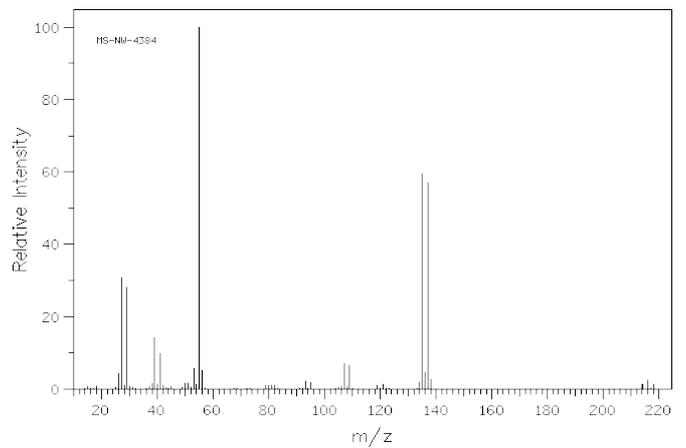
$^1\text{H}$  NMR (90 MHz,  $\text{CDCl}_3$ )



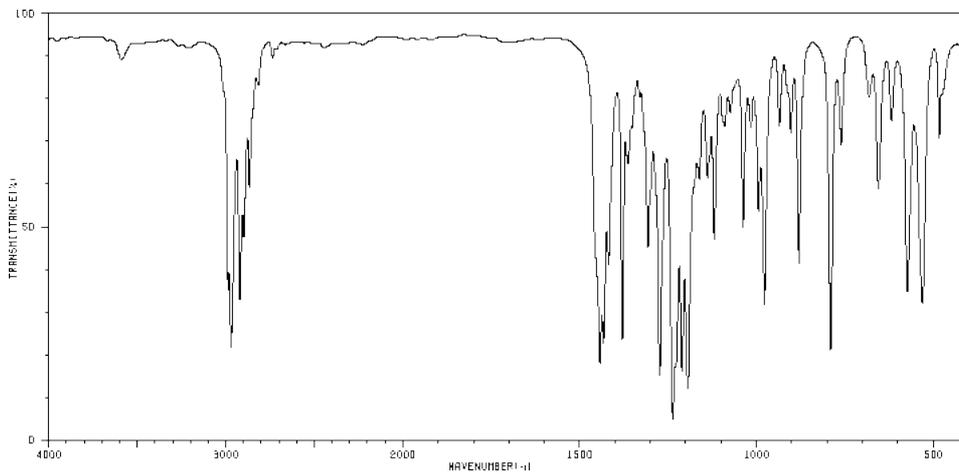
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)



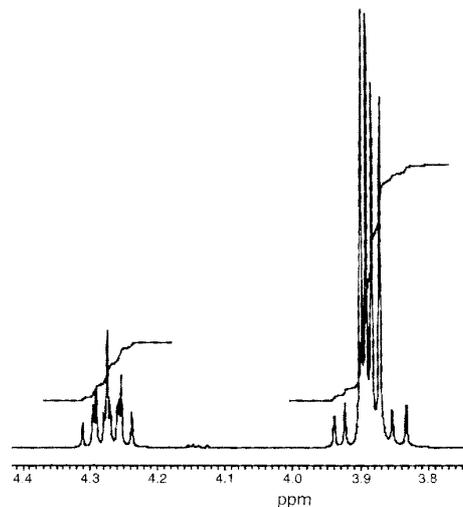
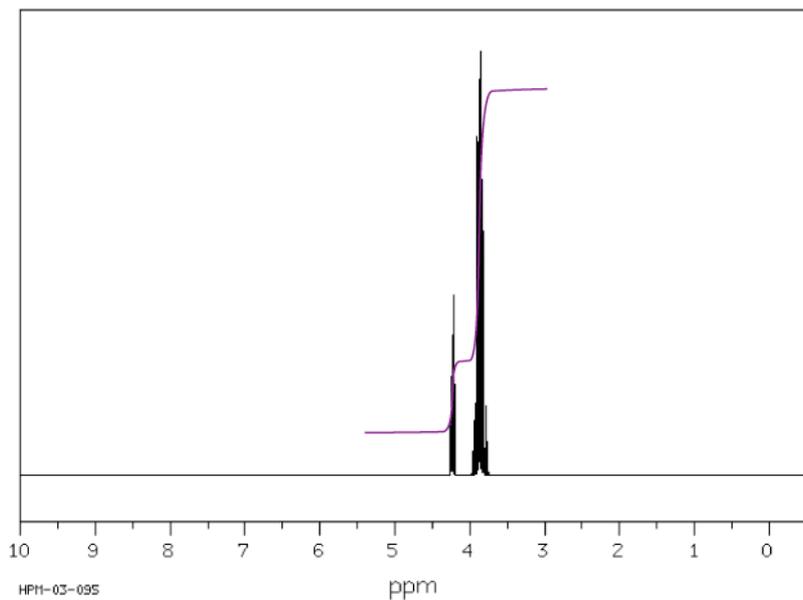
IR (liquid film)



(15) 次のスペクトルを与える化合物の構造式を示せ。

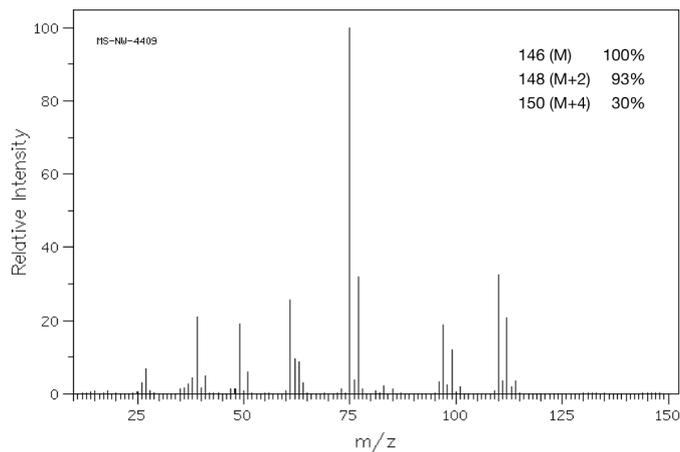
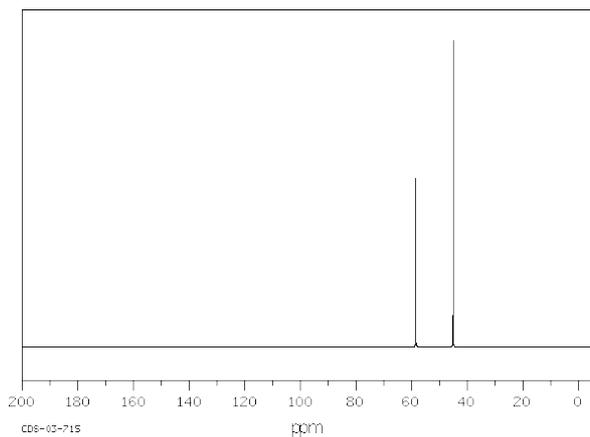
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )

3.7–4.4 ppm を拡大

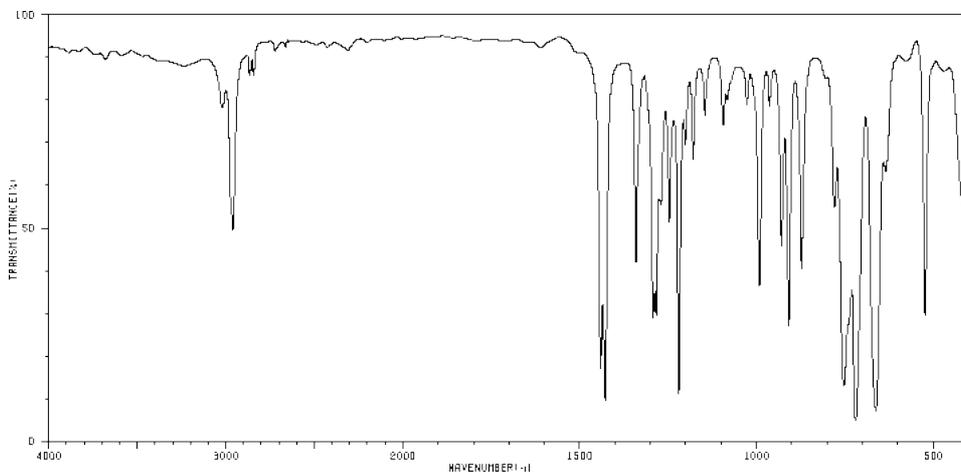


$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )

MS (EI)

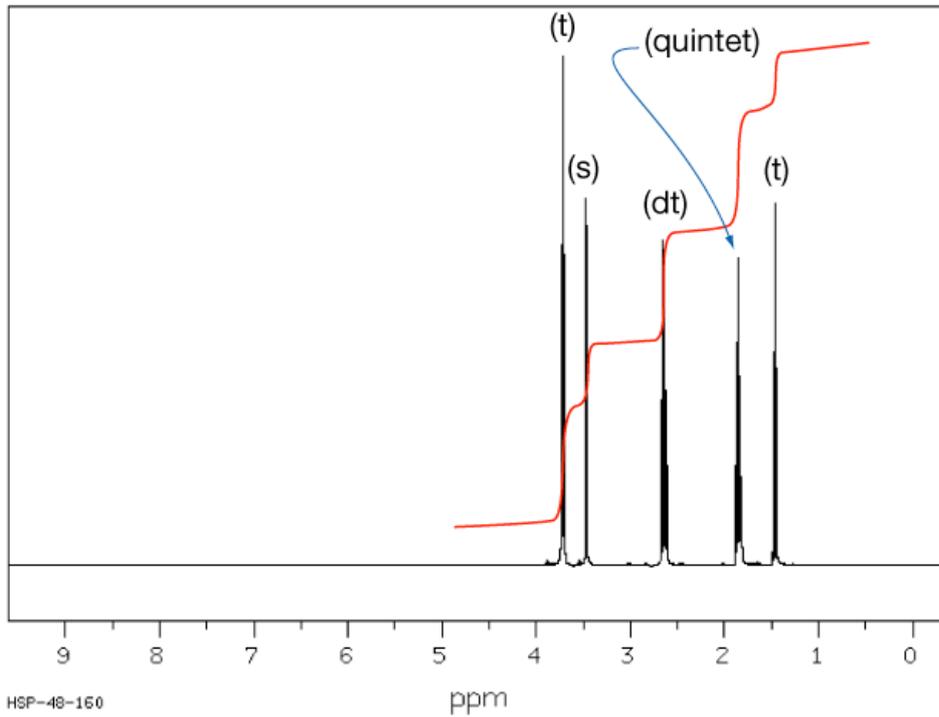


IR (liquid film)

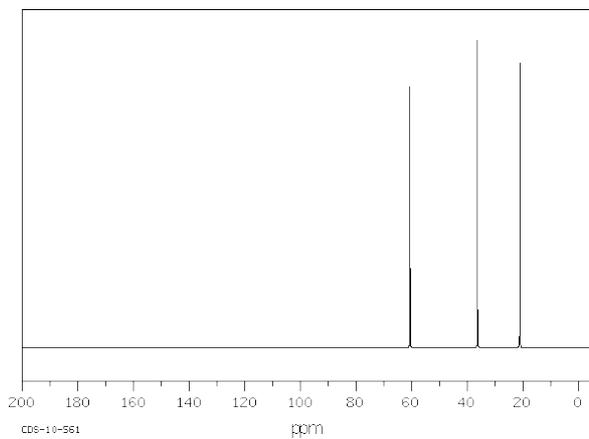


(16) 次のスペクトルを与える化合物の構造式を示せ。

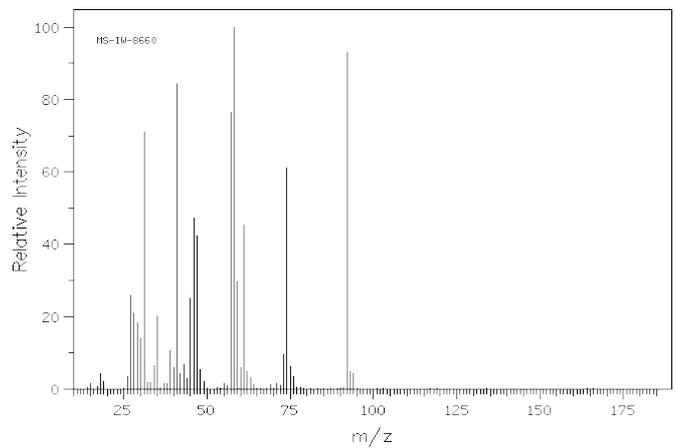
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



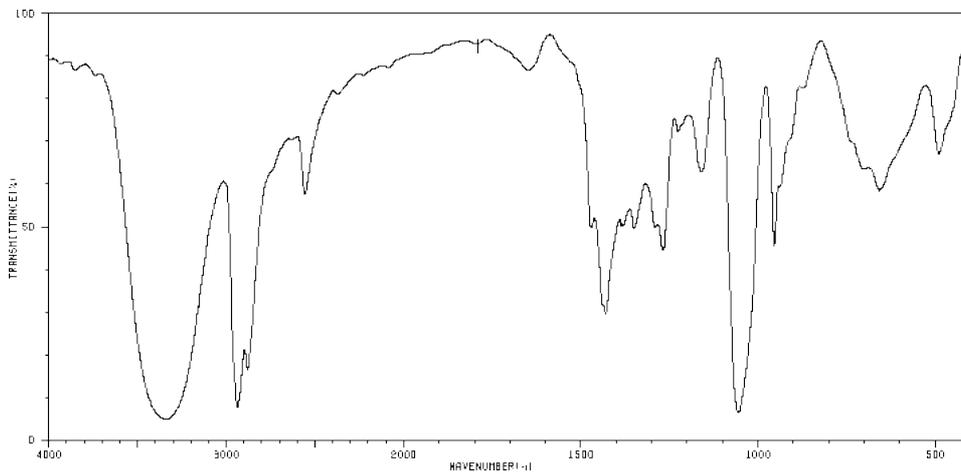
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

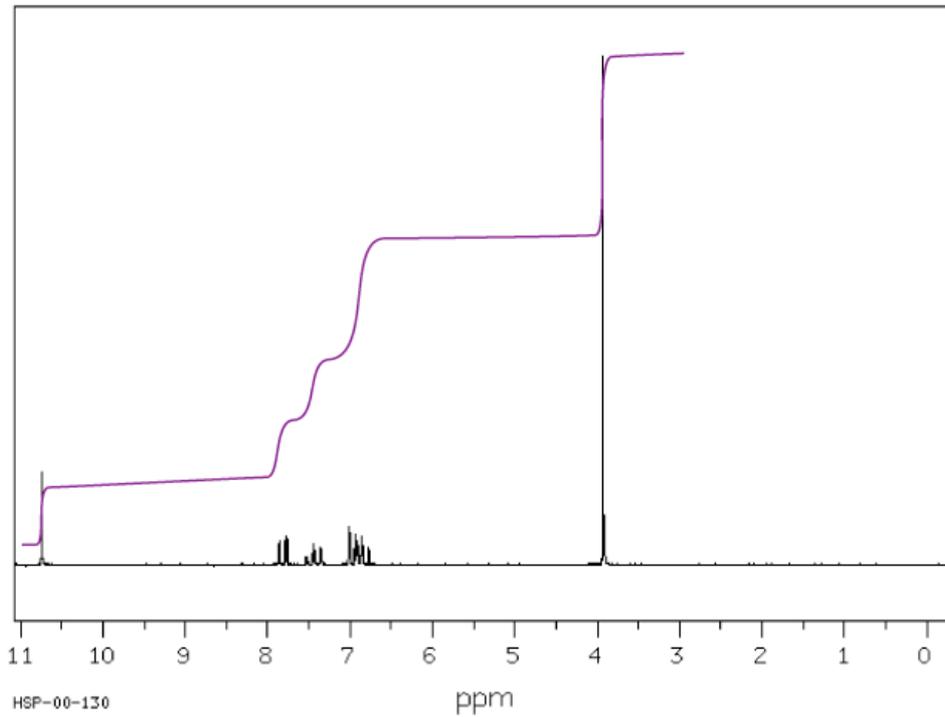


IR (liquid film)

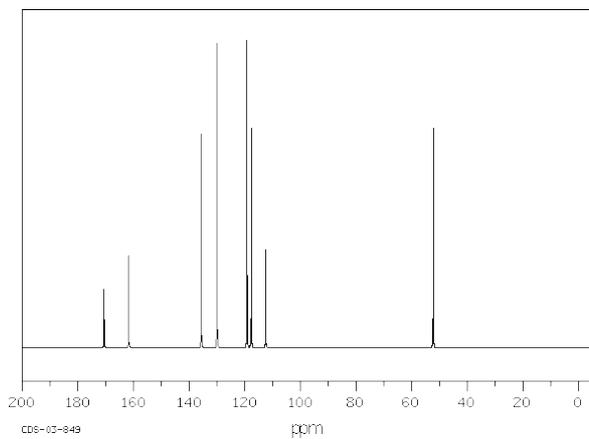


(17) 次のスペクトルを与える化合物の構造式を示せ。

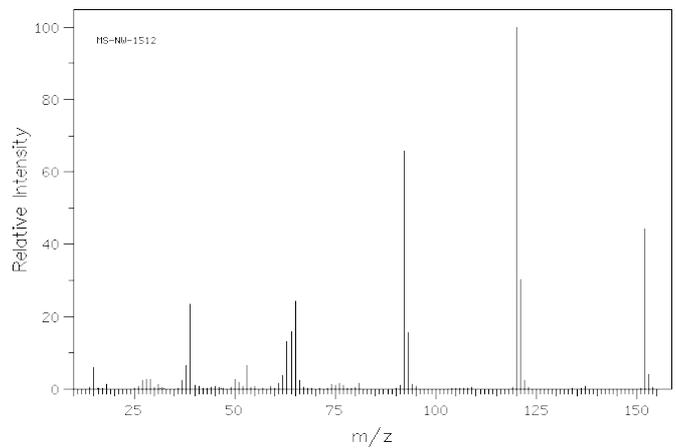
$^1\text{H}$  NMR (90 MHz,  $\text{CDCl}_3$ )



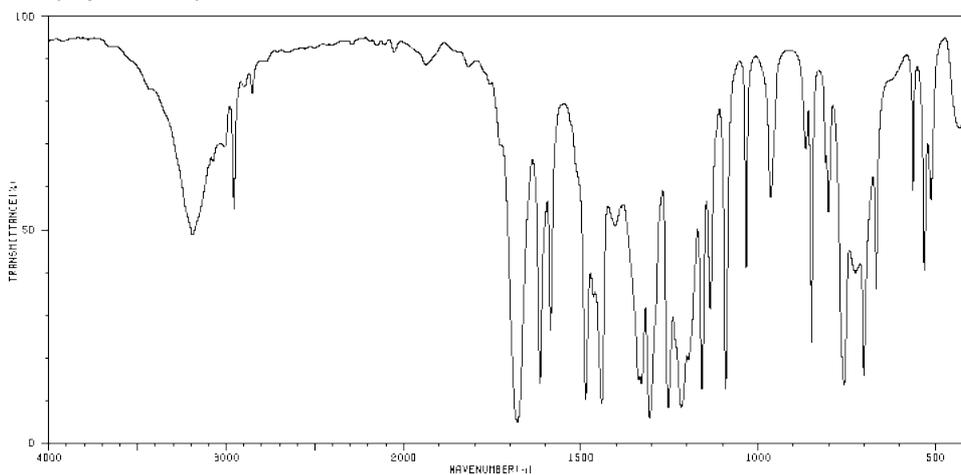
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (15 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

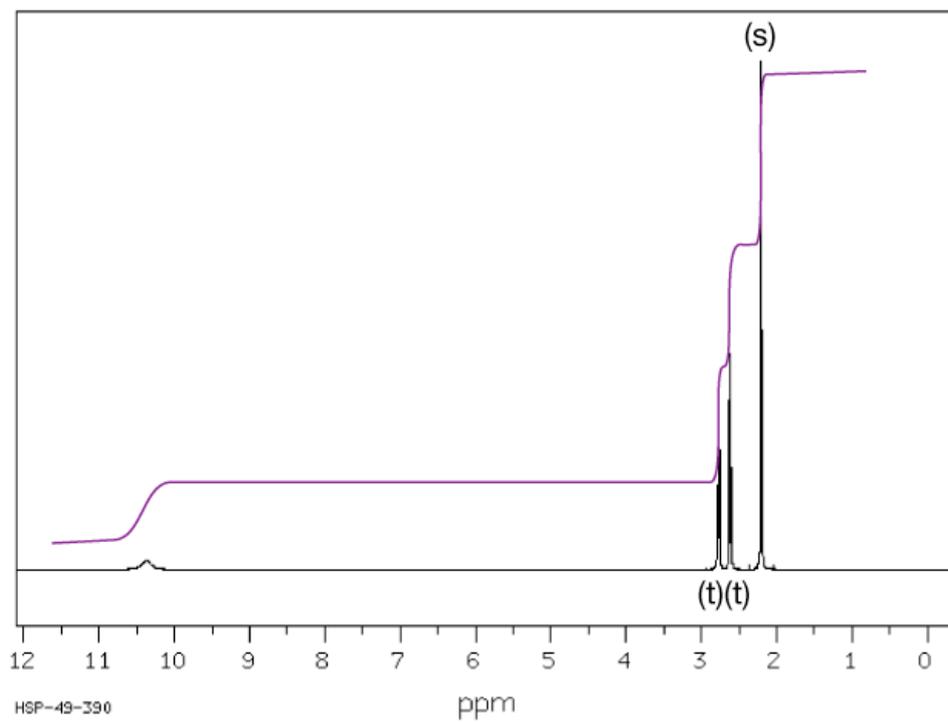


IR (liquid film)

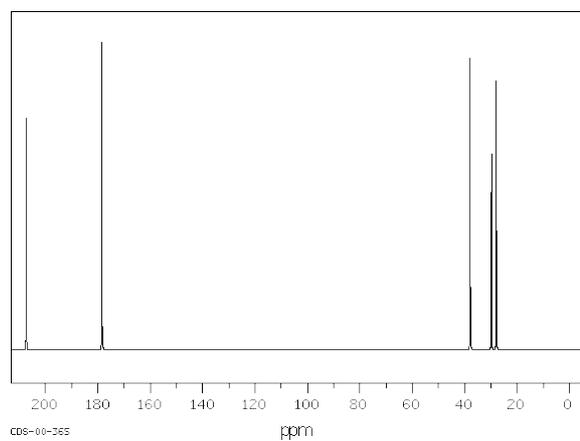


(18) 次のスペクトルを与える化合物の構造式を示せ。

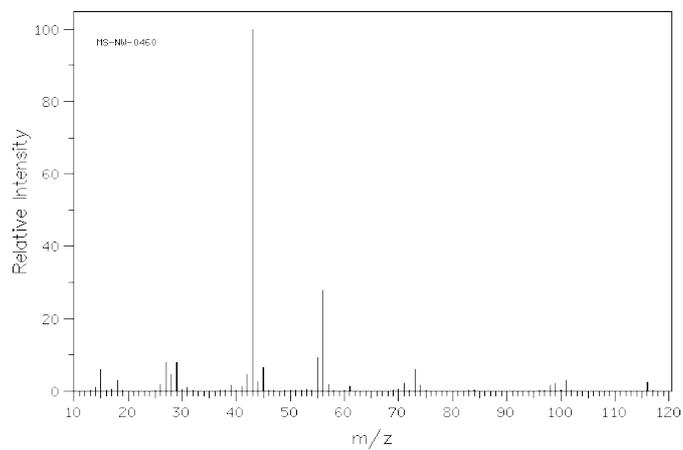
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



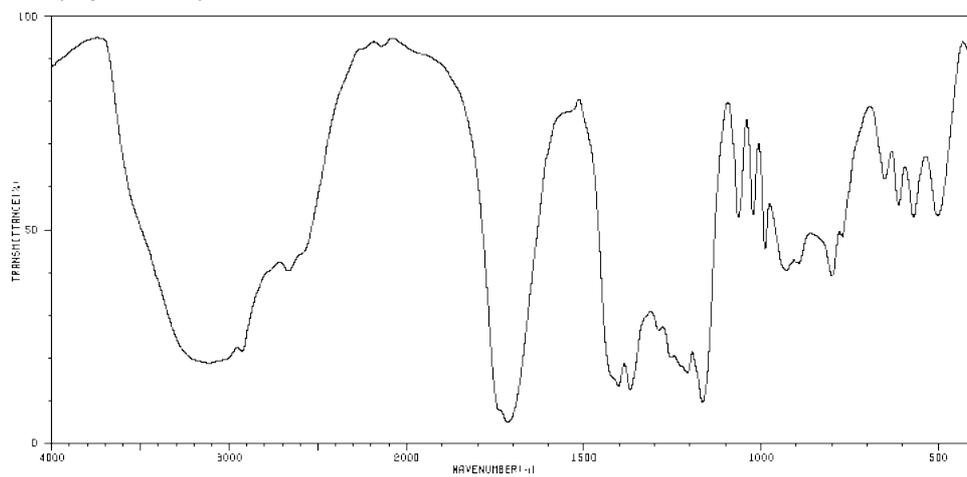
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

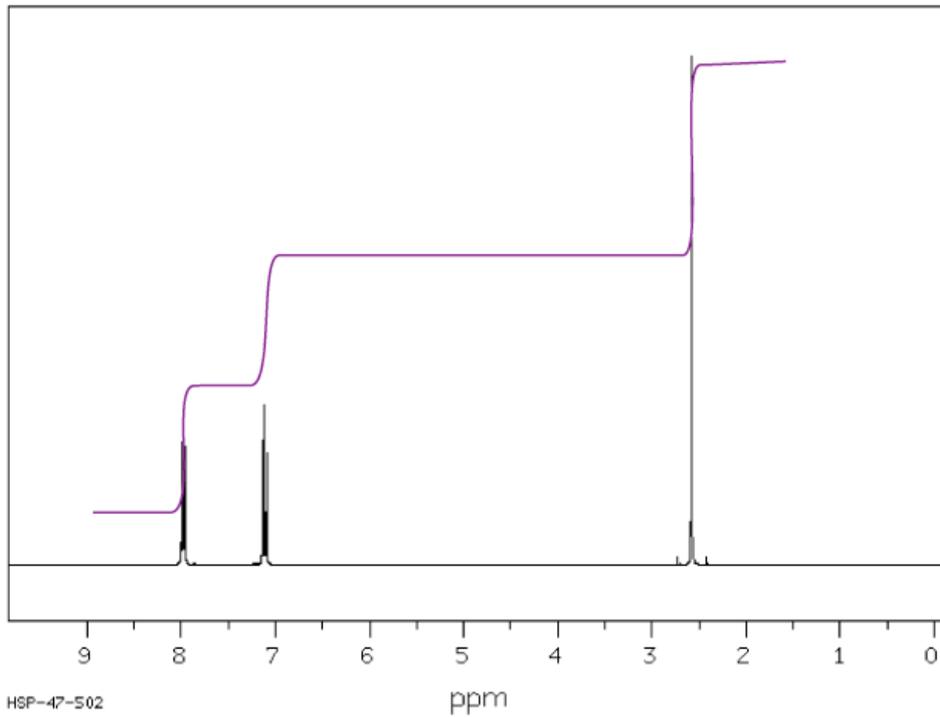


IR (liquid film)

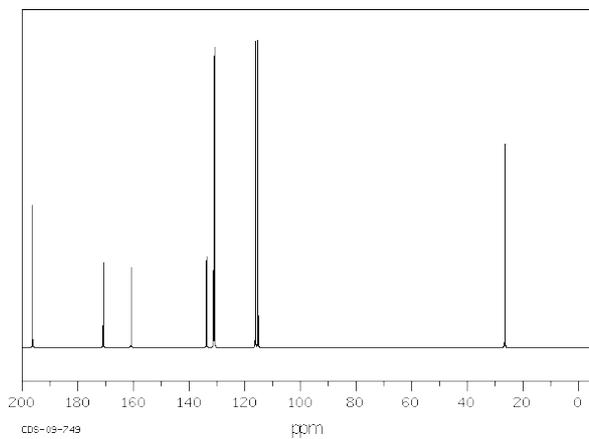


(19) 次のスペクトルを与える化合物（注：ハロゲンを含む）の構造式を示せ。

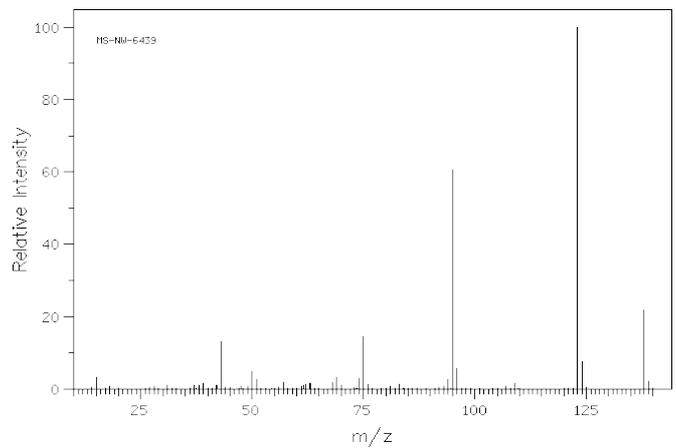
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



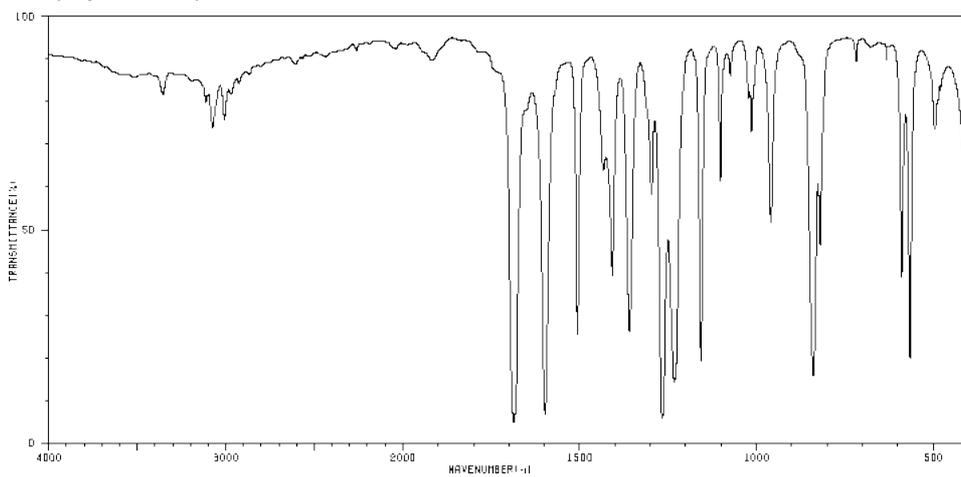
$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)

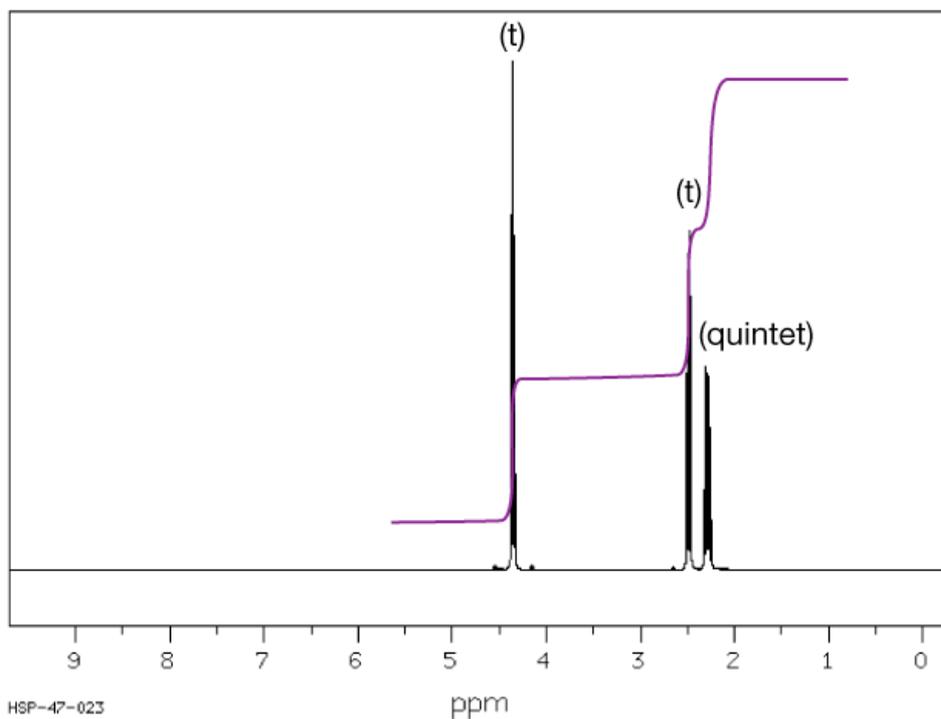


IR (liquid film)

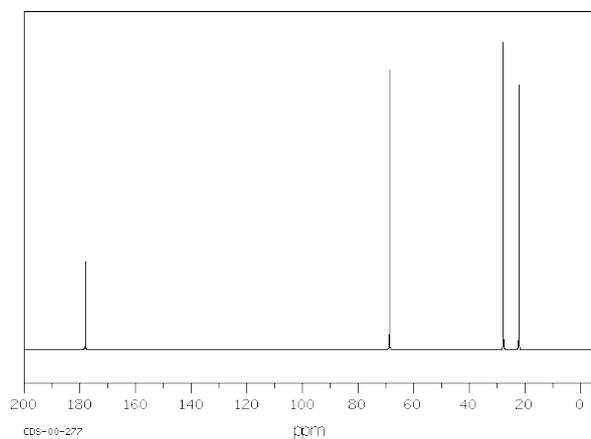


(20) 次のスペクトルを与える化合物の構造式を示せ。

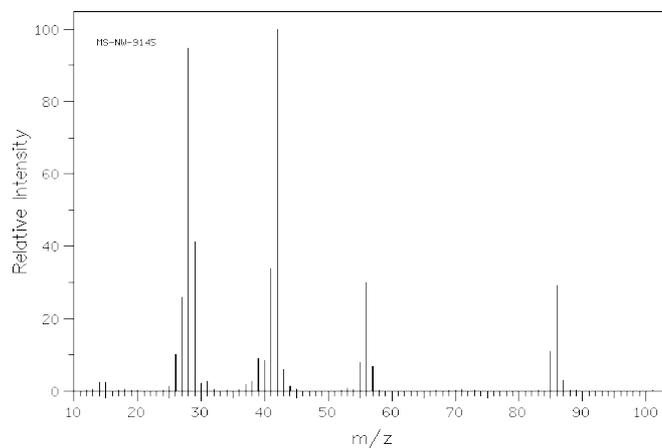
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )



$^{13}\text{C}$   $\{^1\text{H}\}$  NMR (25 MHz, 25 vol % in  $\text{CDCl}_3$ )



MS (EI)



IR (liquid film)

