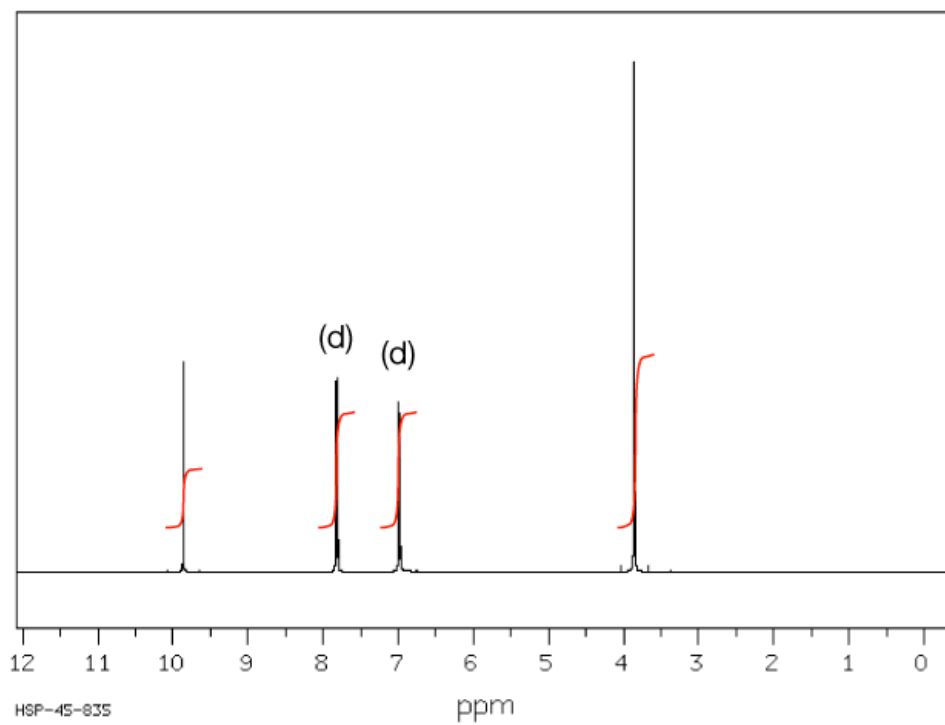
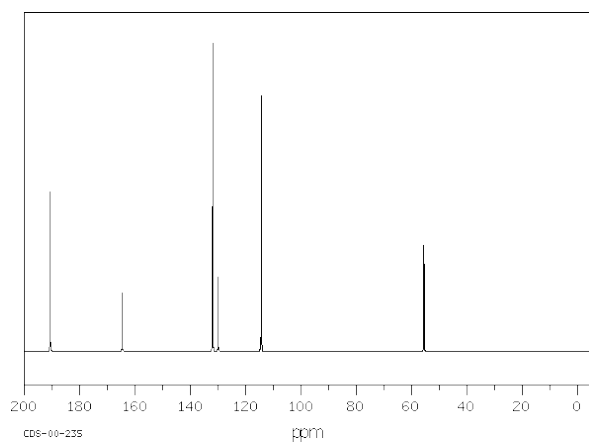


(11) 次のスペクトルを与える化合物の構造式を示せ。

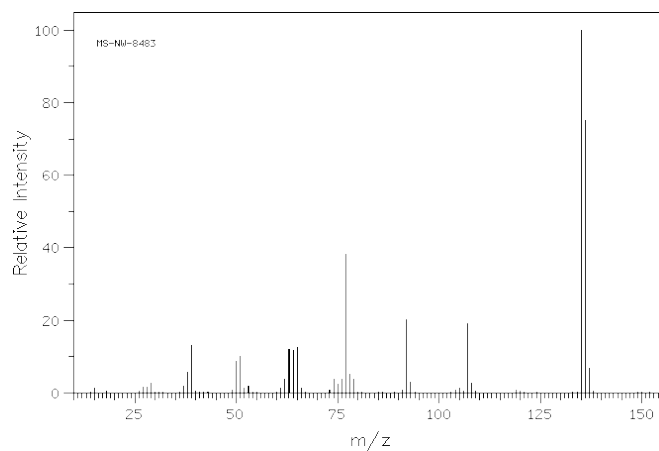
^1H NMR (400 MHz, CDCl_3)



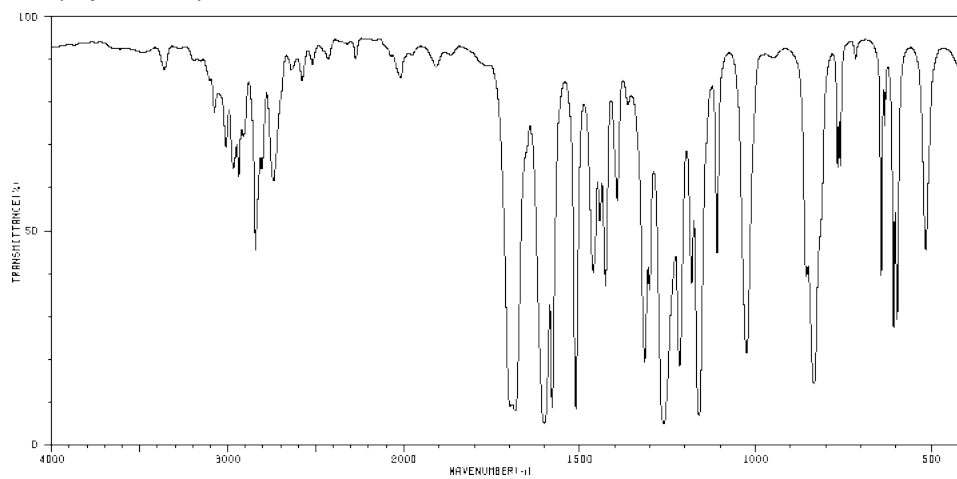
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

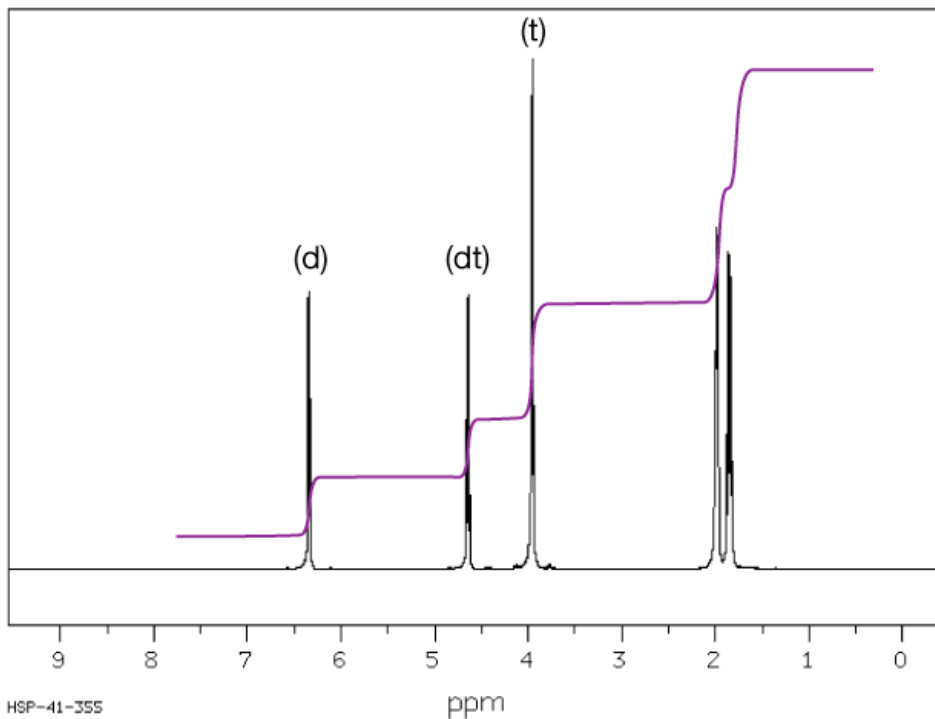


IR (liquid film)

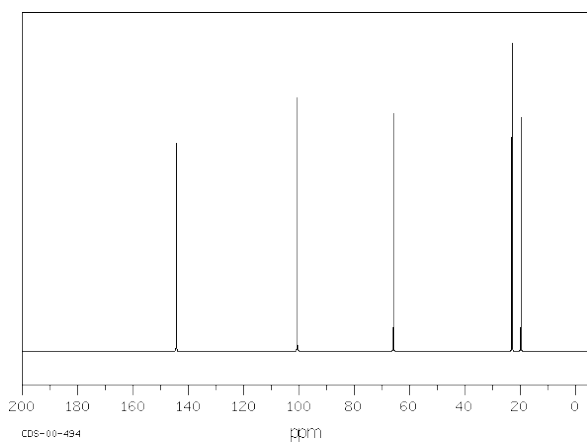


(12) 次のスペクトルを与える化合物の構造式を示せ。

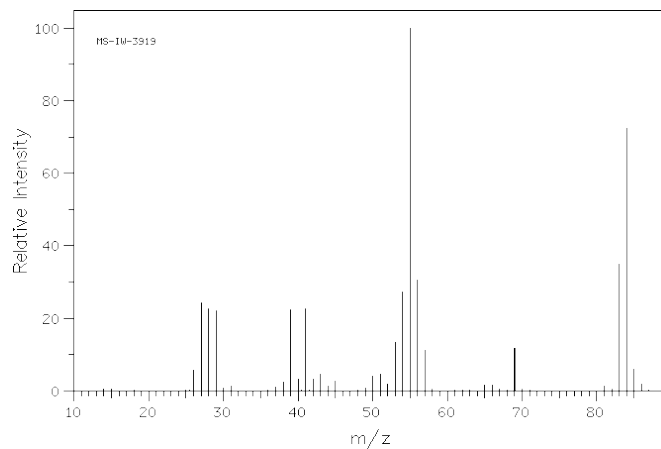
^1H NMR (400 MHz, CDCl_3)



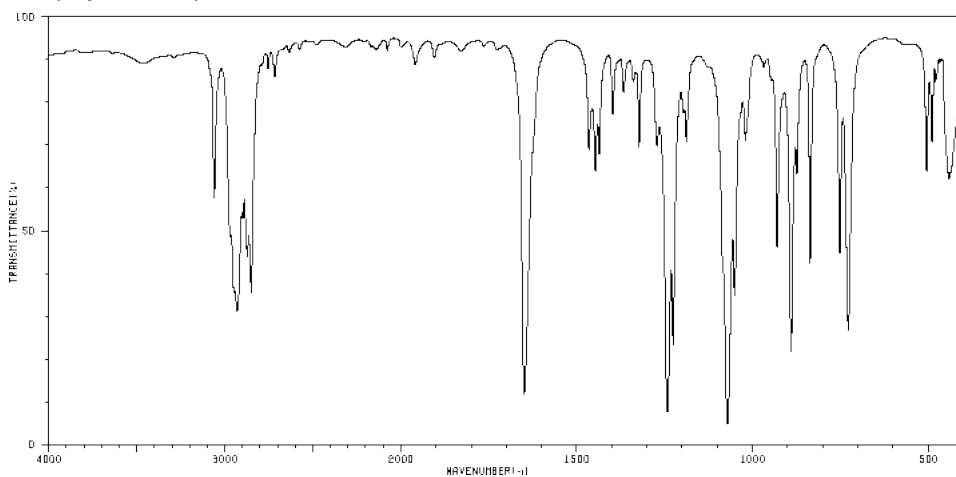
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

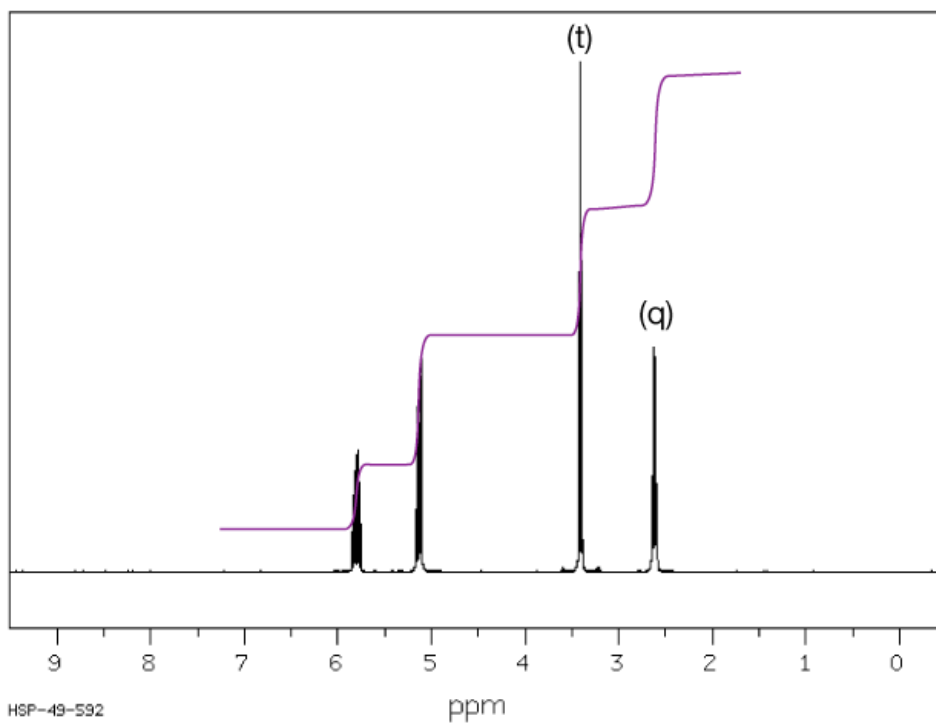


IR (liquid film)

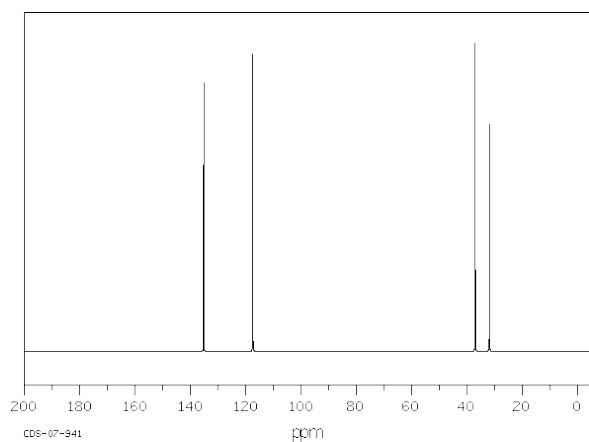


(13) 次のスペクトルを与える化合物の構造式を示せ。

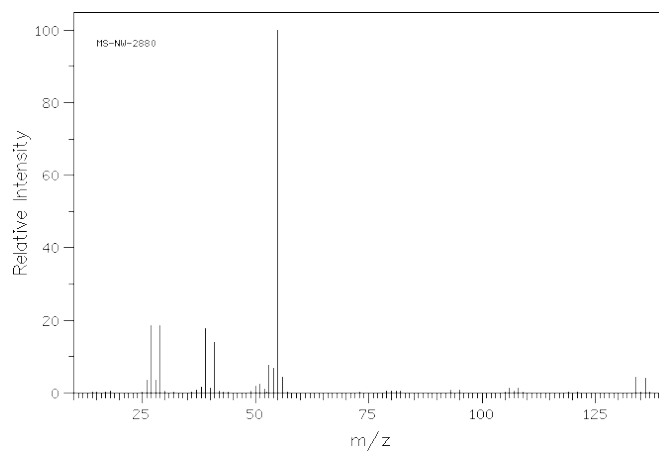
^1H NMR (400 MHz, CDCl_3)



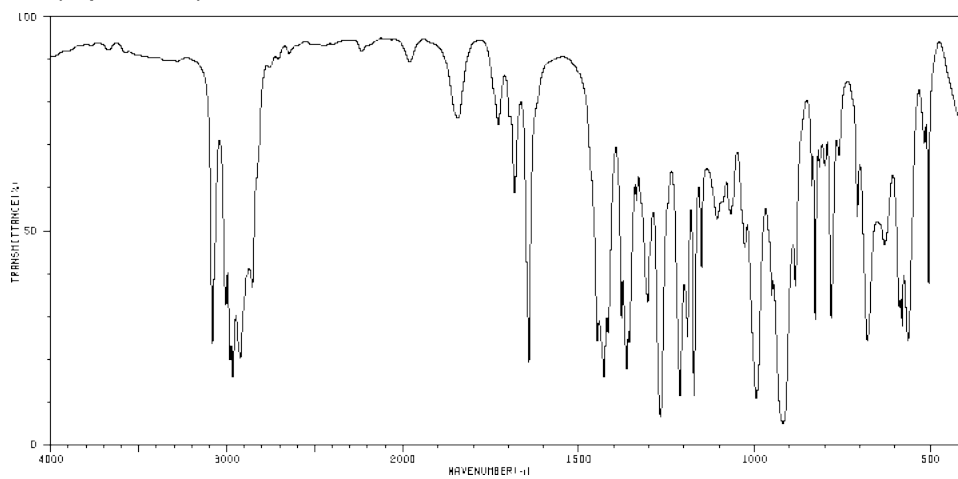
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

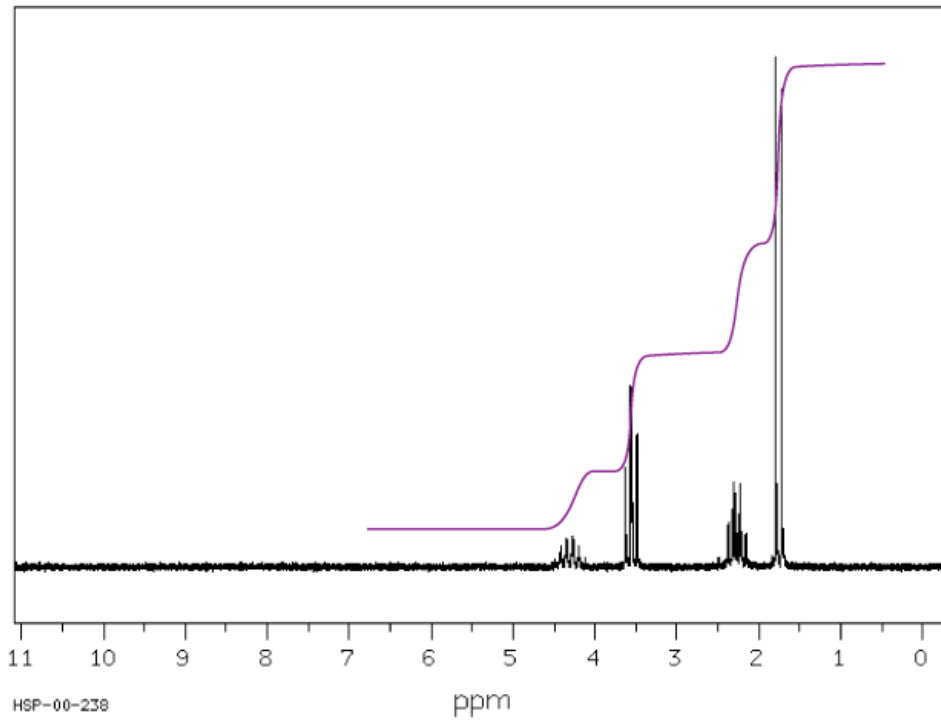


IR (liquid film)

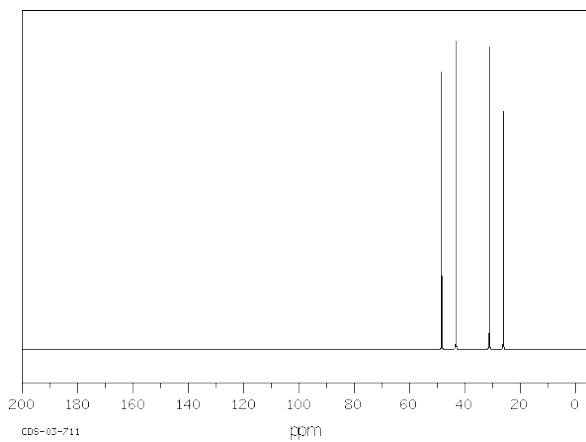


(14) 次のスペクトルを与える化合物の構造式を示せ。

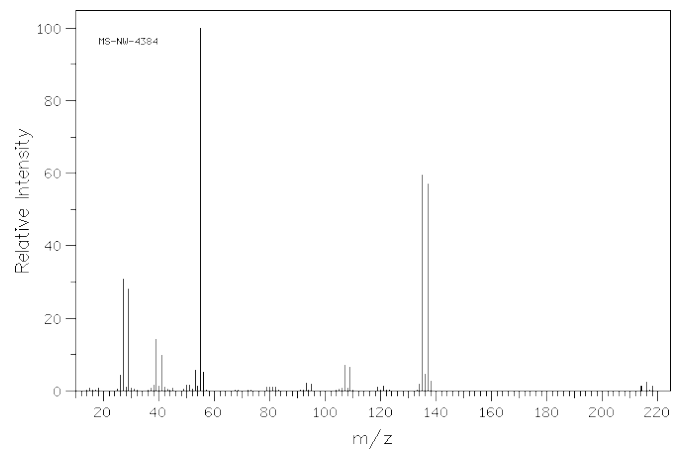
^1H NMR (90 MHz, CDCl_3)



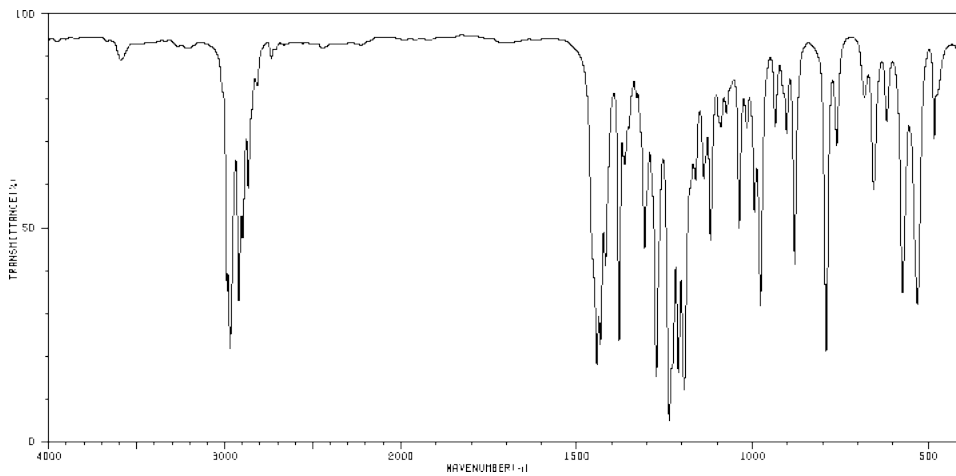
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)



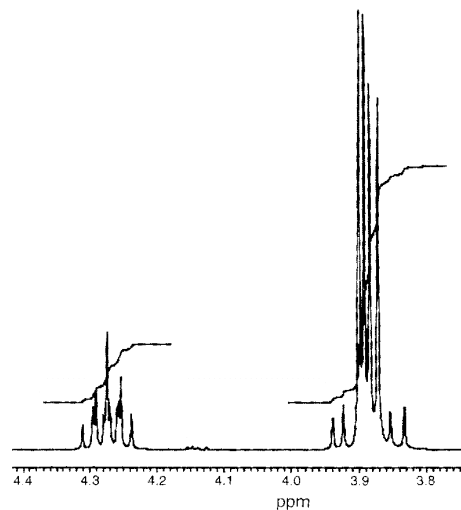
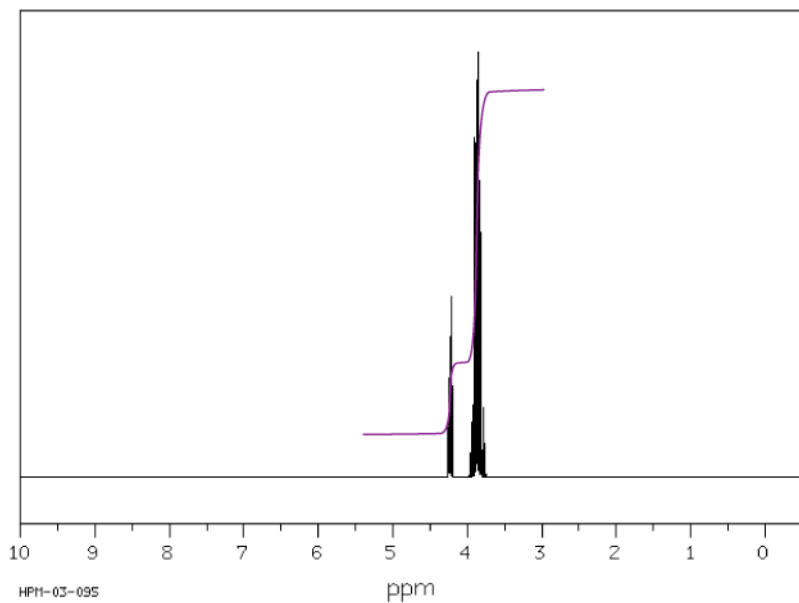
IR (liquid film)



(15) 次のスペクトルを与える化合物の構造式を示せ。

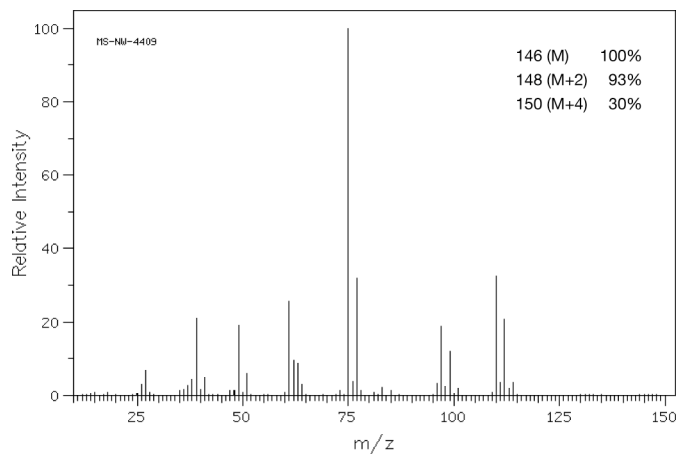
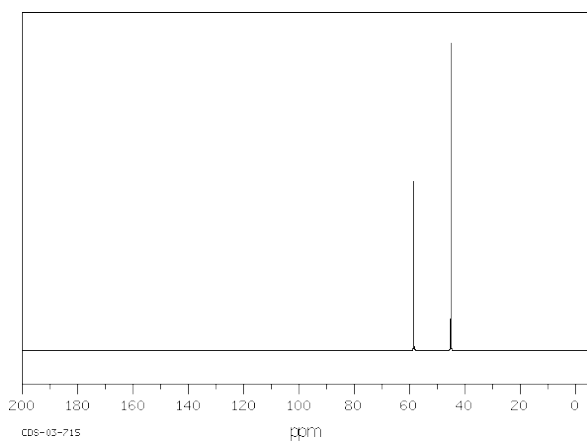
^1H NMR (400 MHz, CDCl_3)

3.7–4.4 ppm を拡大

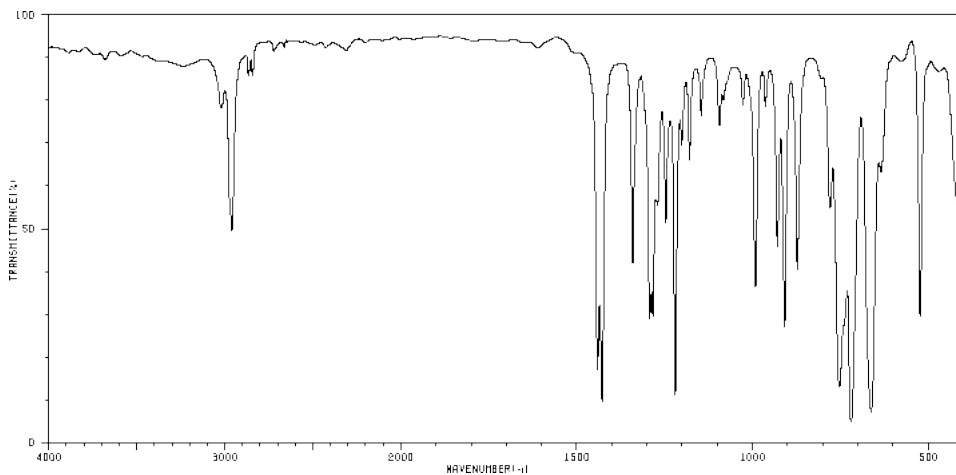


^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)

MS (EI)

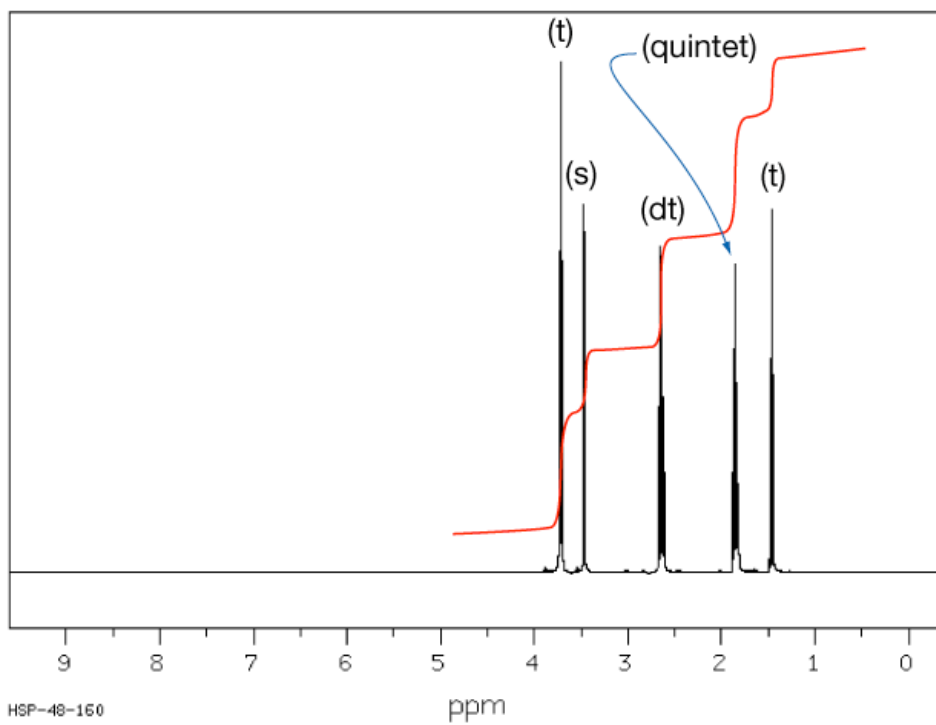


IR (liquid film)

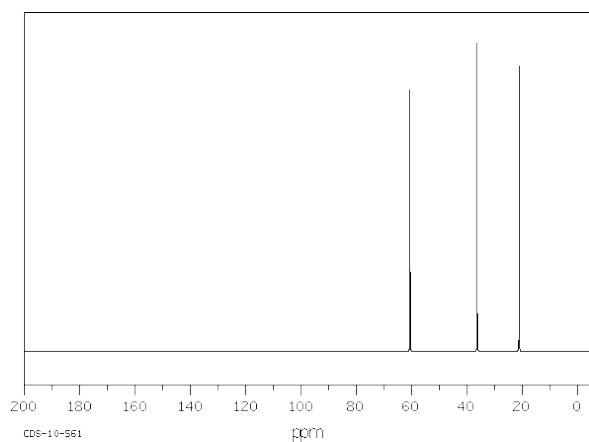


(16) 次のスペクトルを与える化合物の構造式を示せ。

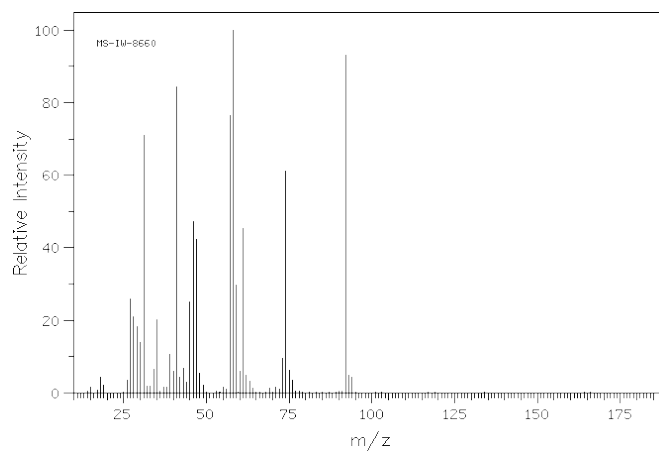
^1H NMR (400 MHz, CDCl_3)



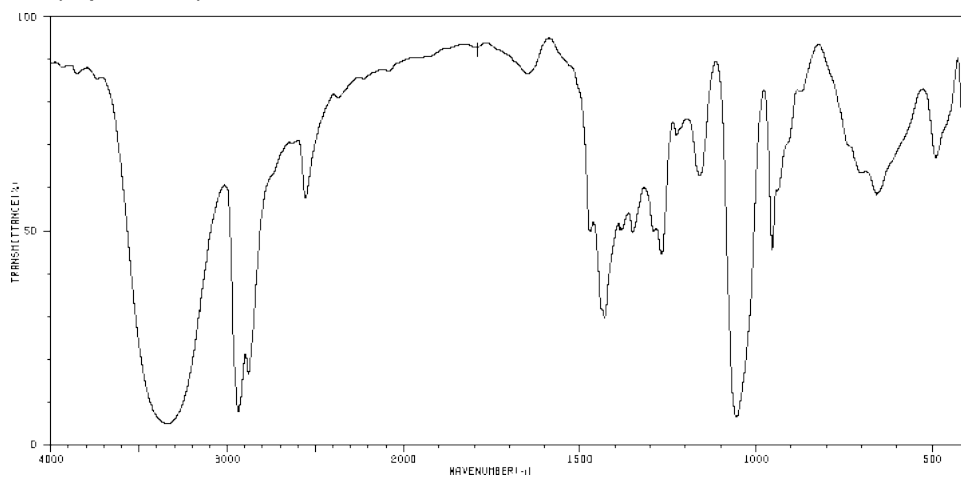
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

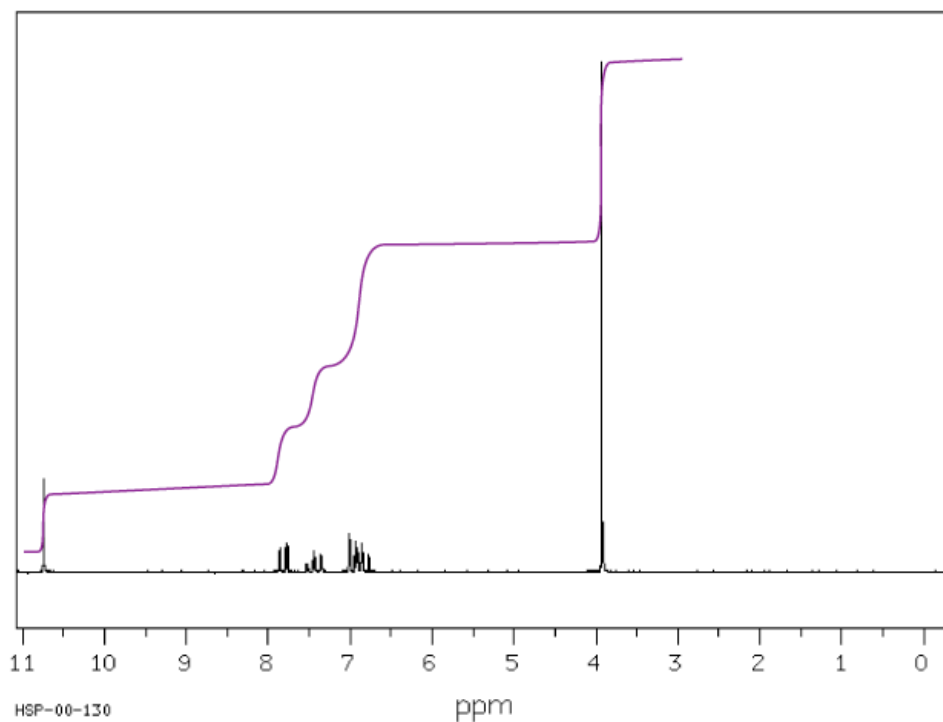


IR (liquid film)

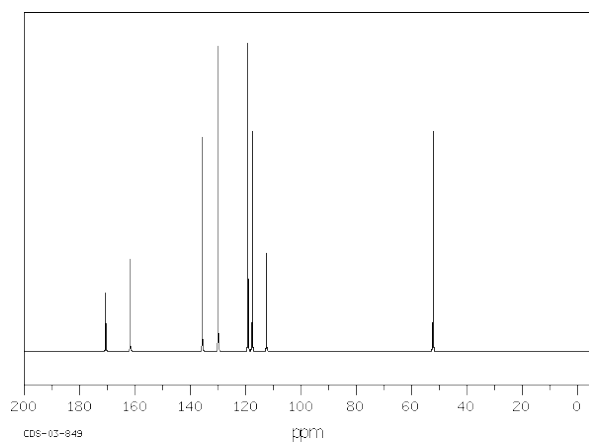


(17) 次のスペクトルを与える化合物の構造式を示せ。

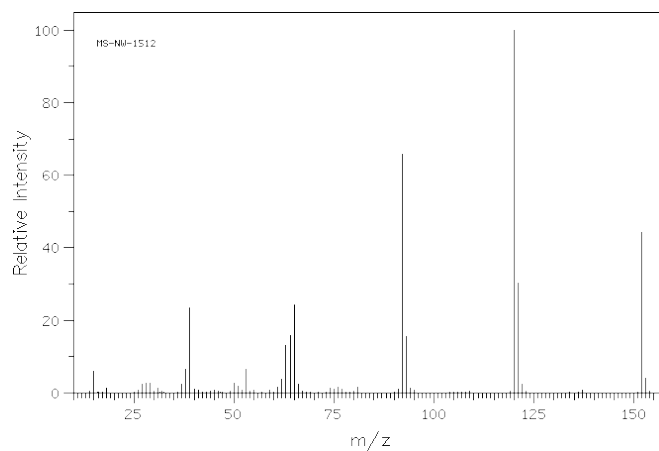
^1H NMR (90 MHz, CDCl_3)



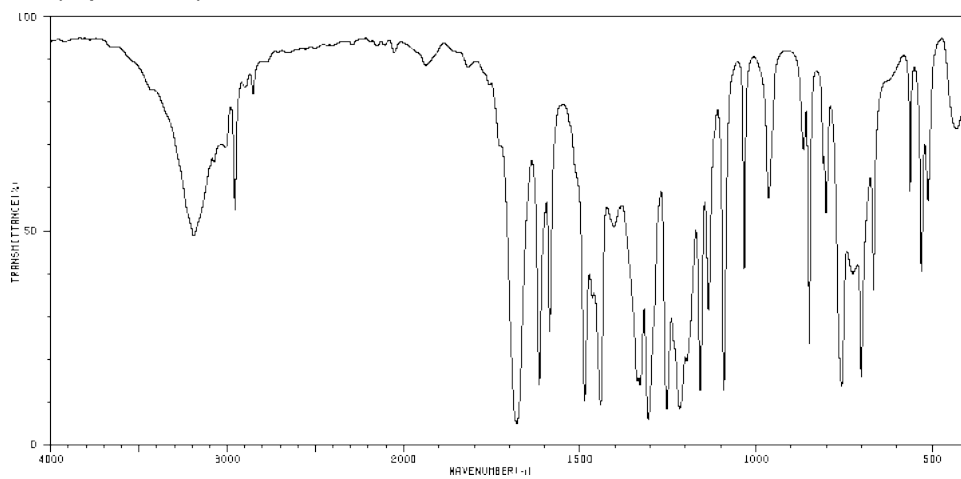
^{13}C $\{^1\text{H}\}$ NMR (15 MHz, 25 vol % in CDCl_3)



MS (EI)

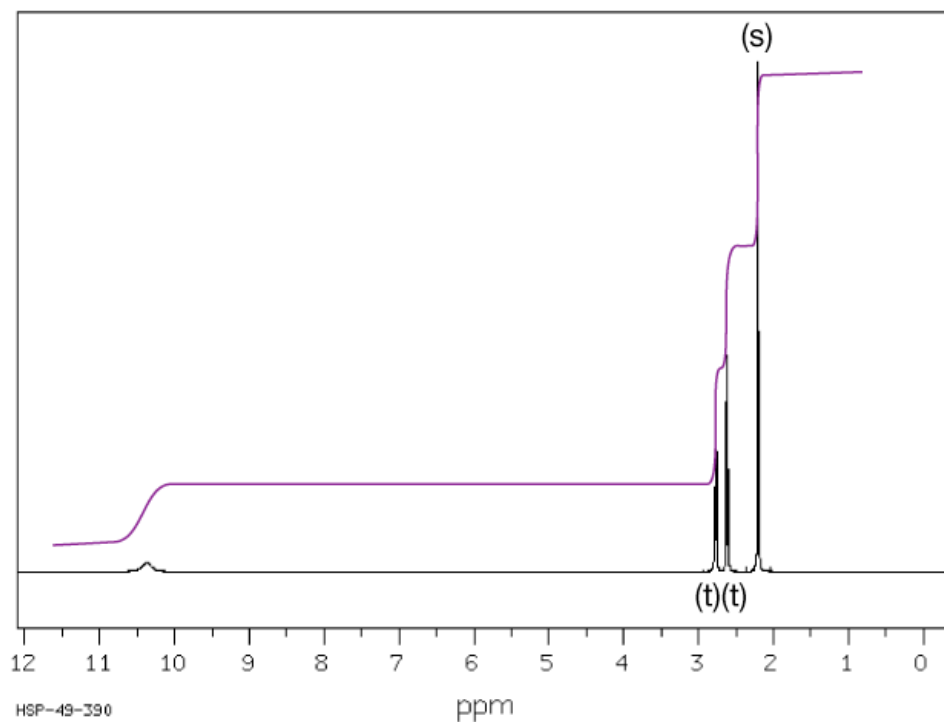


IR (liquid film)

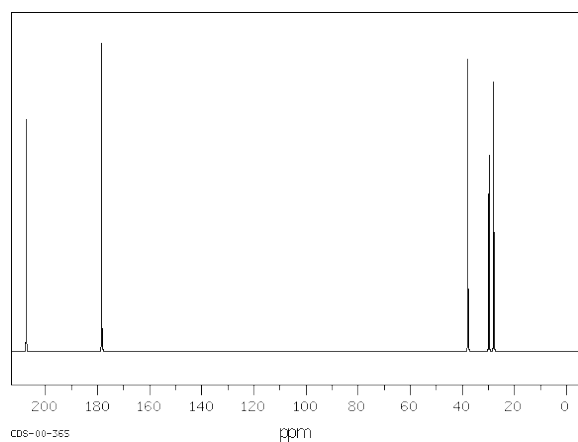


(18) 次のスペクトルを与える化合物の構造式を示せ。

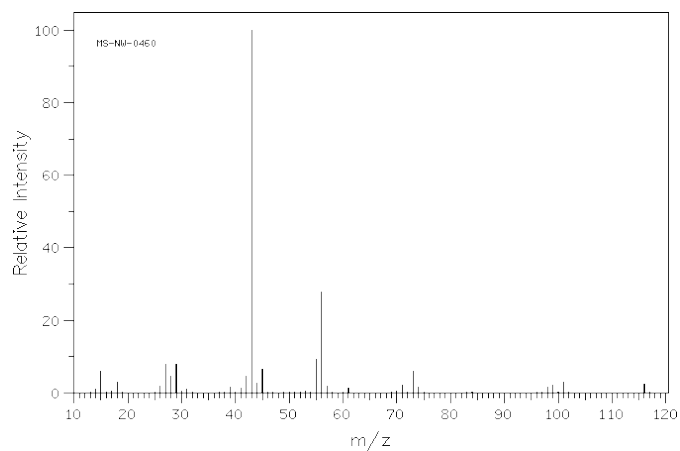
^1H NMR (400 MHz, CDCl_3)



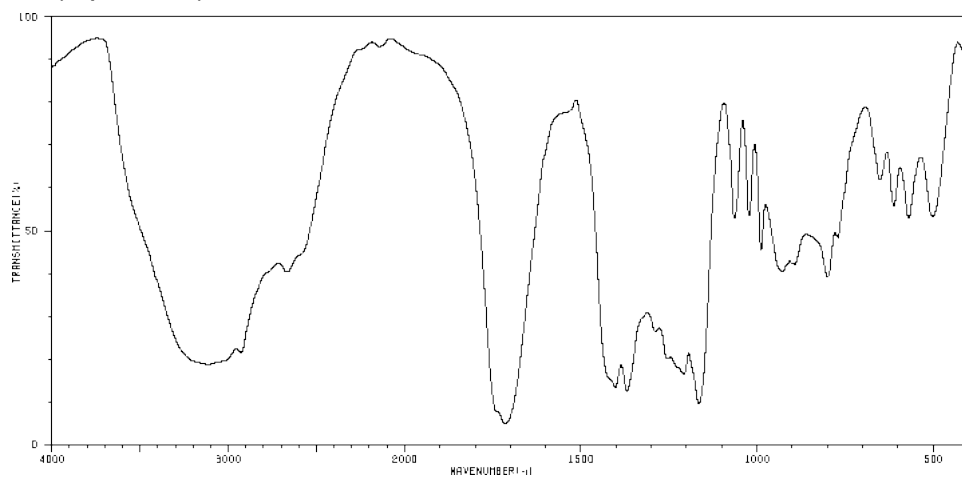
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

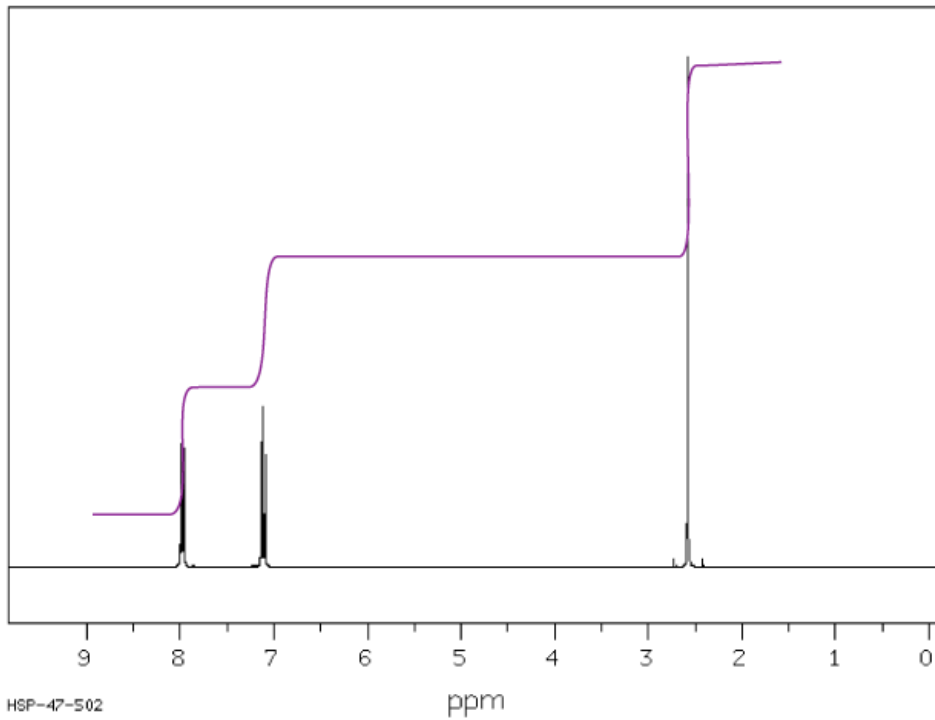


IR (liquid film)

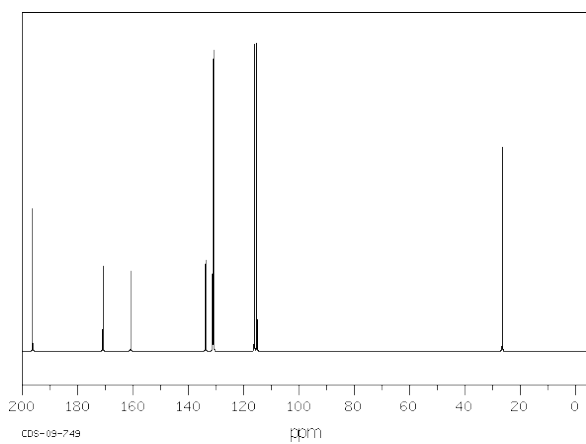


(19) 次のスペクトルを与える化合物（注：ハロゲンを含む）の構造式を示せ。

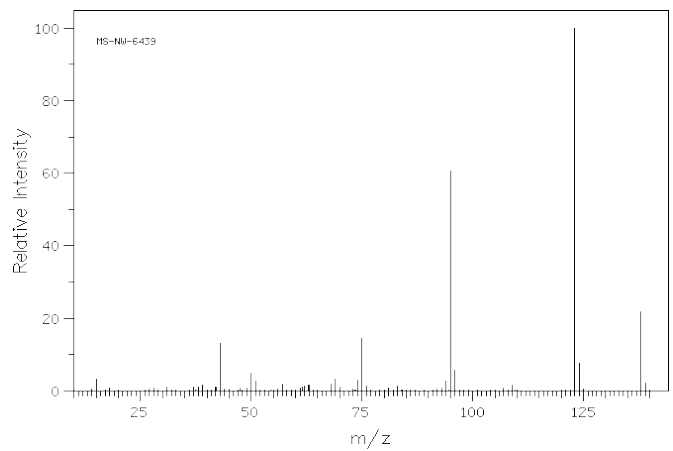
^1H NMR (400 MHz, CDCl_3)



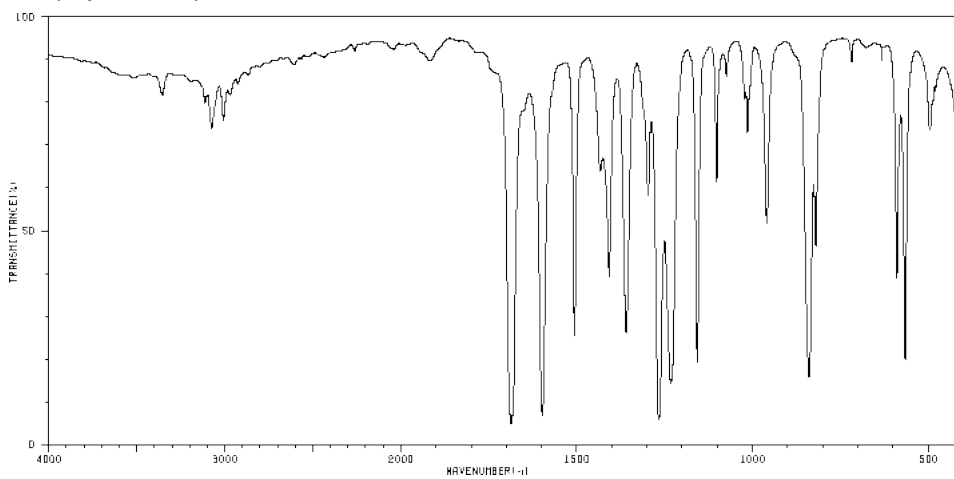
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

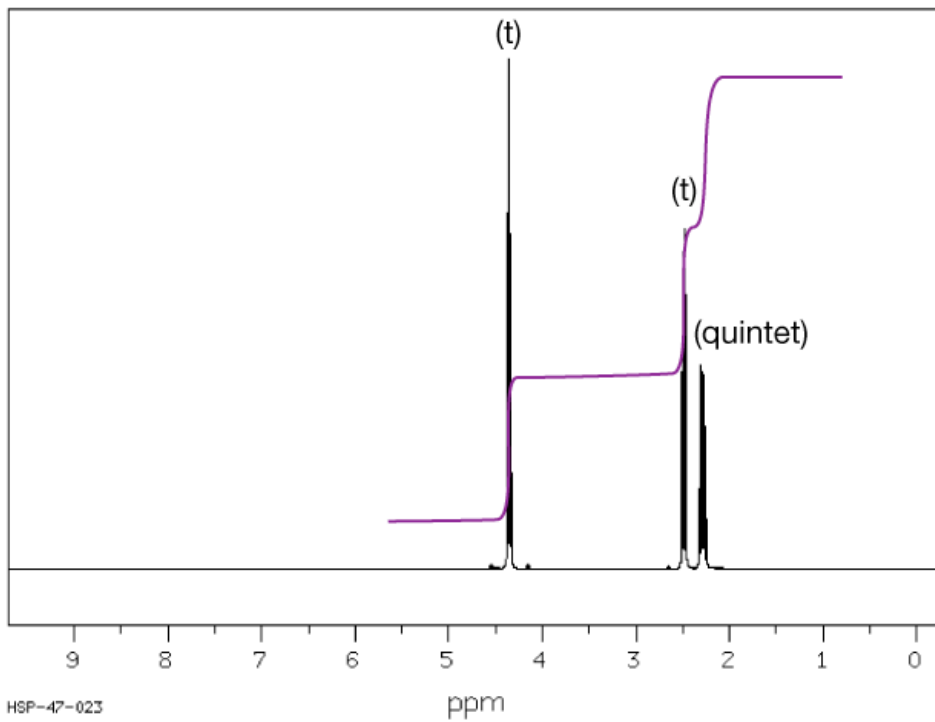


IR (liquid film)

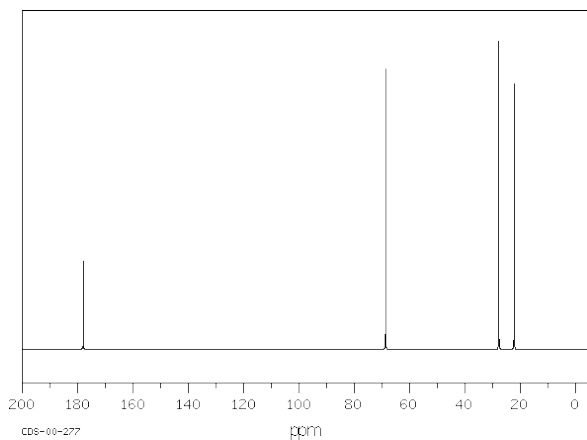


(20) 次のスペクトルを与える化合物の構造式を示せ。

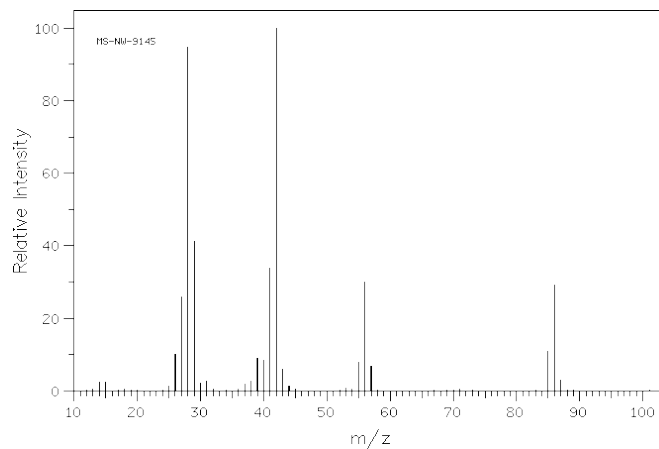
^1H NMR (400 MHz, CDCl_3)



^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)



IR (liquid film)

