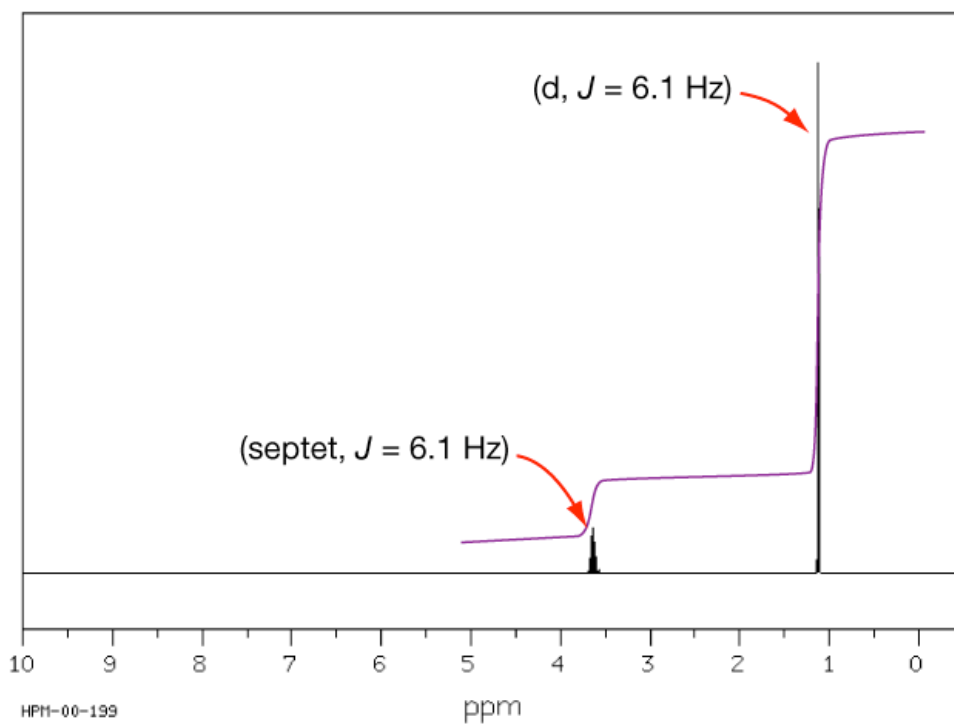


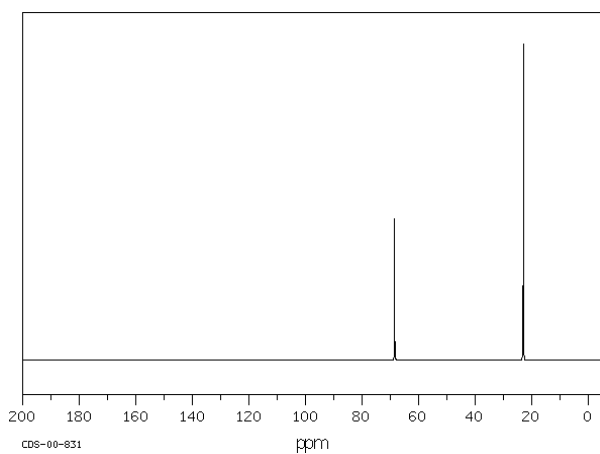
有機機器分析 演習問題 1

(1) 次のスペクトルを与える化合物の構造式を示せ。

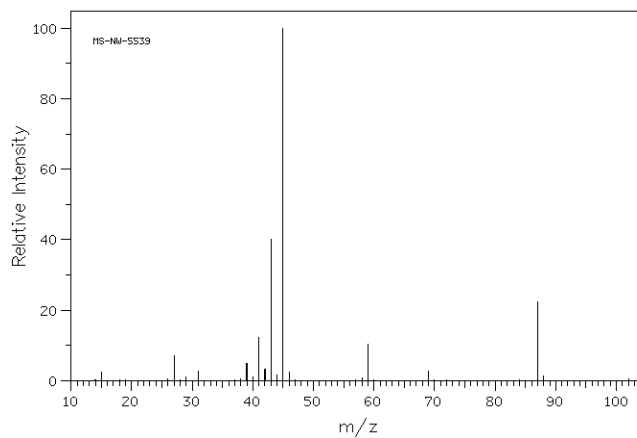
^1H NMR (300 MHz, CDCl_3)



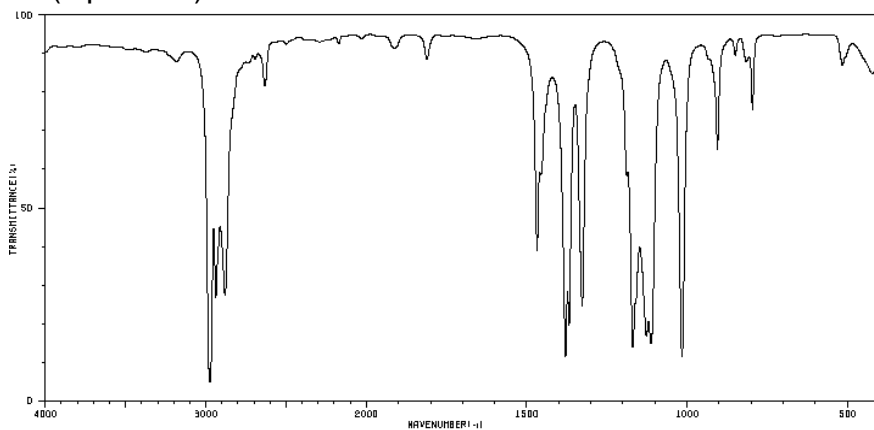
^{13}C $\{^1\text{H}\}$ NMR (15 MHz, 20 vol % in CDCl_3)



MS (EI) ($M = 102$)

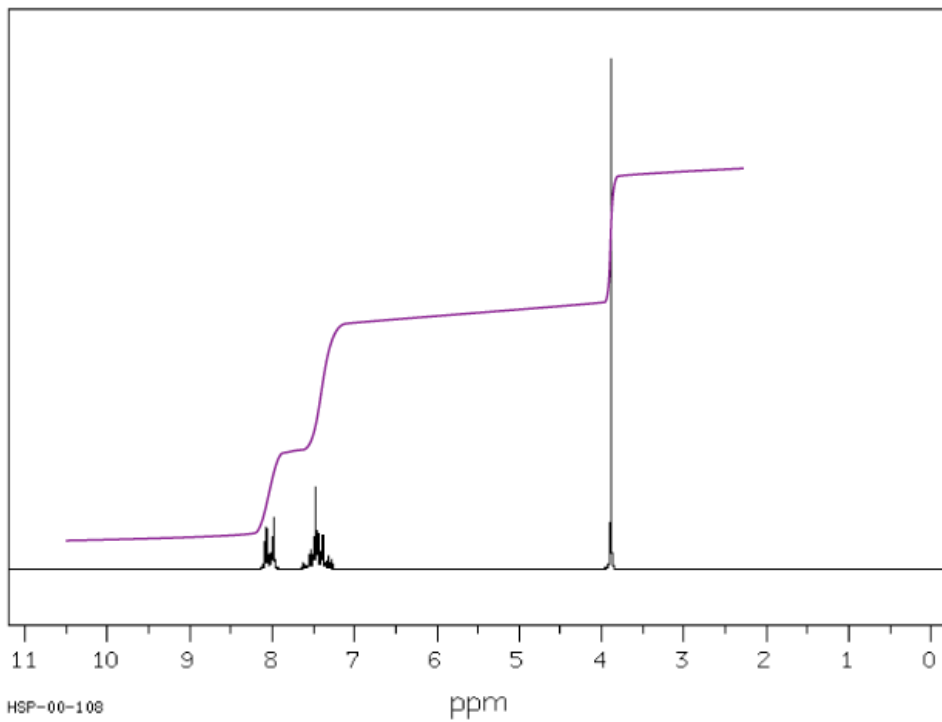


IR (liquid film)

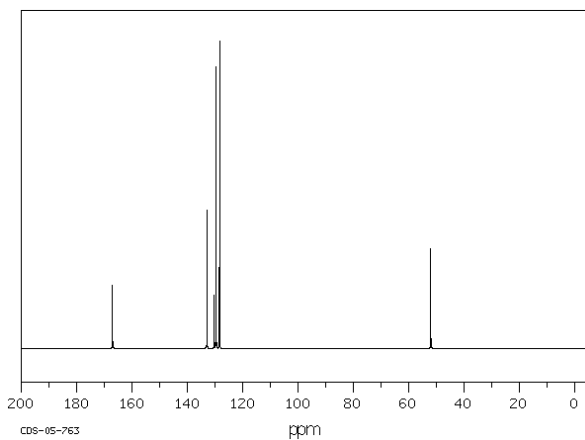


(2) 次のスペクトルを与える化合物の構造式を示せ。

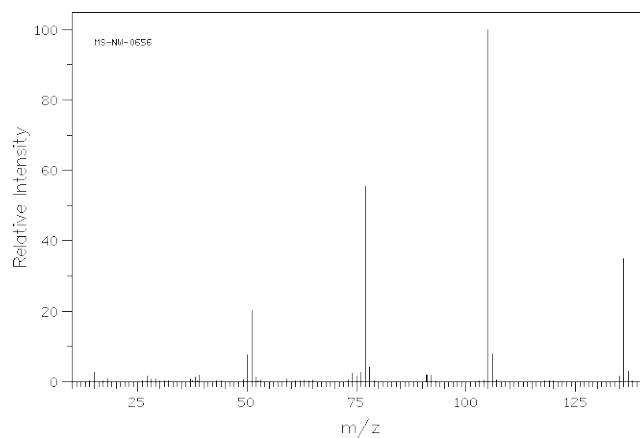
^1H NMR (90 MHz, CDCl_3)



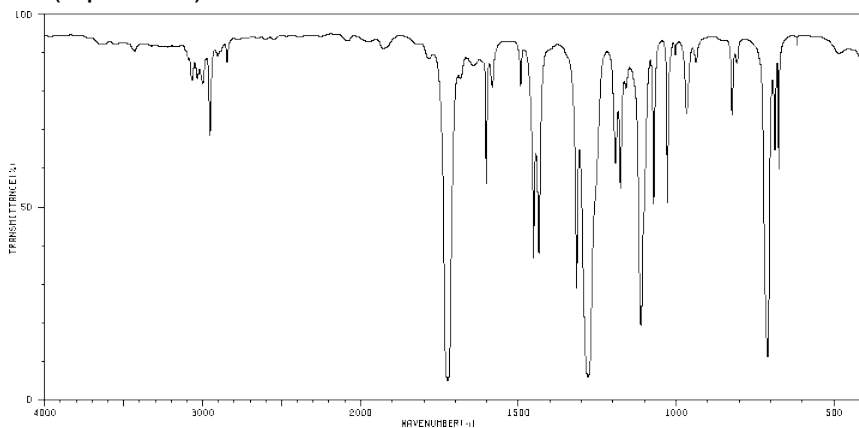
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

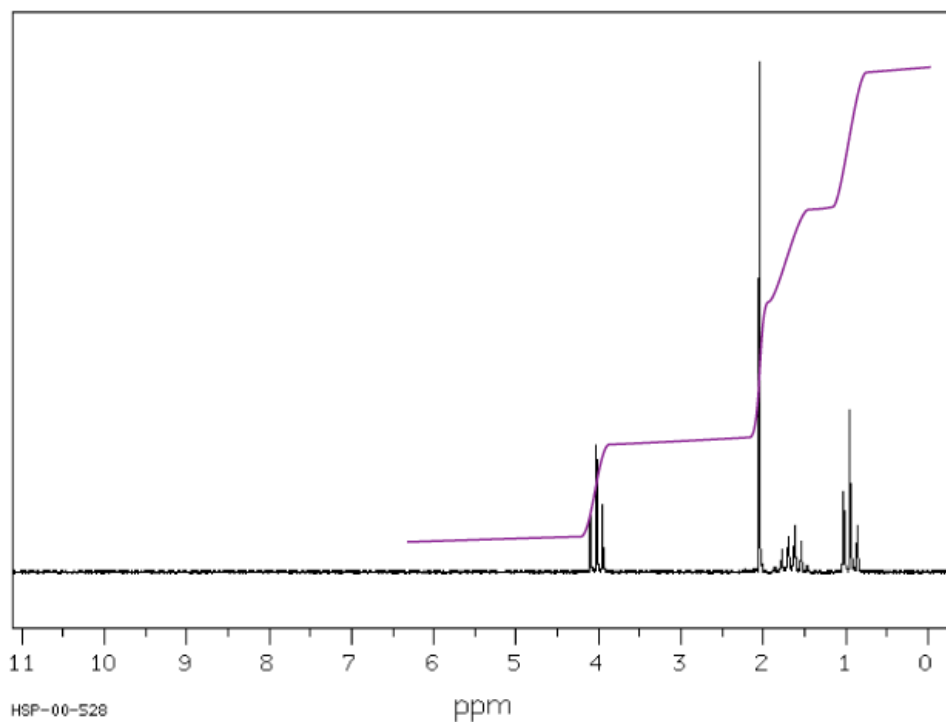


IR (liquid film)

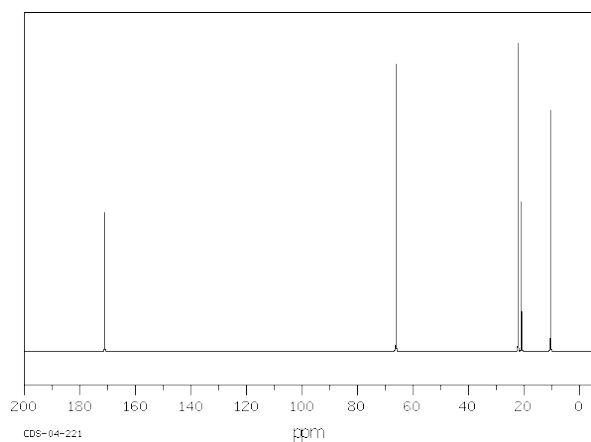


(3) 次のスペクトルを与える化合物の構造式を示せ。

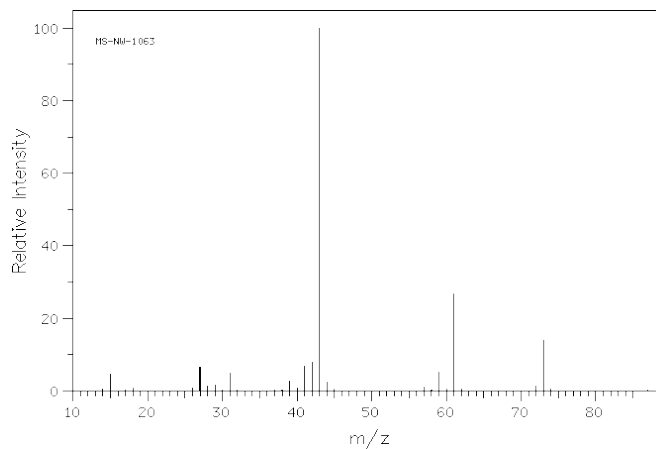
^1H NMR (90 MHz, CDCl_3)



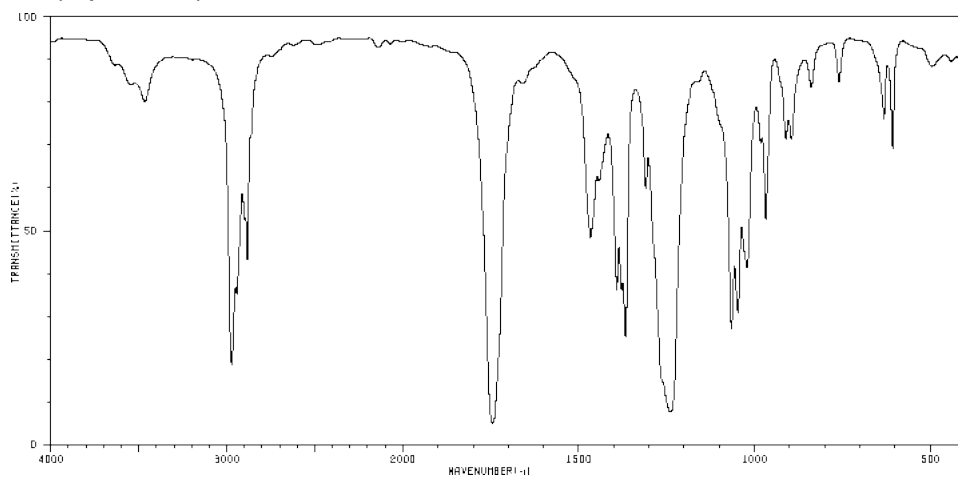
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI) (M = 102)

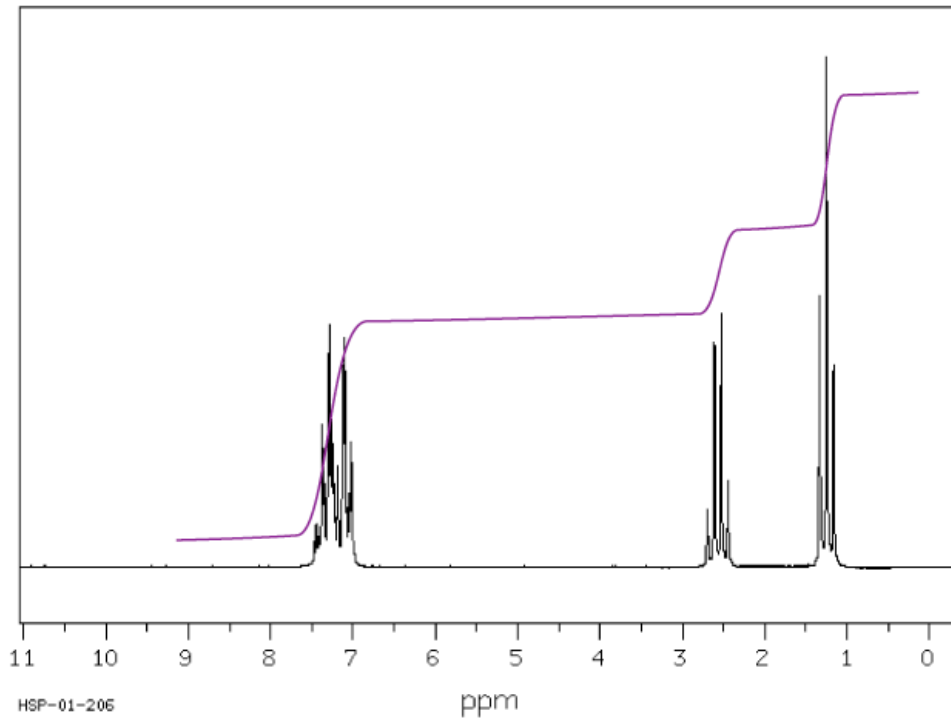


IR (liquid film)

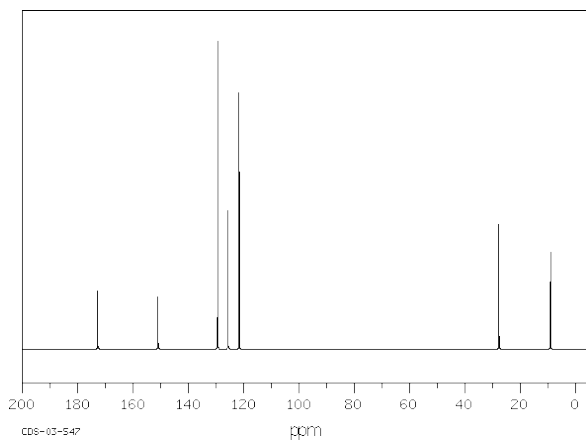


(4) 次のスペクトルを与える化合物の構造式を示せ。

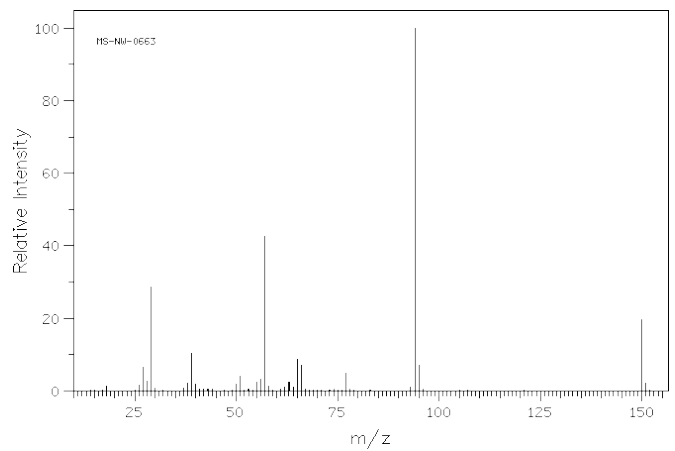
^1H NMR (90 MHz, CDCl_3)



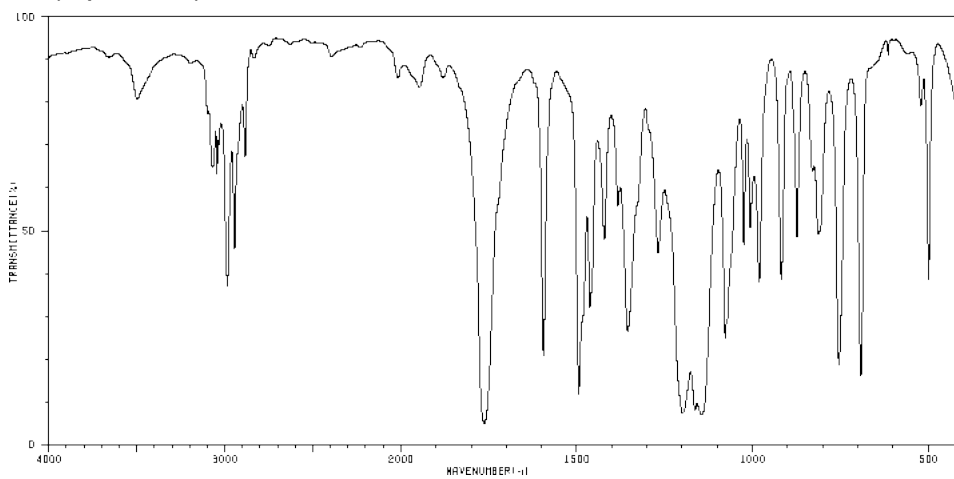
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

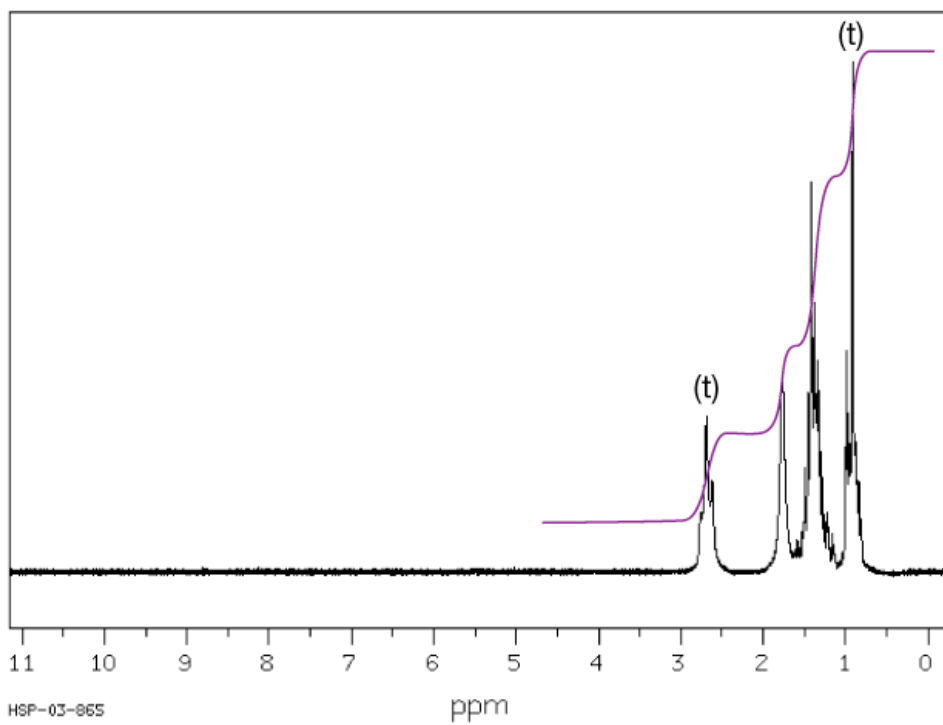


IR (liquid film)

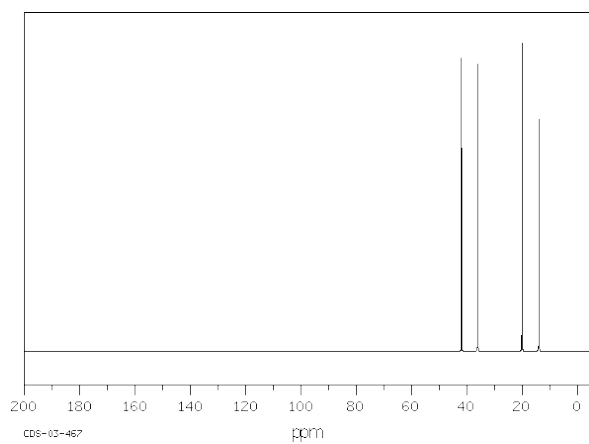


(5) 次のスペクトルを与える化合物の構造式を示せ。

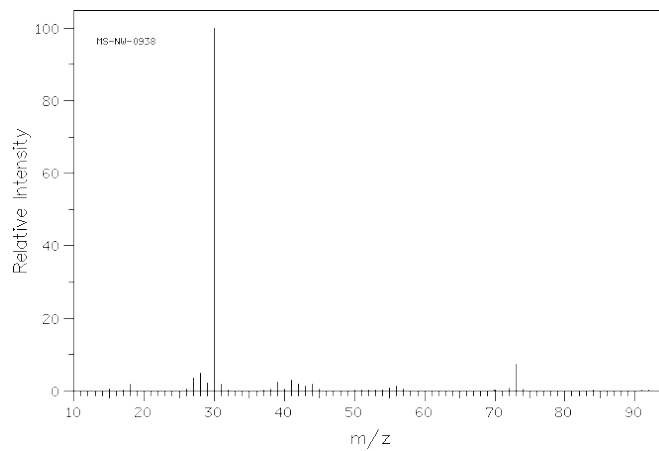
^1H NMR (90 MHz, CDCl_3)



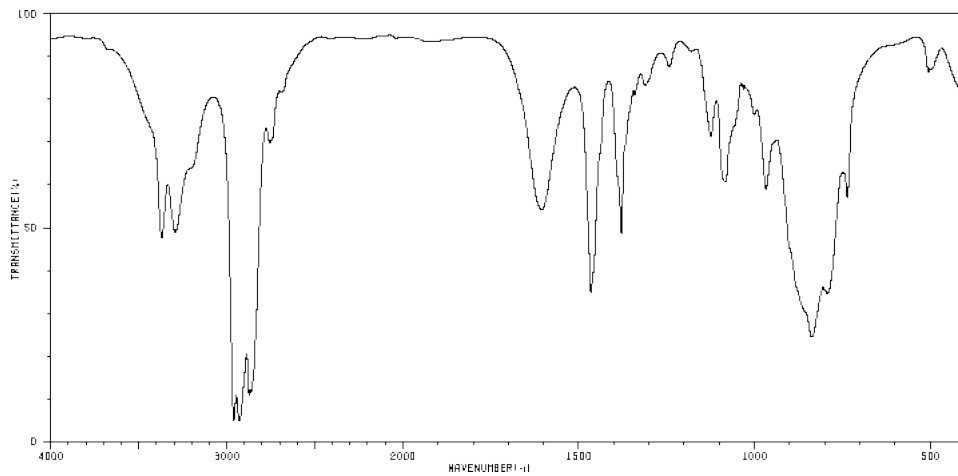
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

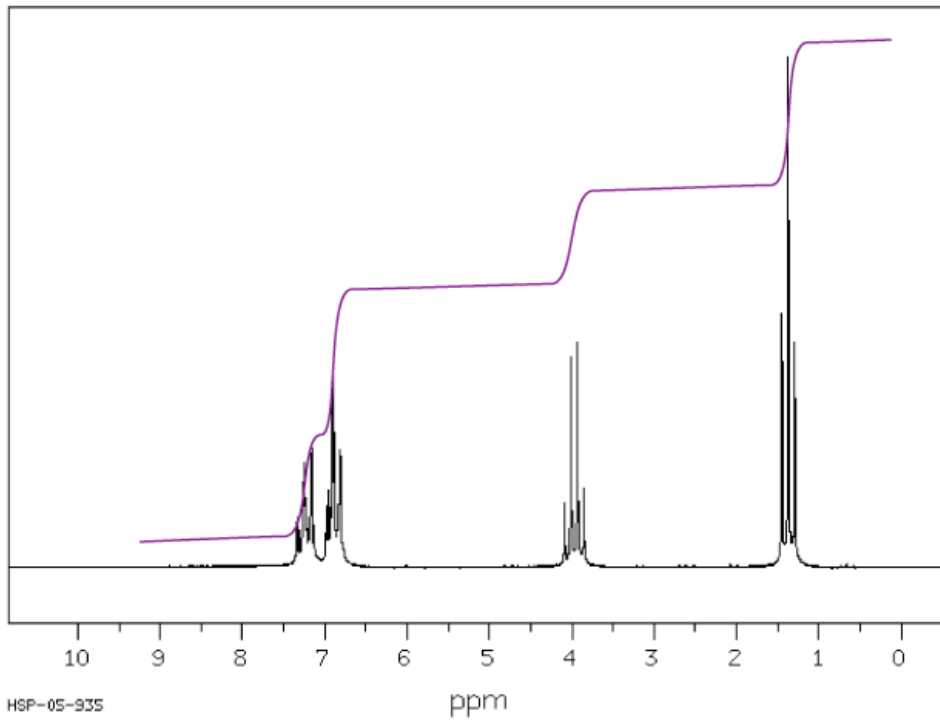


IR (liquid film)

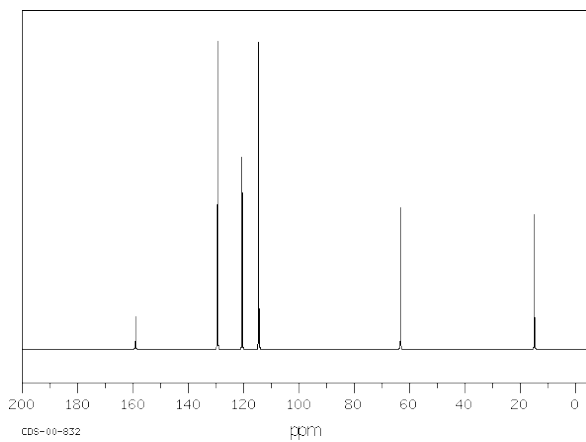


(6) 次のスペクトルを与える化合物の構造式を示せ。

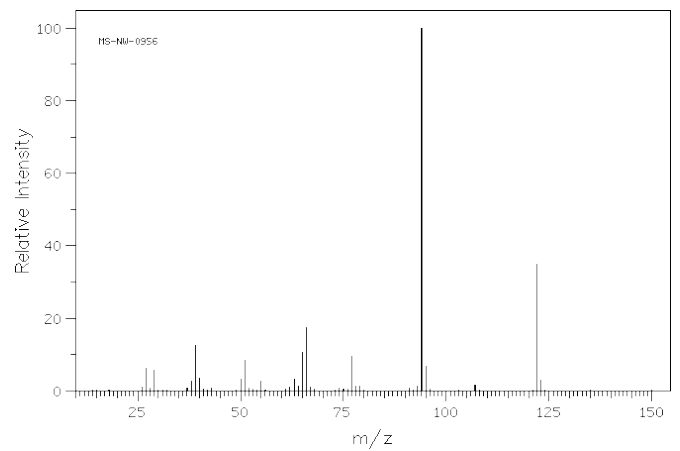
^1H NMR (90 MHz, CDCl_3)



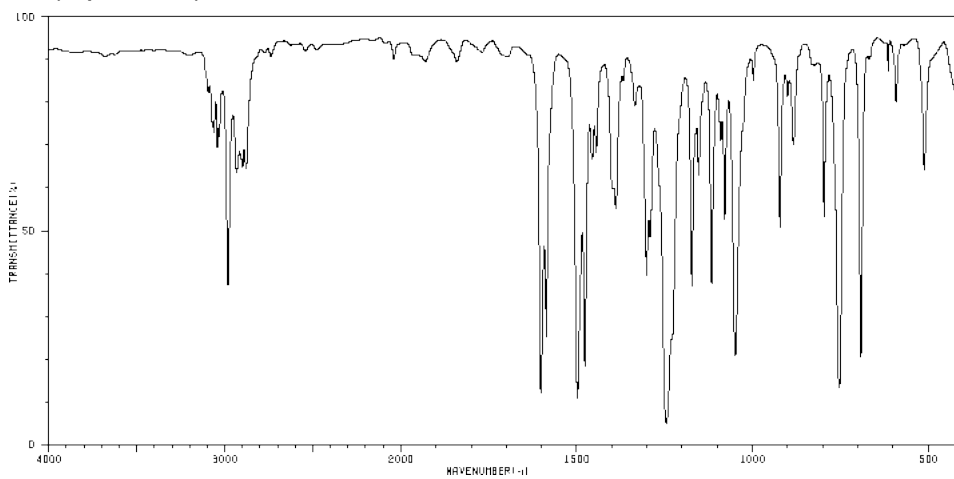
^{13}C $\{^1\text{H}\}$ NMR (15 MHz, 20 vol % in CDCl_3)



MS (EI)

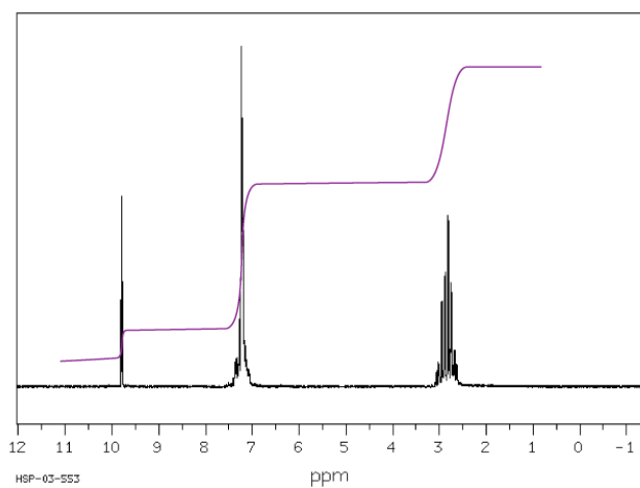


IR (liquid film)

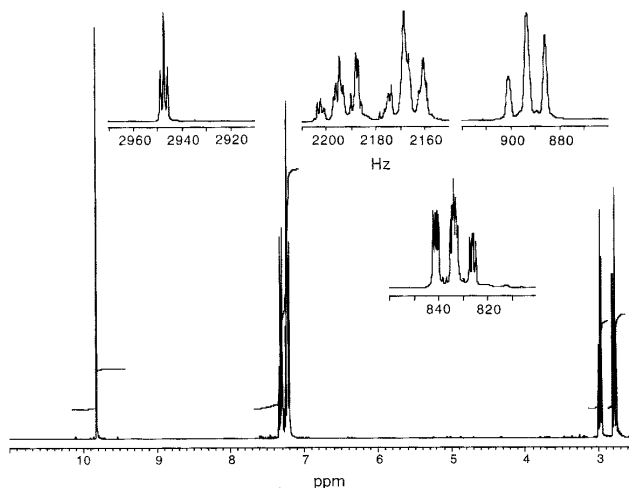


(7) 次のスペクトルを与える化合物の構造式を示せ。

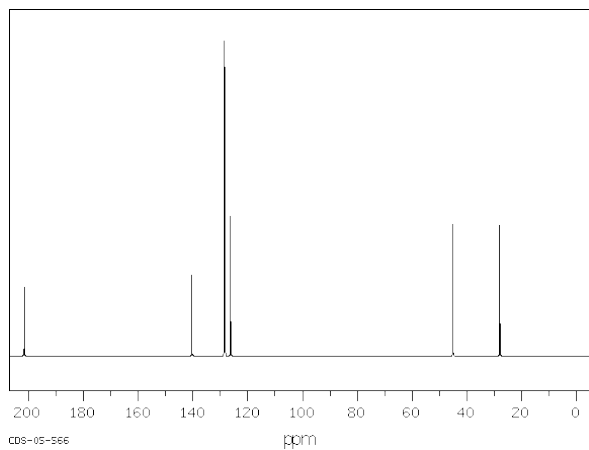
^1H NMR (90 MHz, CDCl_3)



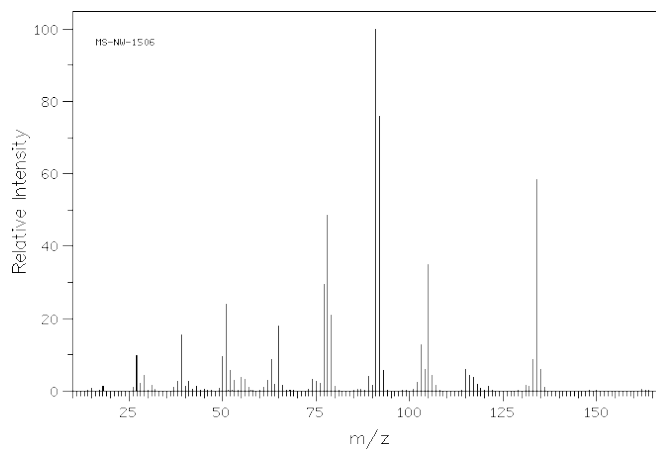
^1H NMR (300 MHz, CDCl_3)



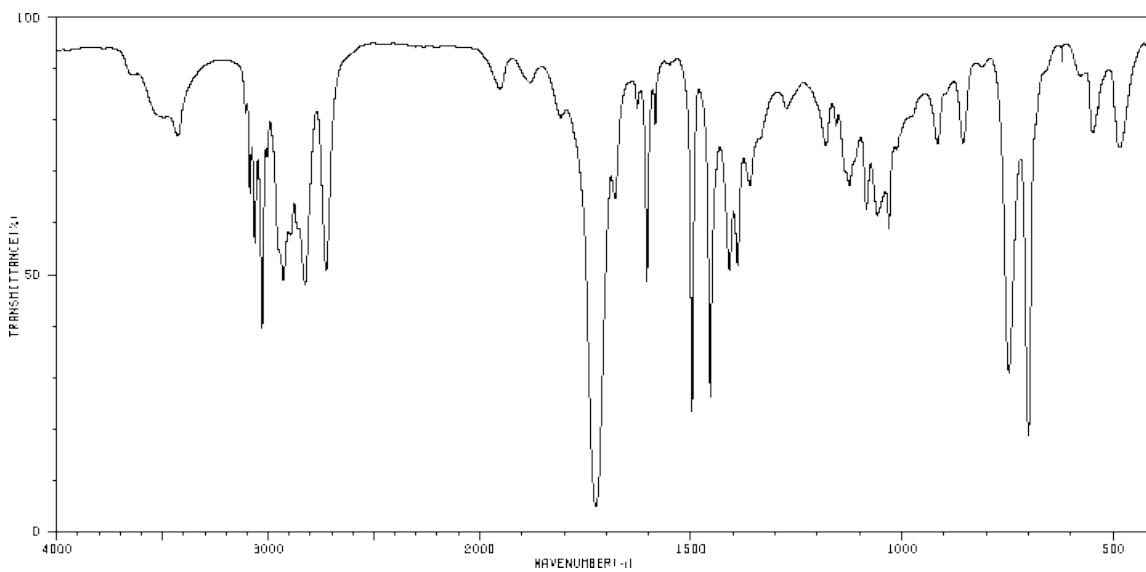
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

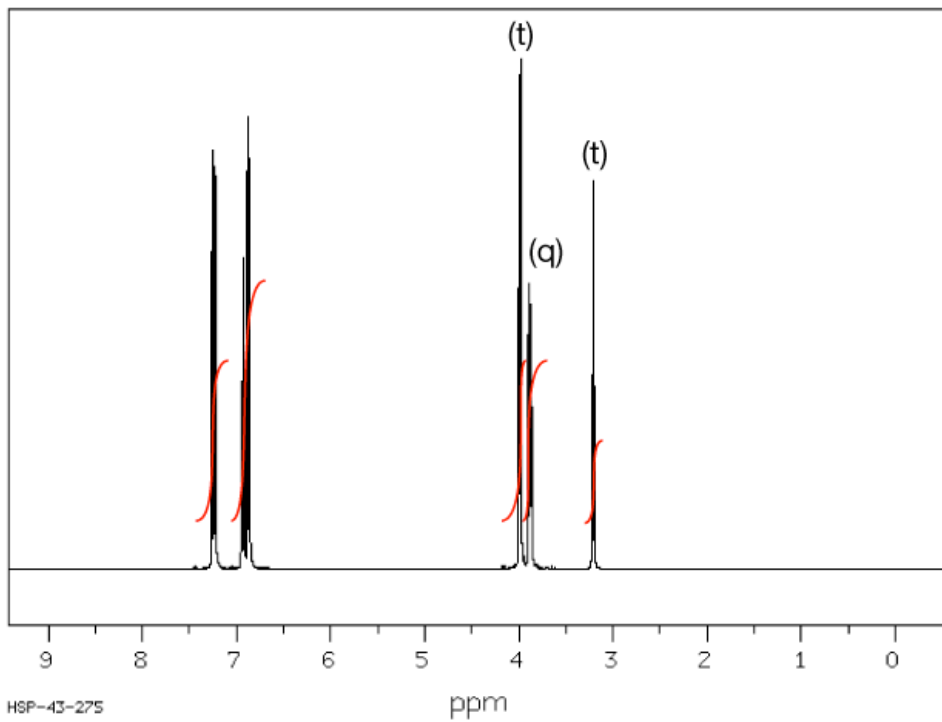


IR (liquid film)

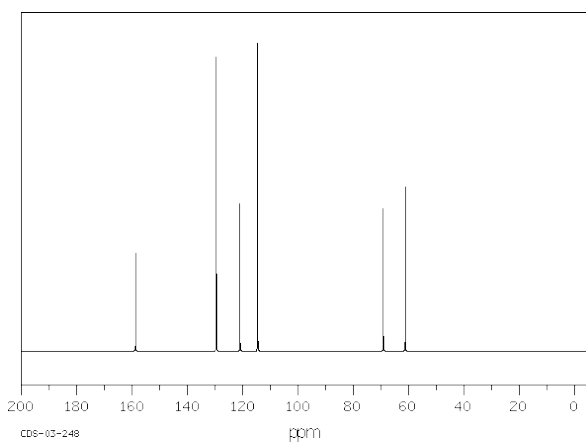


(8) 次のスペクトルを与える化合物の構造式を示せ。

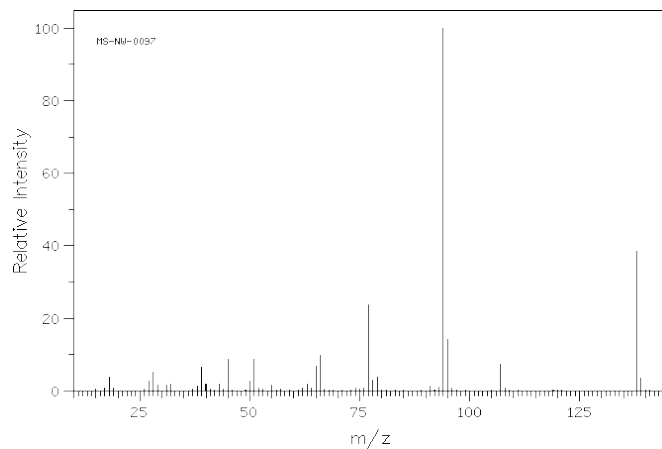
^1H NMR (400 MHz, CDCl_3)



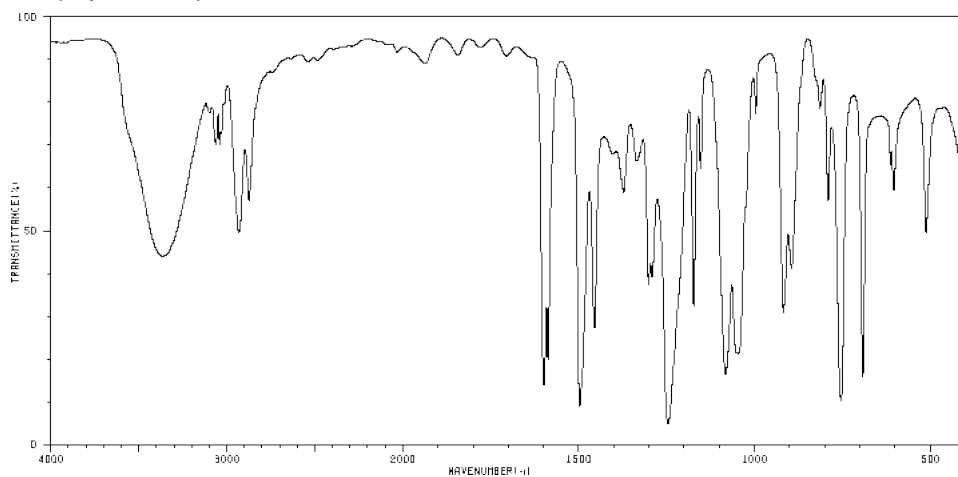
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI)

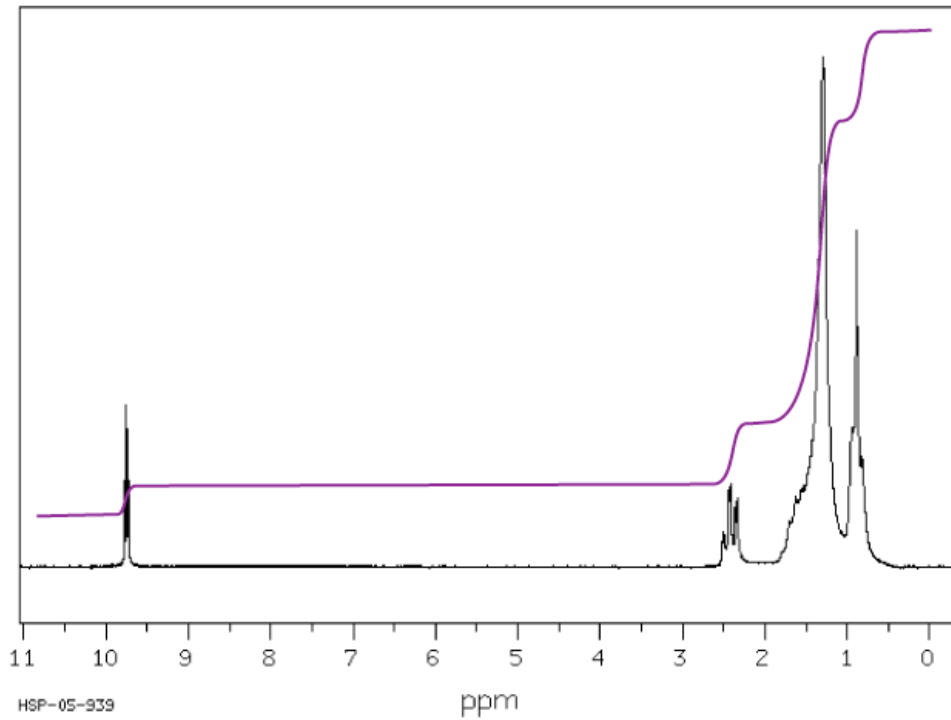


IR (liquid film)

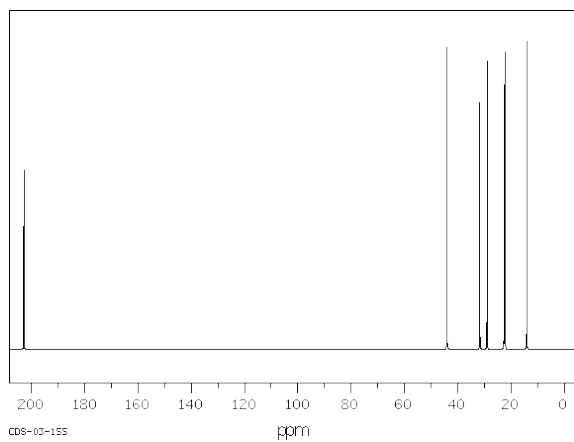


(9) 次のスペクトルを与える化合物の構造式を示せ。

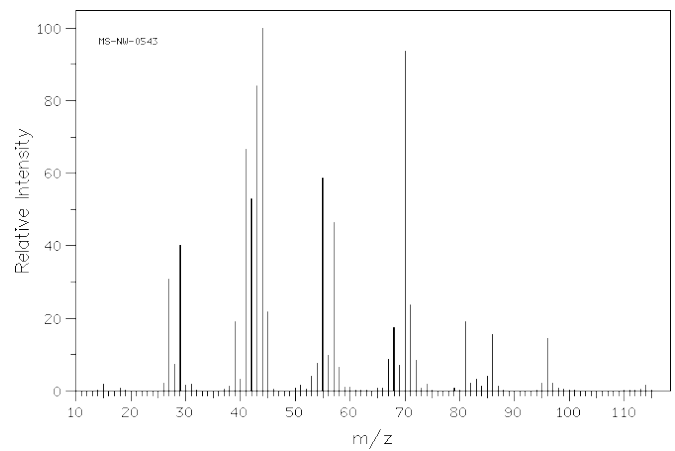
^1H NMR (90 MHz, CDCl_3)



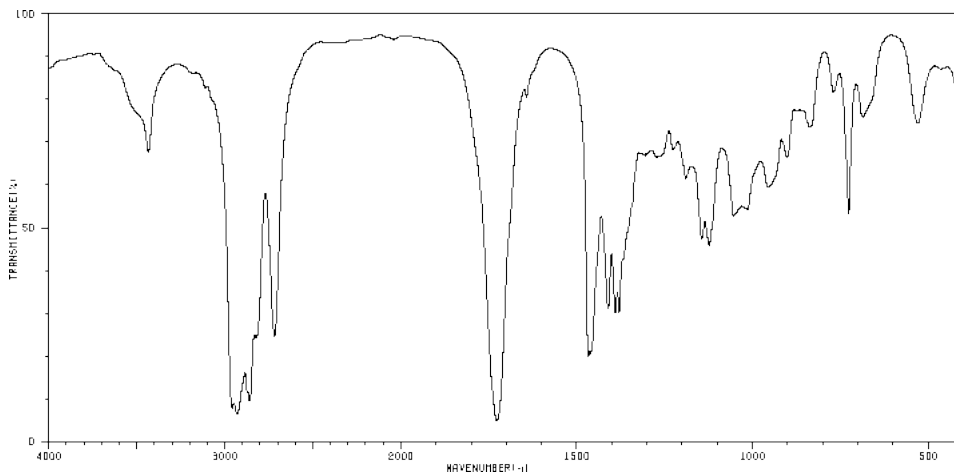
^{13}C $\{^1\text{H}\}$ NMR (25 MHz, 25 vol % in CDCl_3)



MS (EI) ($M = 114$)

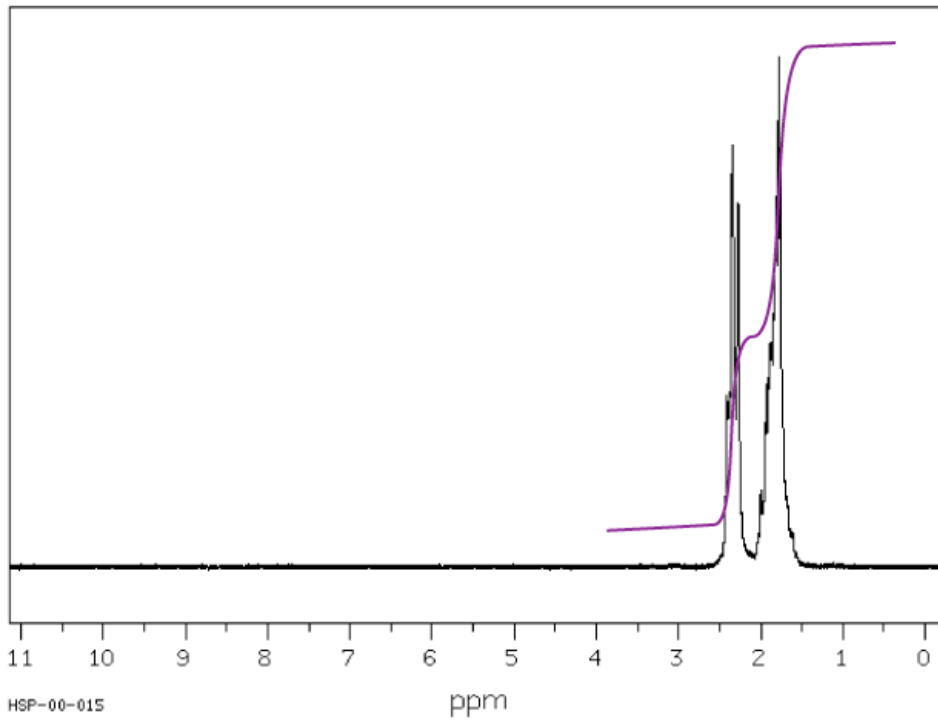


IR (liquid)

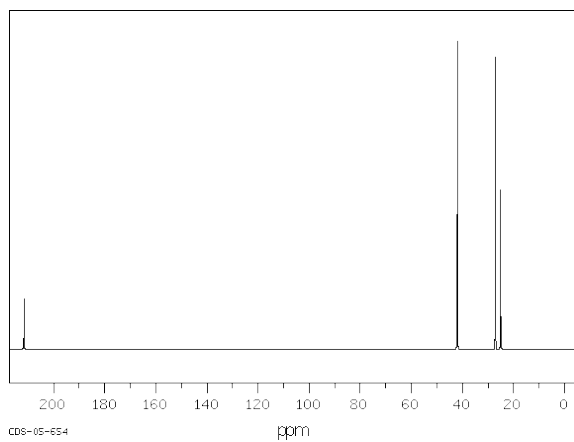


(10) 次のスペクトルを与える化合物の構造式を示せ。

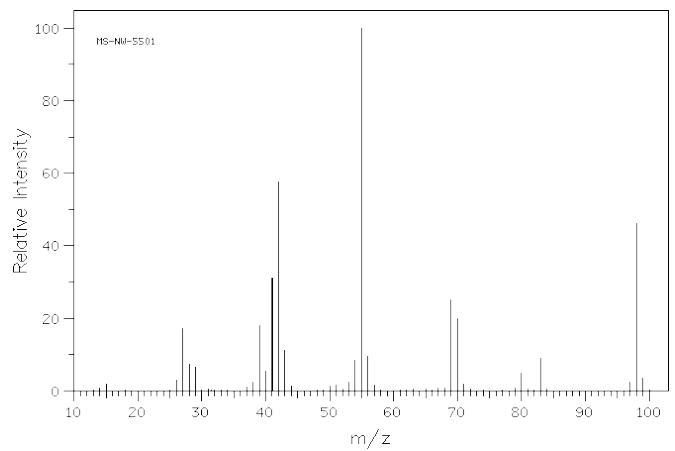
^1H NMR (90 MHz, CDCl_3)



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



MS (EI)



IR (liquid)

