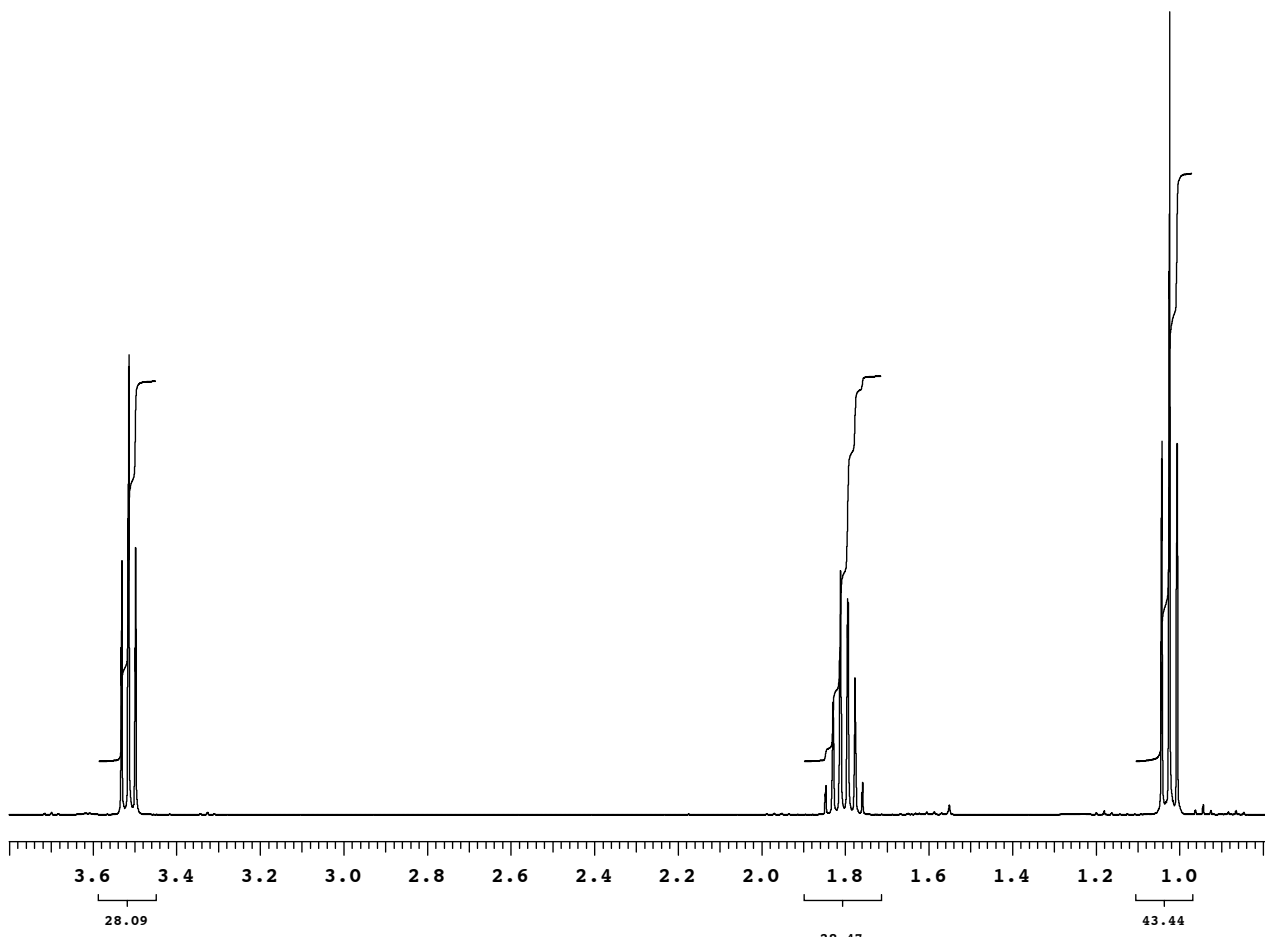
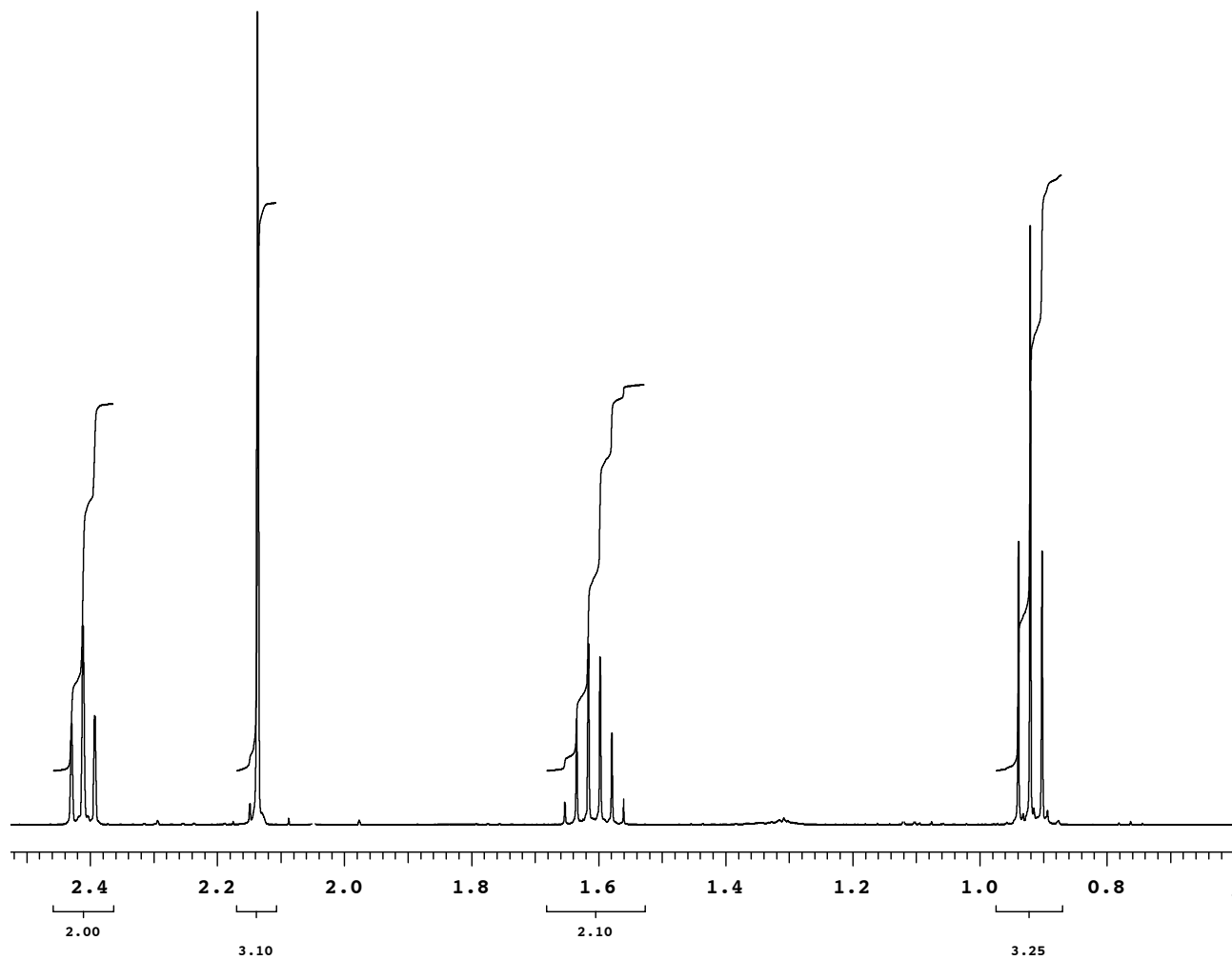
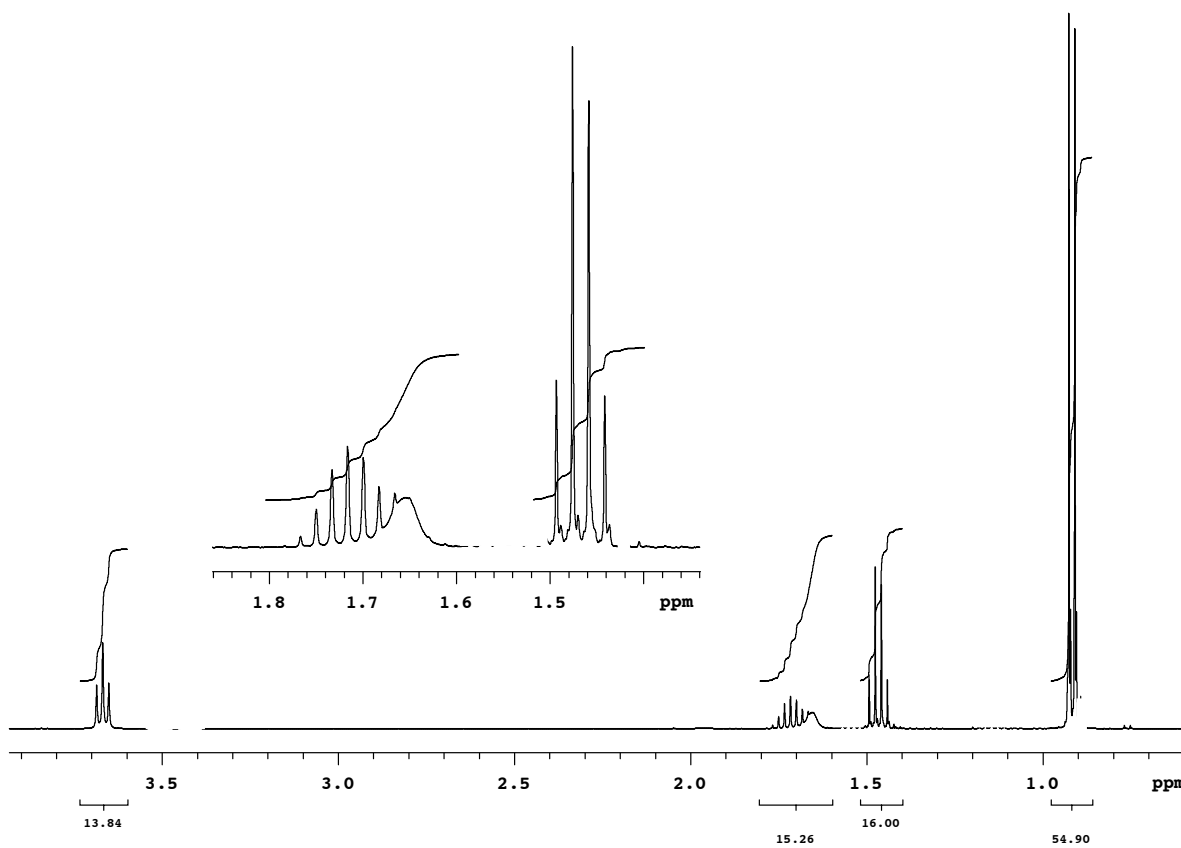
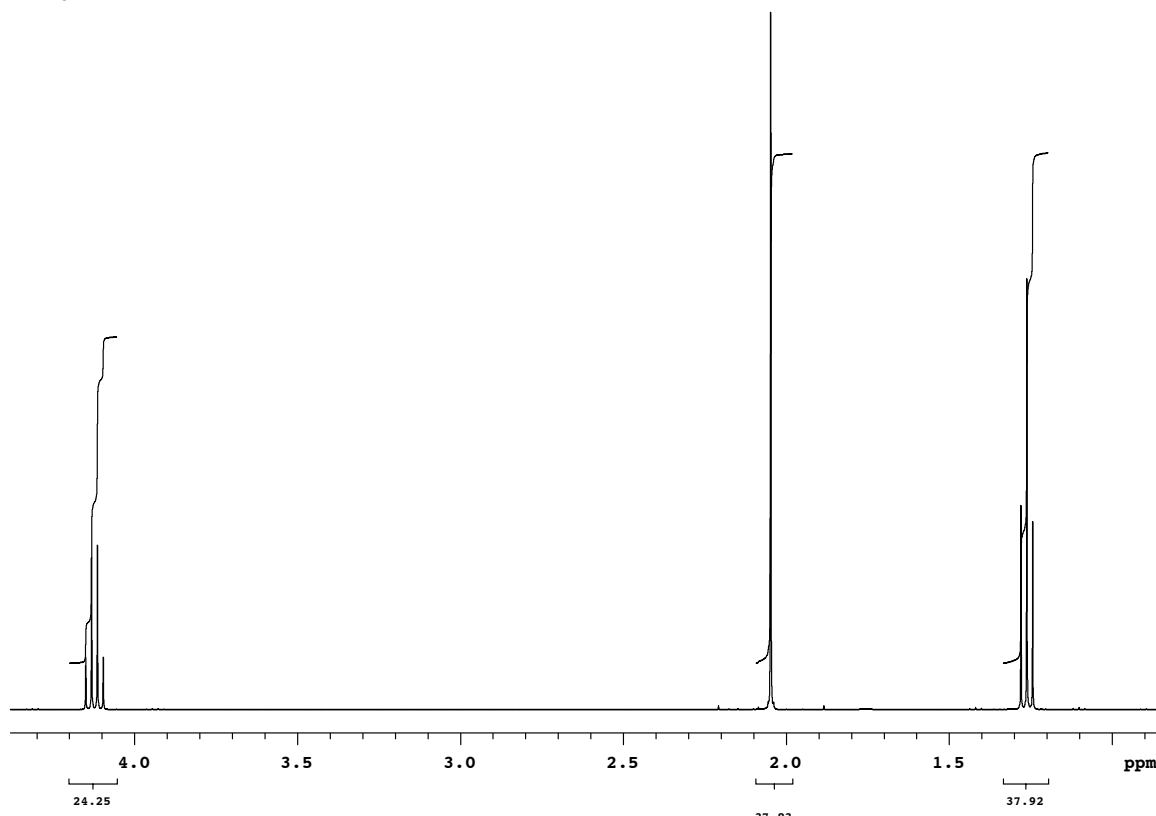
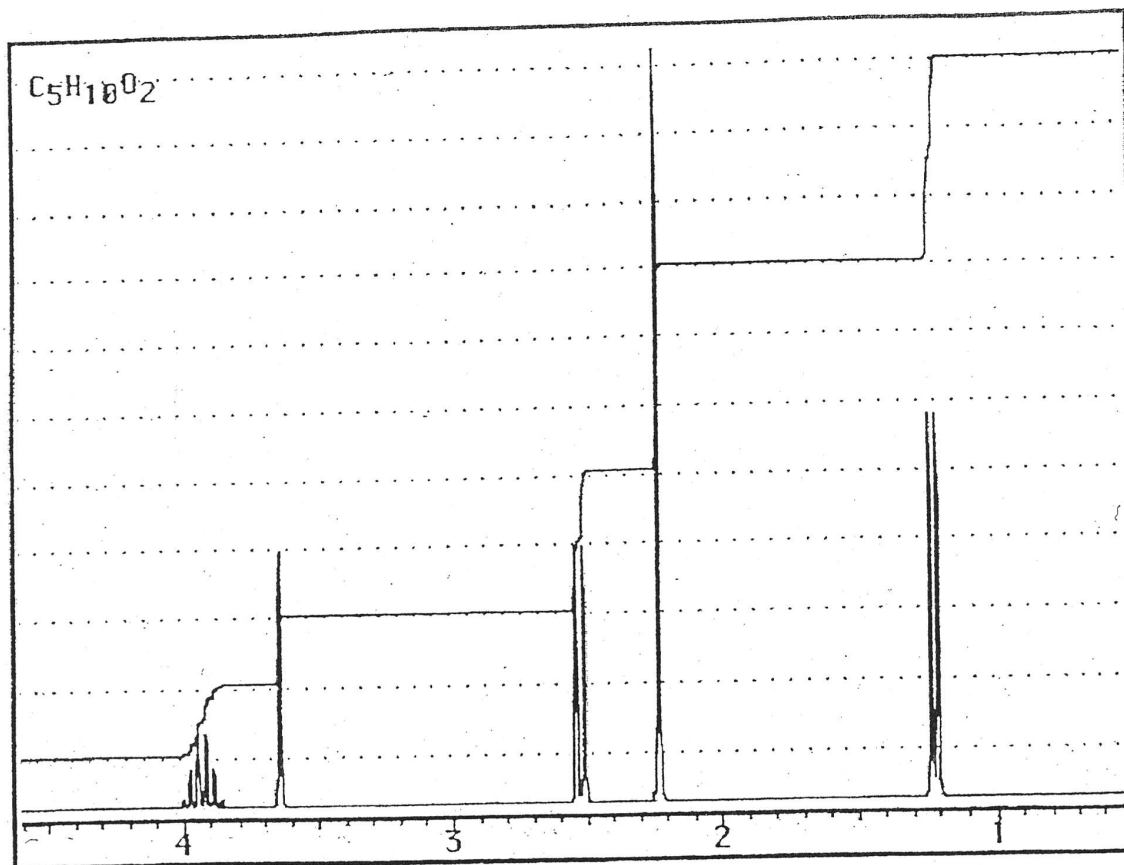


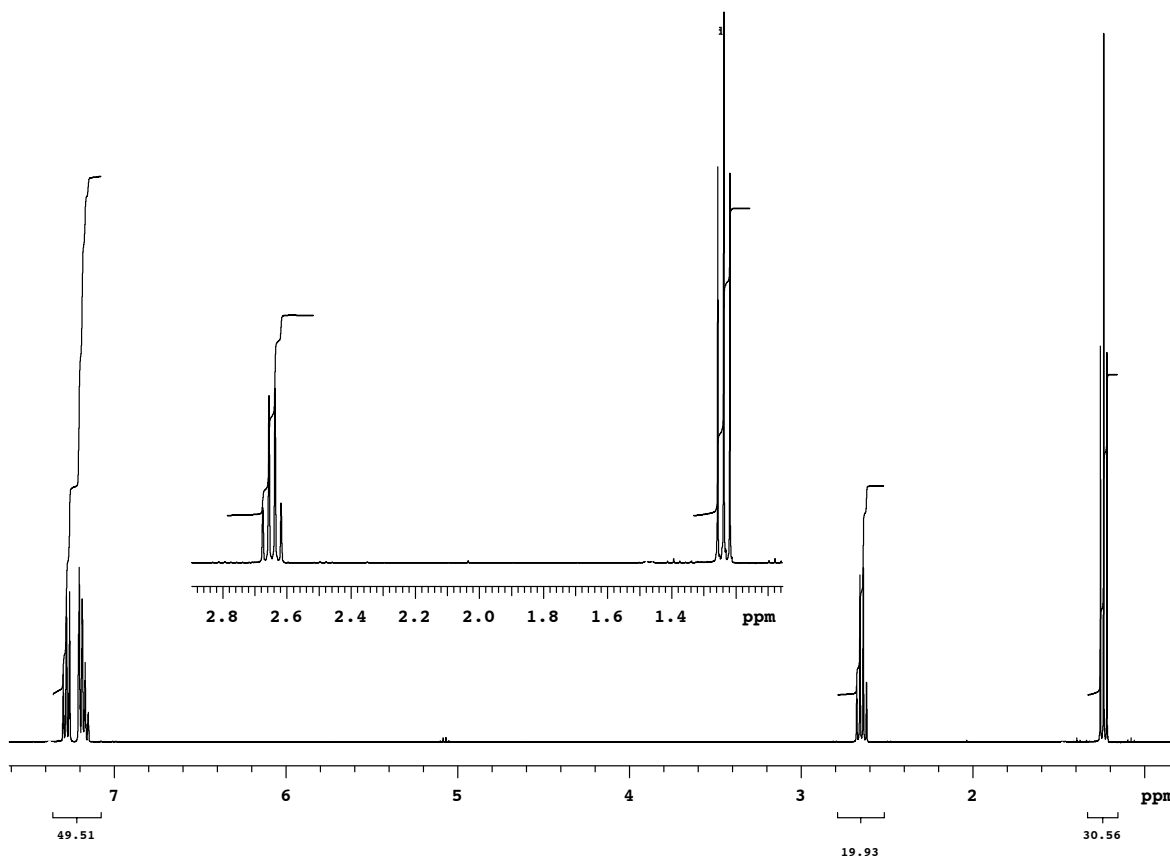
**Jasperse Organic II NMR Problems**1.  $C_3H_7Cl$ 

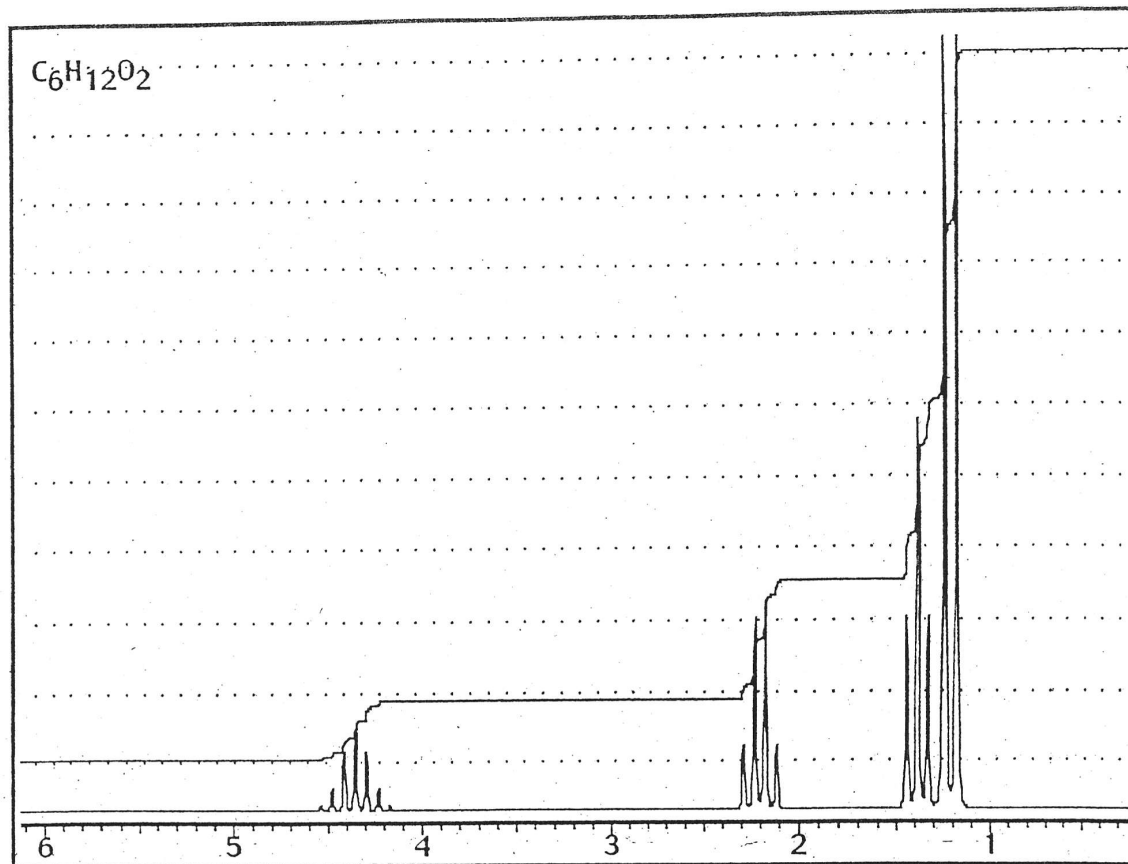
2.  $C_5H_{10}O$ 

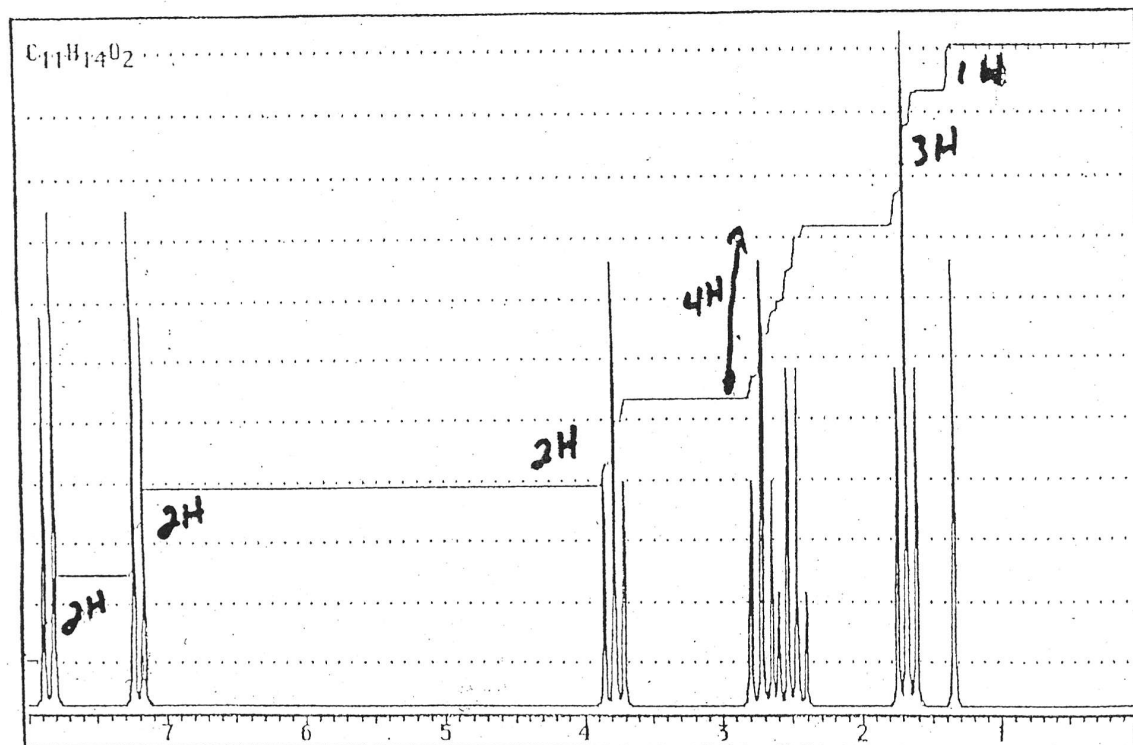
3.  $C_5H_{12}O$ 

4.  $C_4H_8O_2$ 

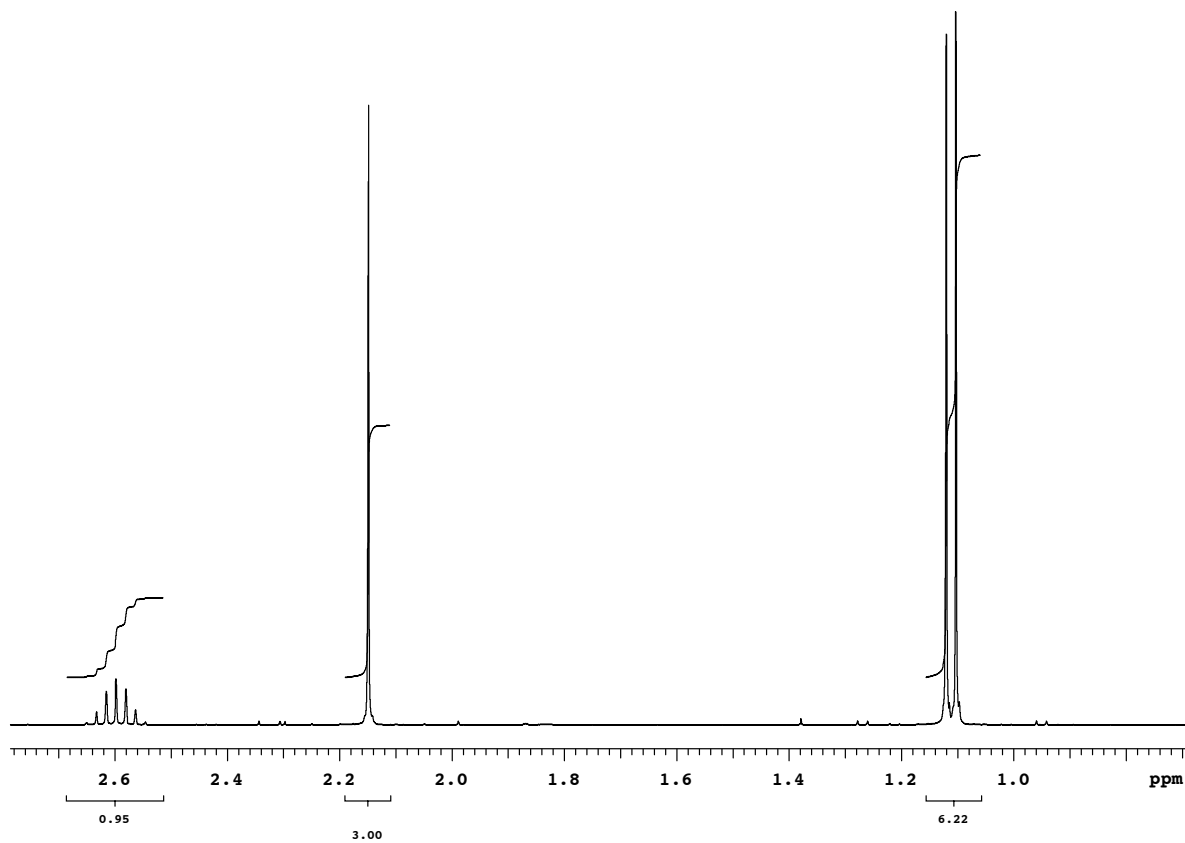
5.  $C_5H_{10}O_2$ 

6.  $C_8H_{10}$ 

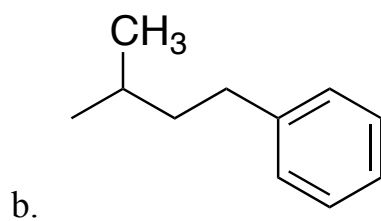
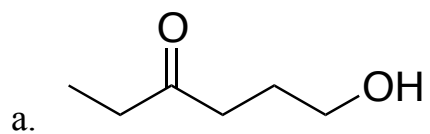
7.  $C_6H_{12}O_2$ 

8.  $C_{11}H_{14}O_2$ 



9.  $C_5H_{10}O$ 

10. Predict the Spectrum for:



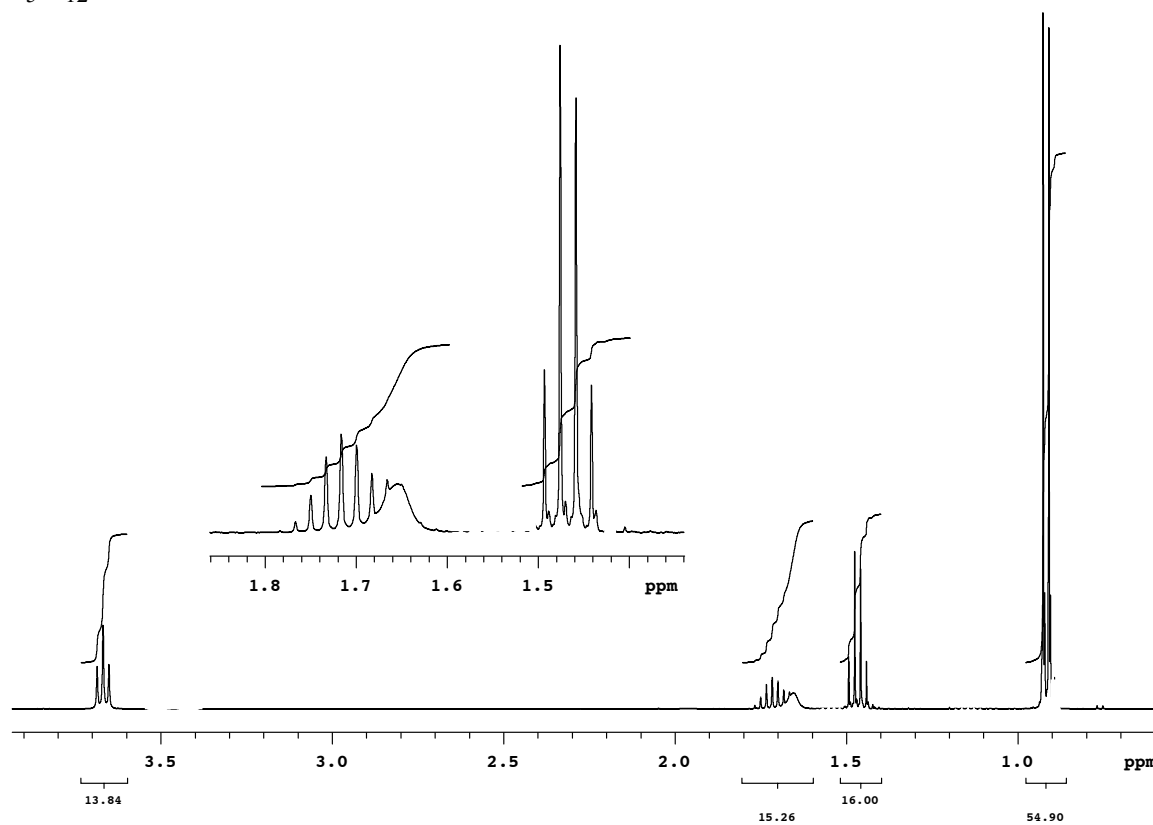
c. Identify the Structure from the Shorthand NMR (nongraphic)

$C_4H_8O$

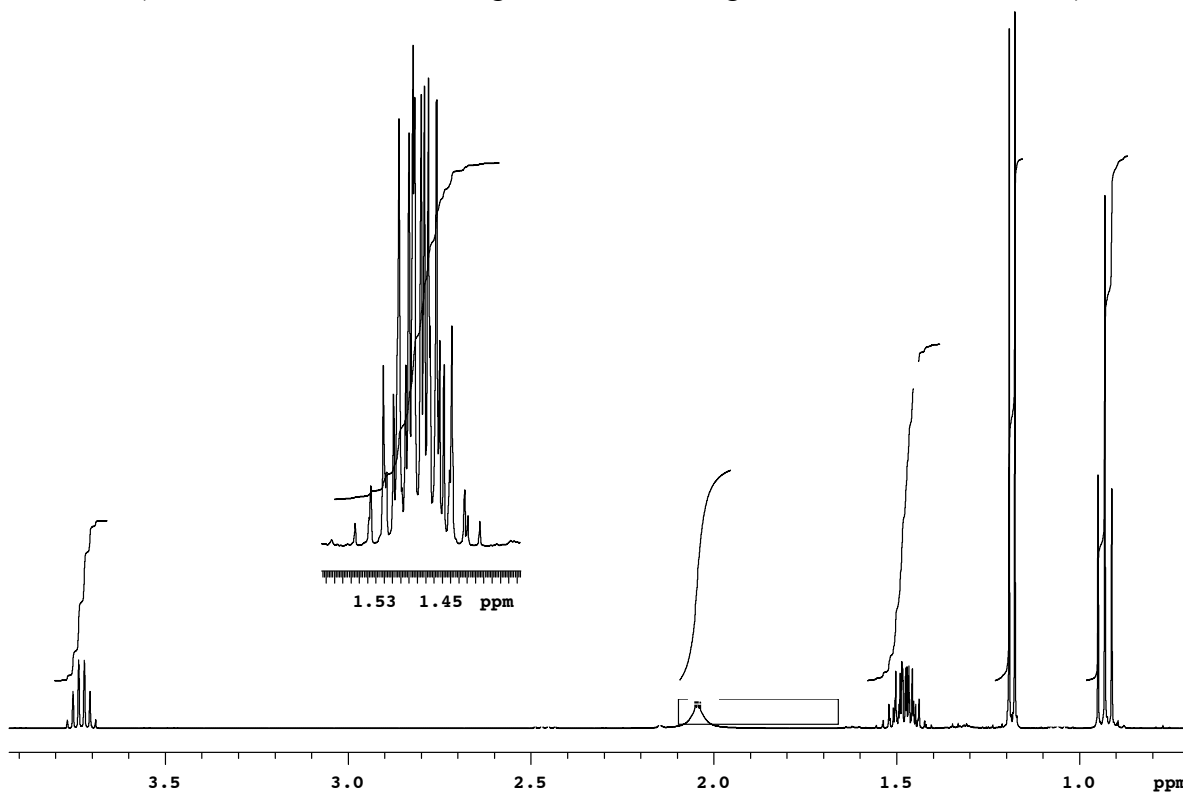
1.05, triplet, 3H

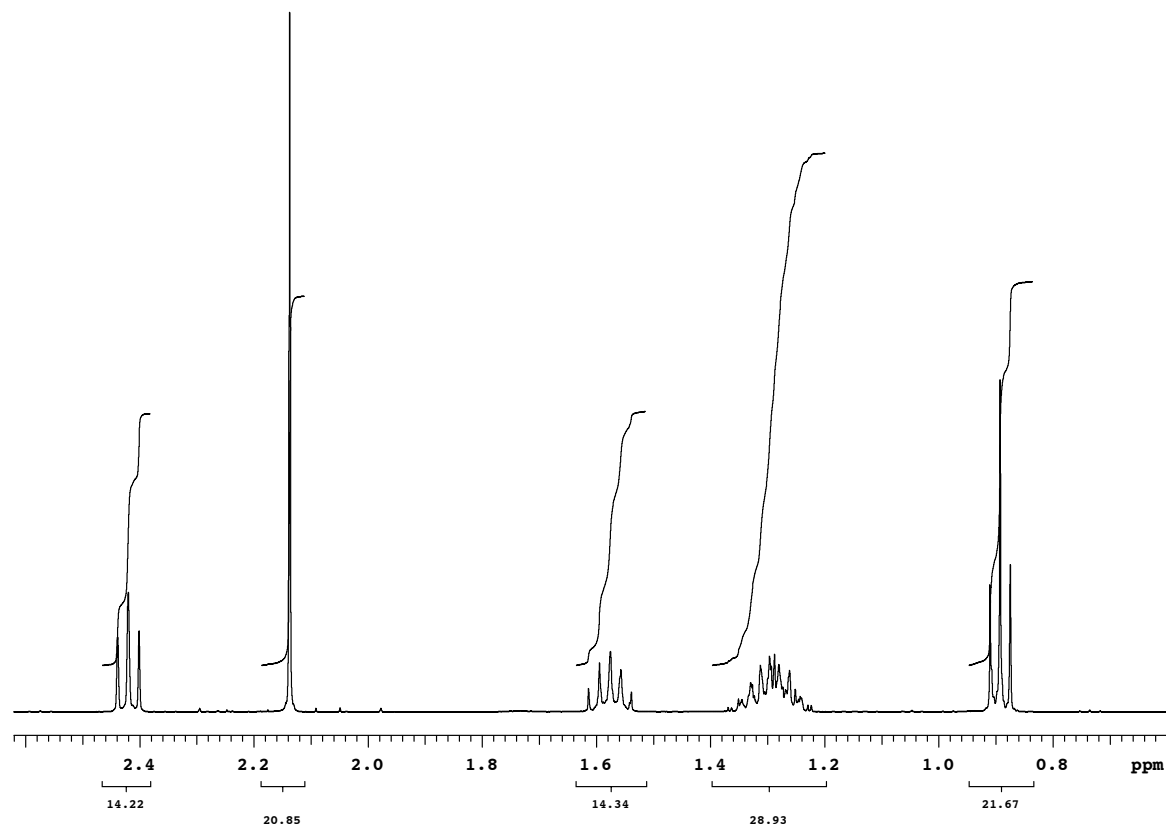
2.13, singlet, 3H

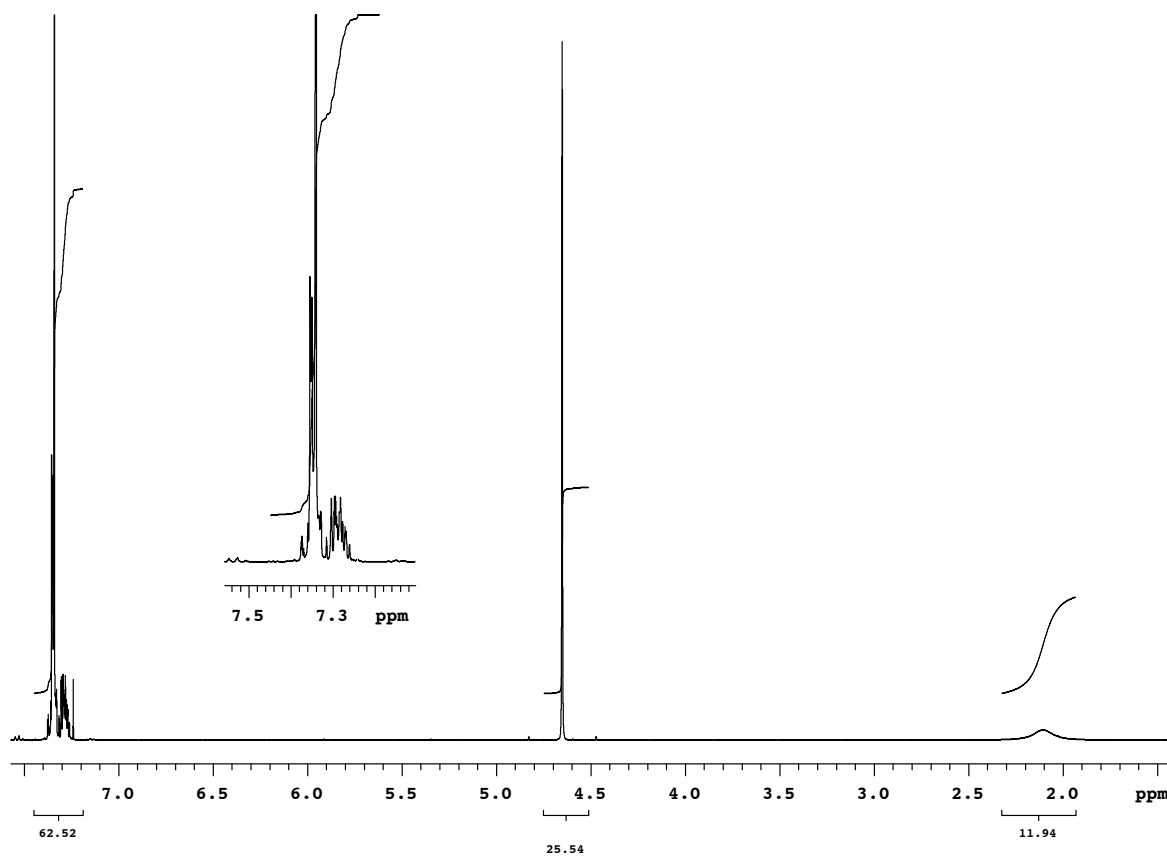
2.47, quartet, 2H

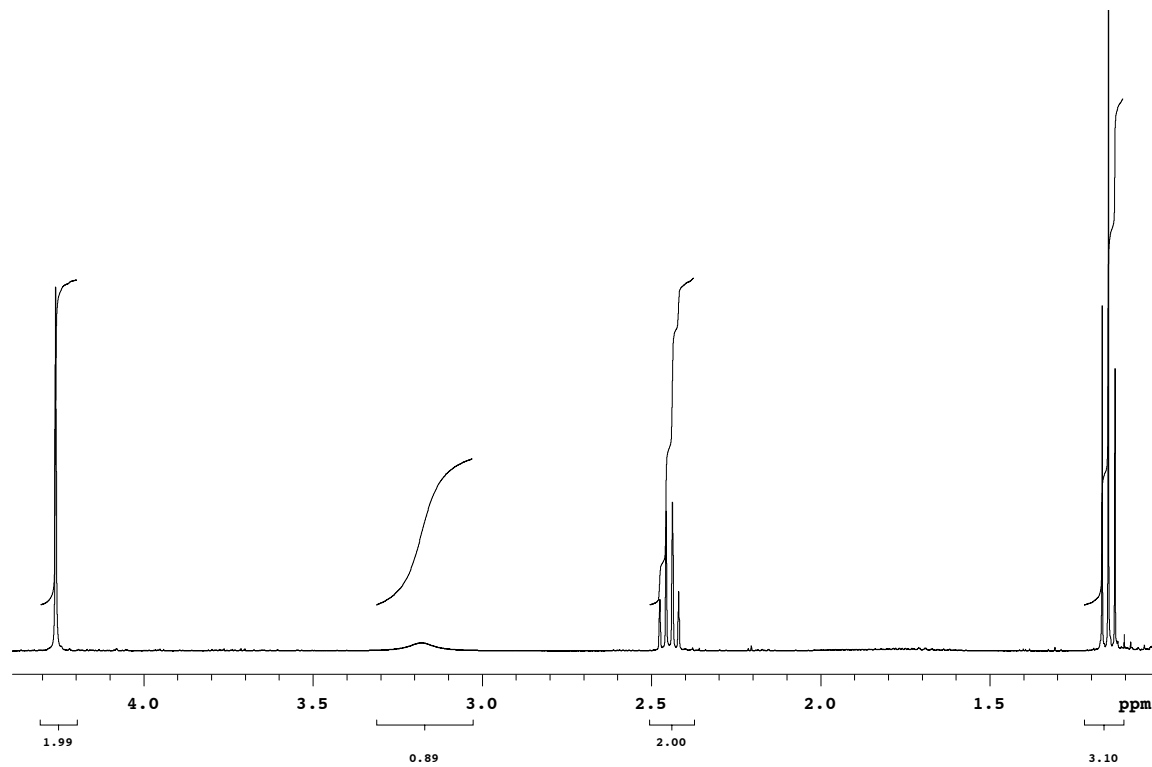
11.  $C_5H_{12}O$ 

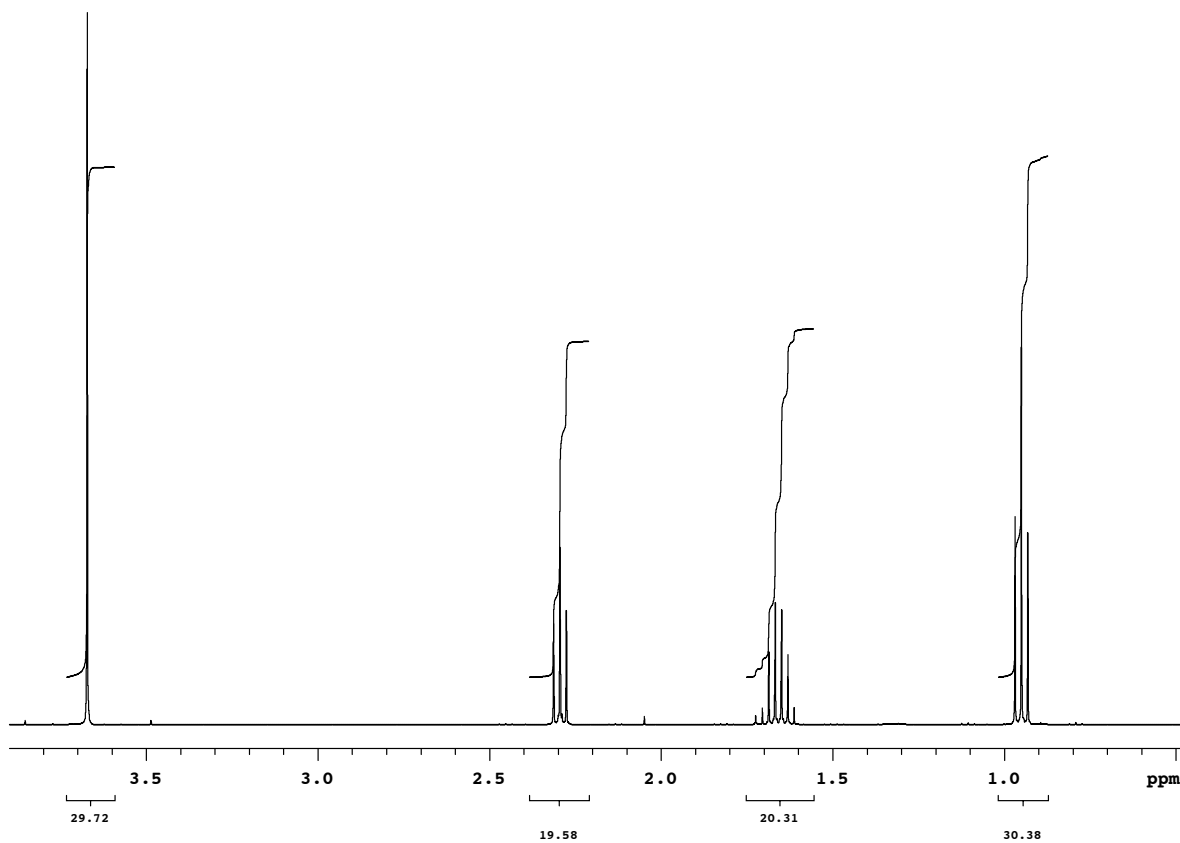
12.  $C_4H_{10}O$  (somewhat contaminated. Ignore the non-integrated sets at 1.05 and 2.45).



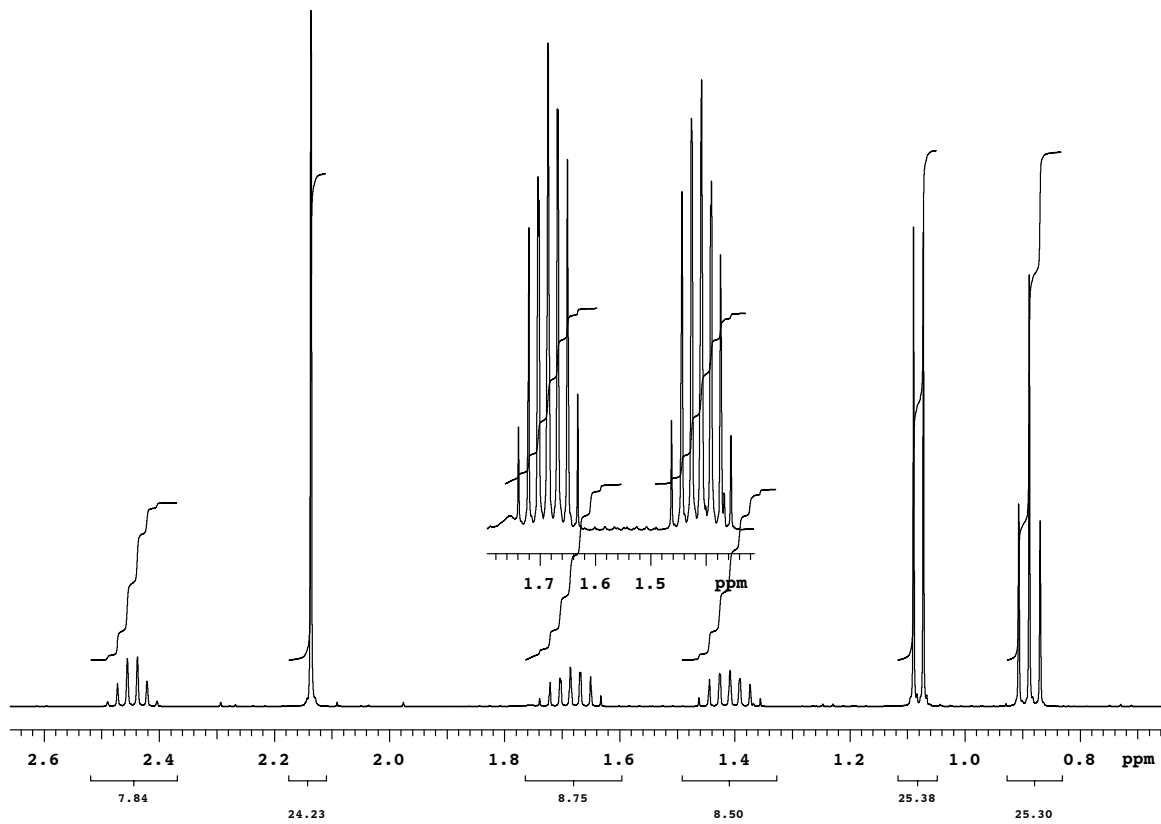
13.  $C_7H_{14}O$ 

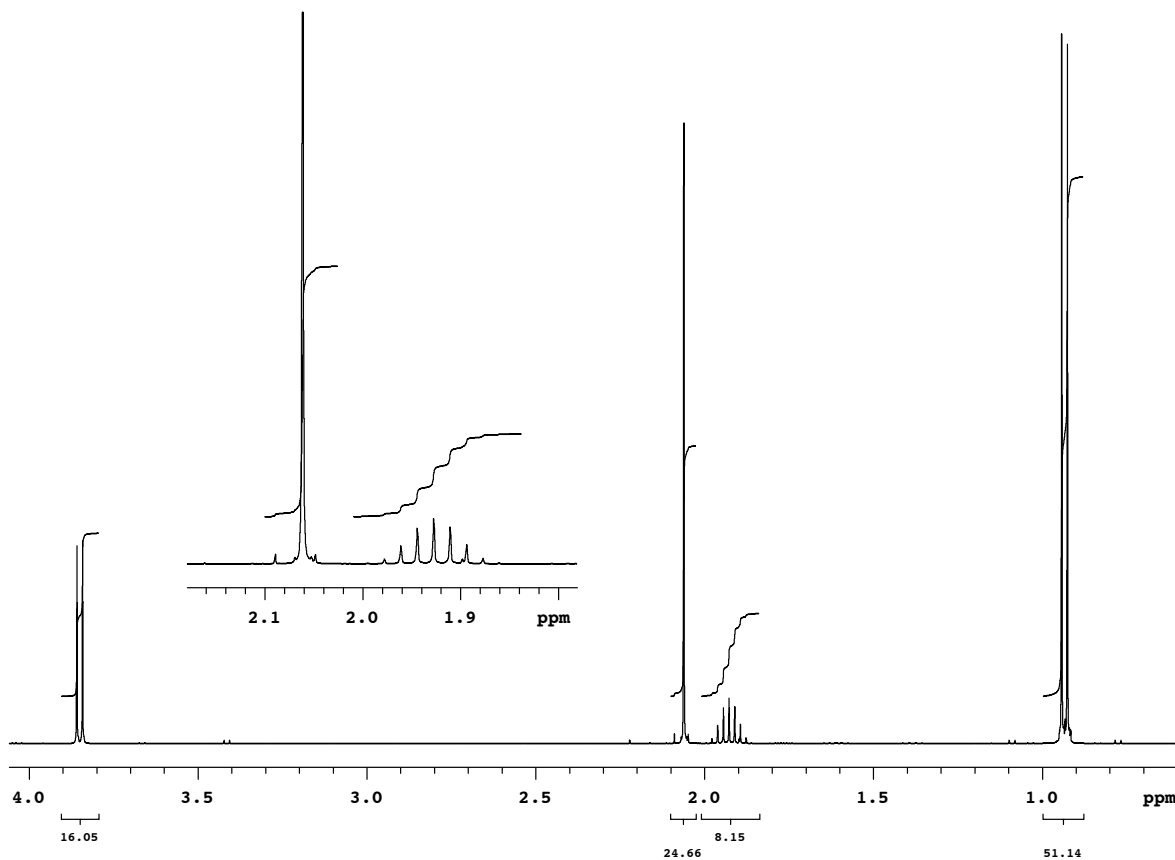
14.  $C_7H_8O$ 

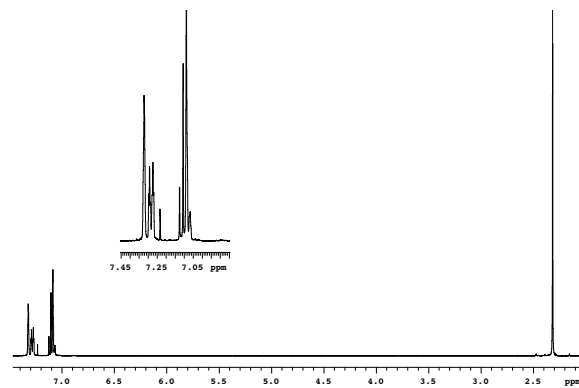
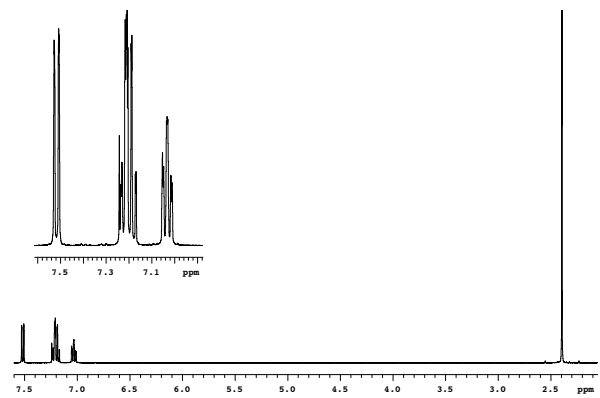
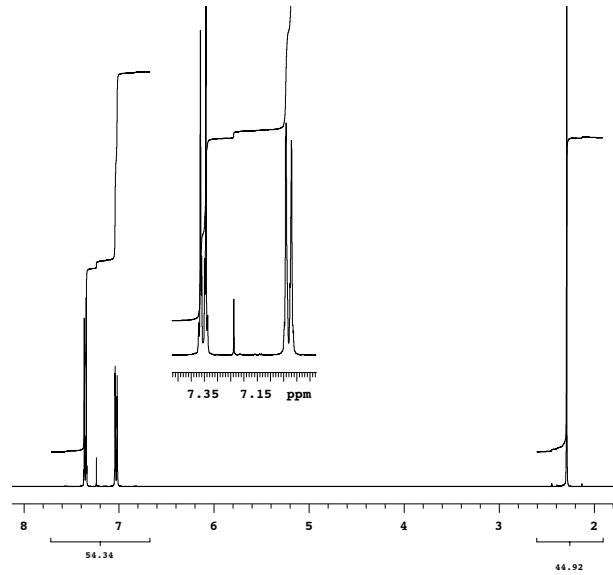
15.  $C_4H_8O_2$ 

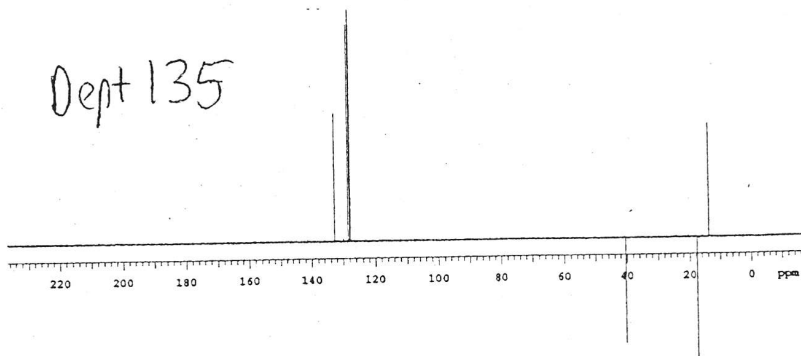
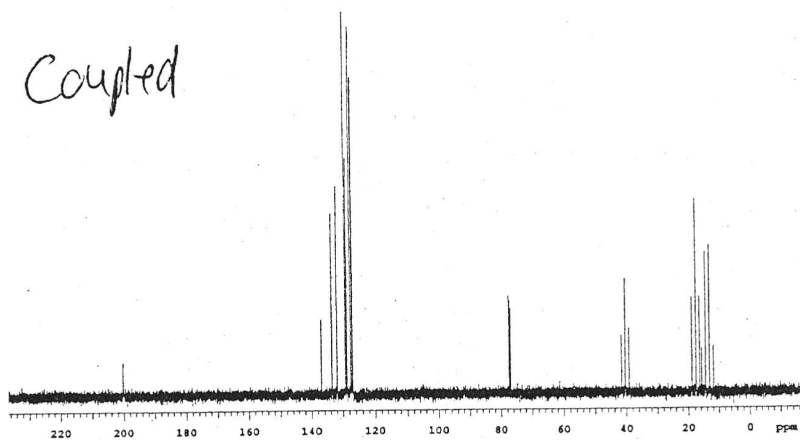
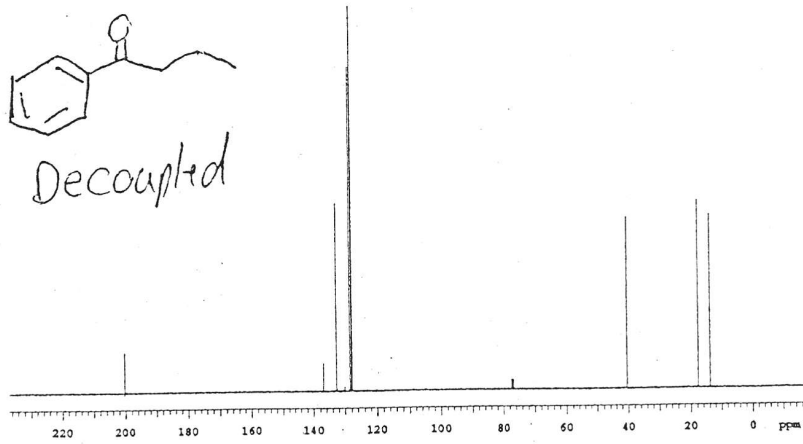
16.  $C_5H_{10}O_2$ 



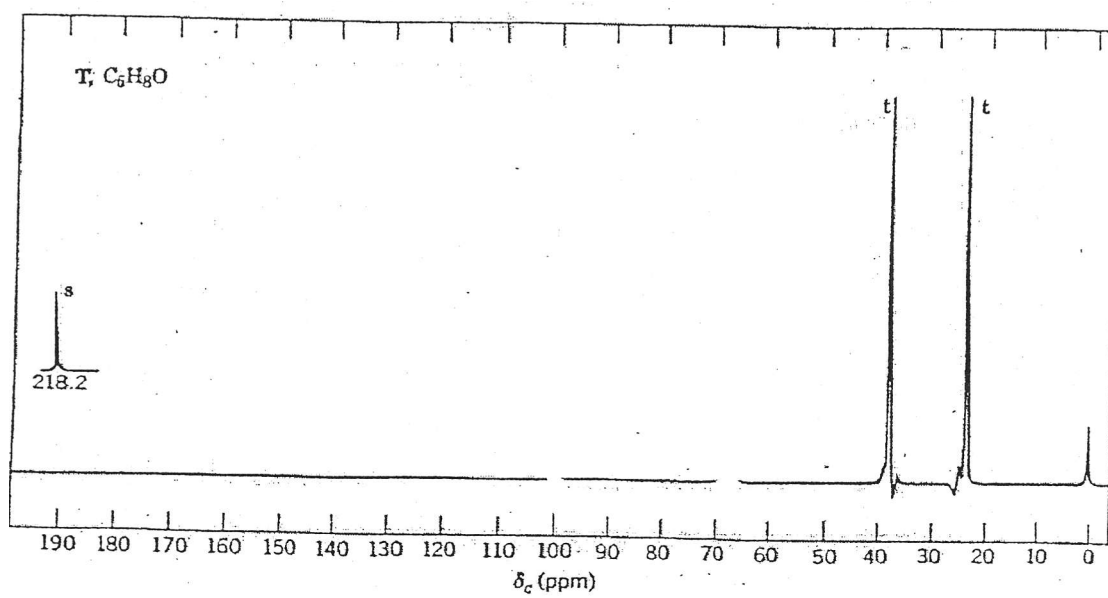
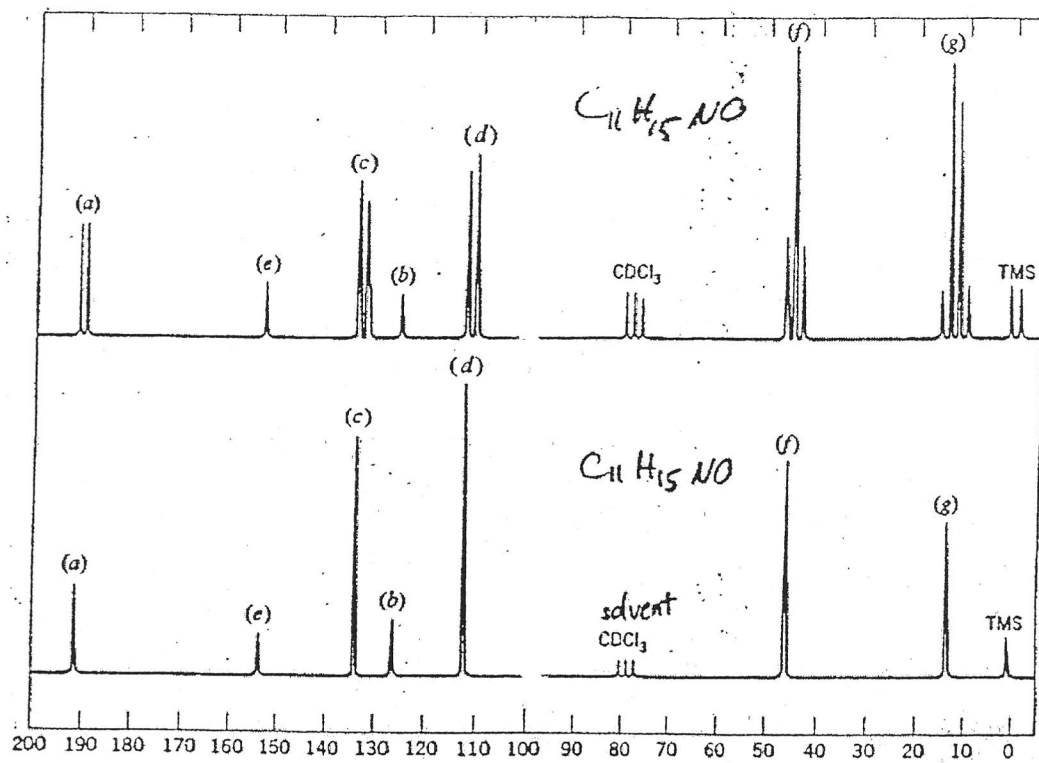
17.  $C_6H_{12}O$ 

18.  $C_6H_{12}O_2$ 

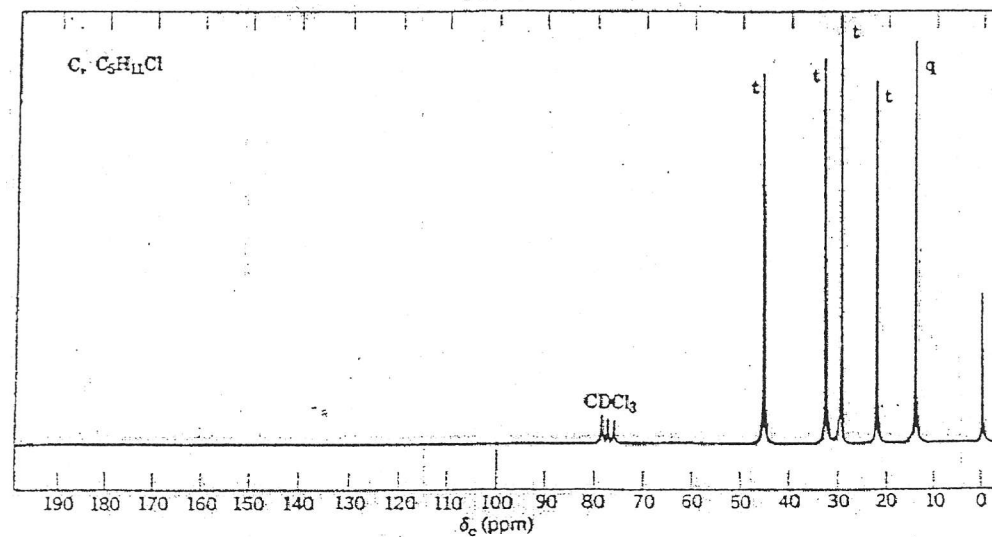
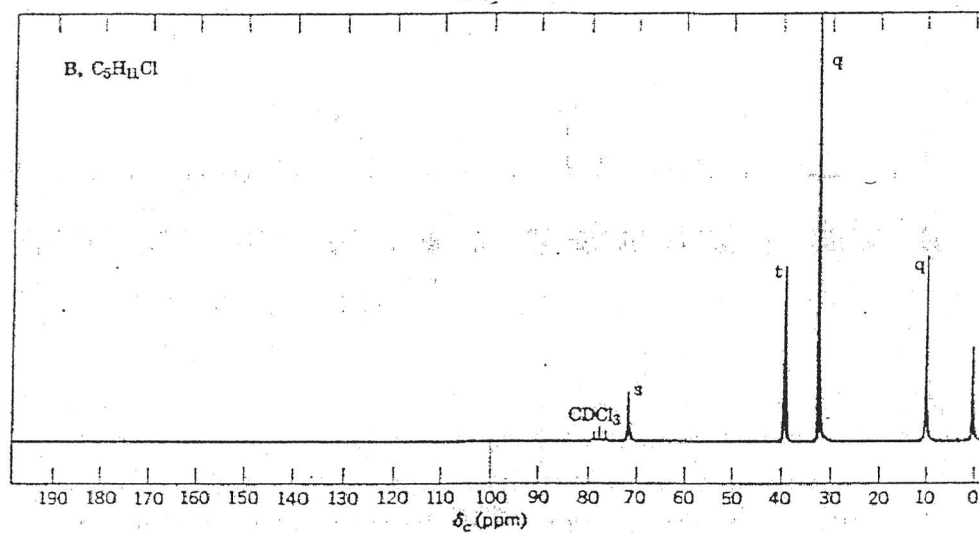
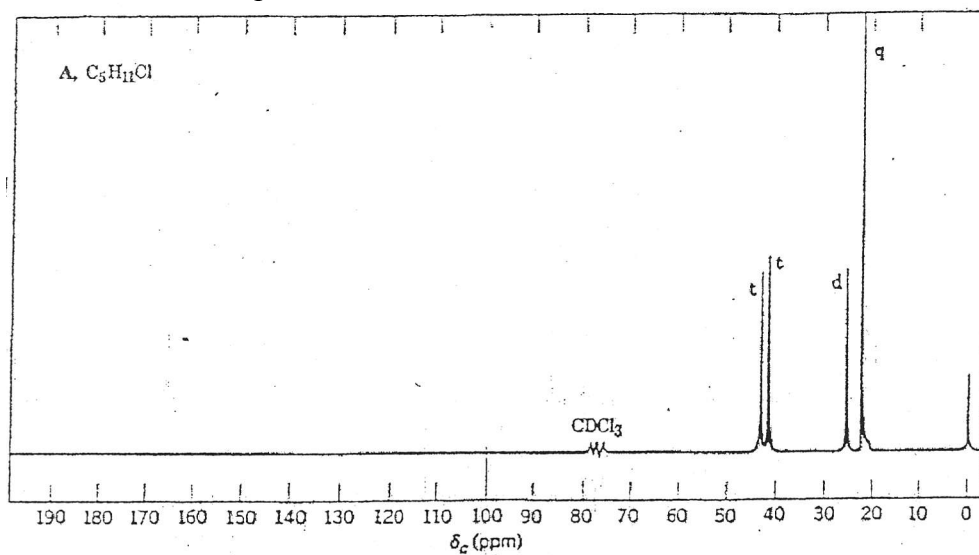
19.  $C_7H_7Br$ . Isomers of Bromotoluene

20.  $C_{10}H_{12}O$  Carbon NMR Spectra: Decoupled, Coupled, DEPT 135

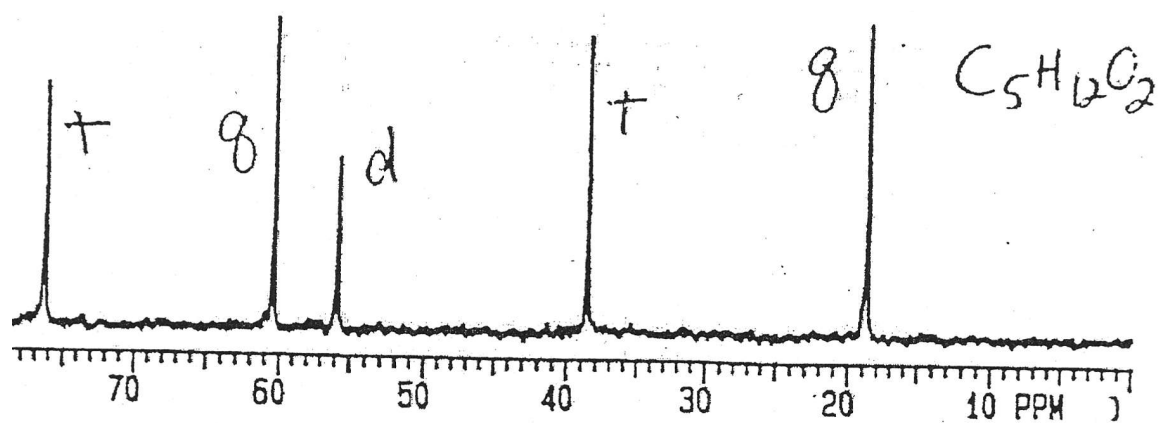
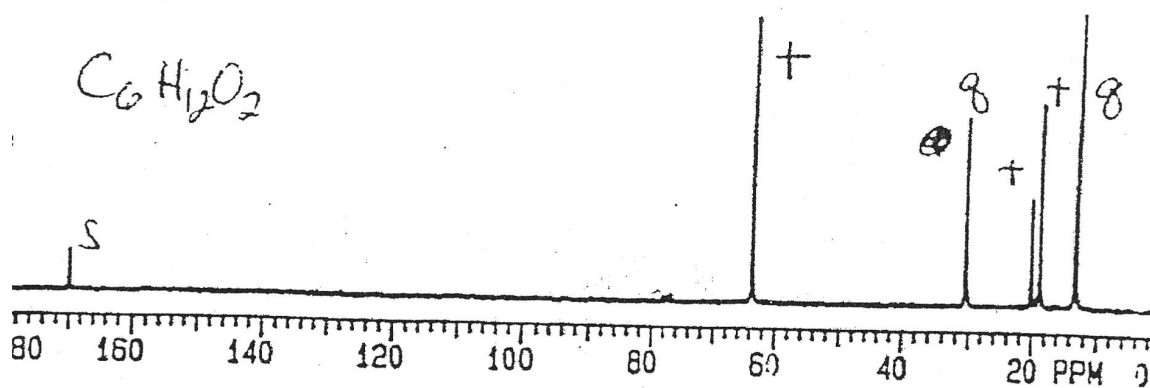
## 21. Carbon NMR Spectra Problems.



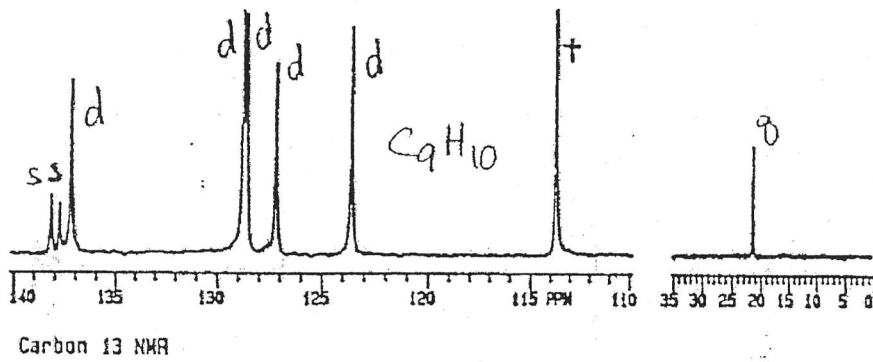
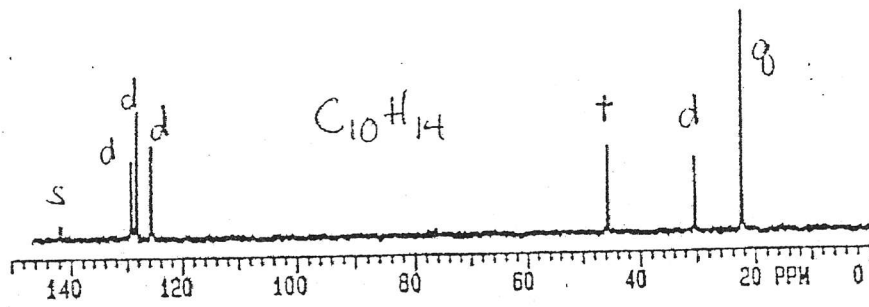
## 22. Carbon NMR Spectra Problems.



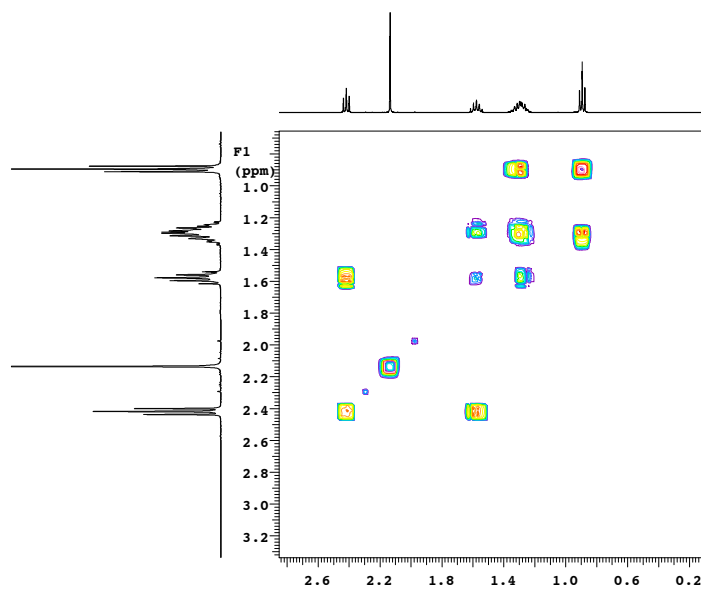
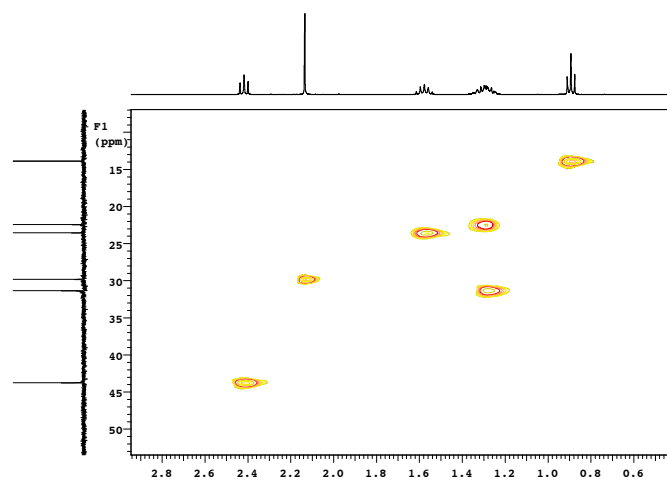
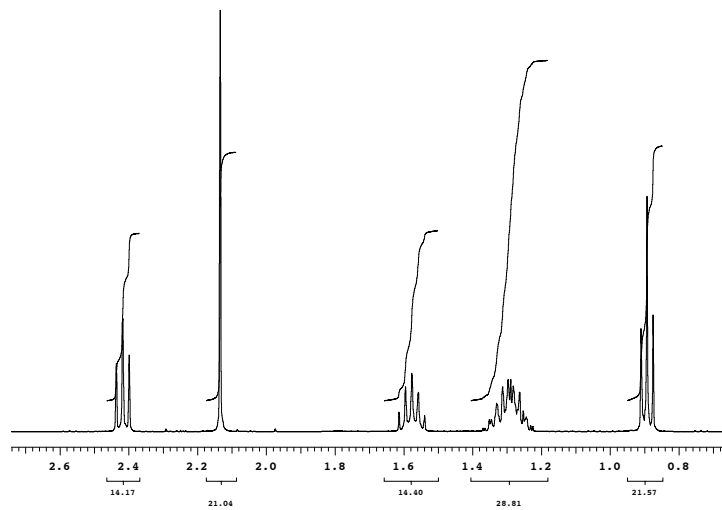
## 23. Carbon NMR Spectra Problems.

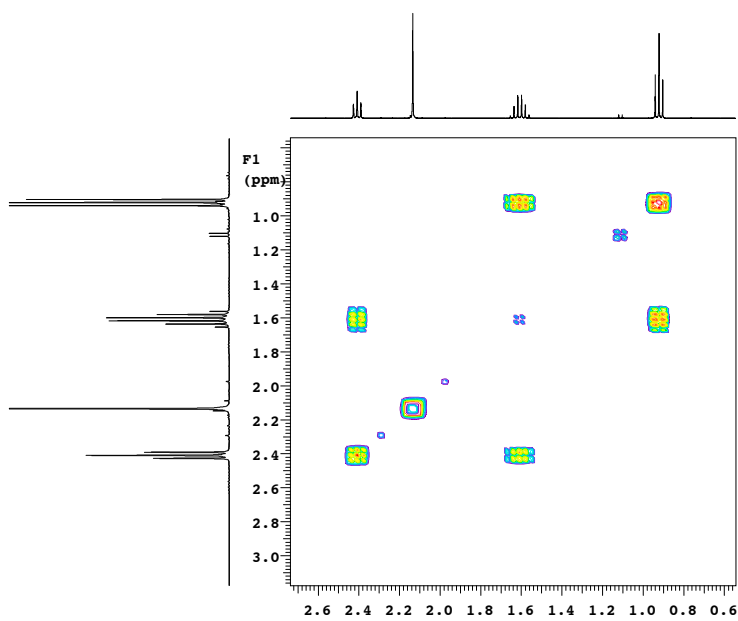
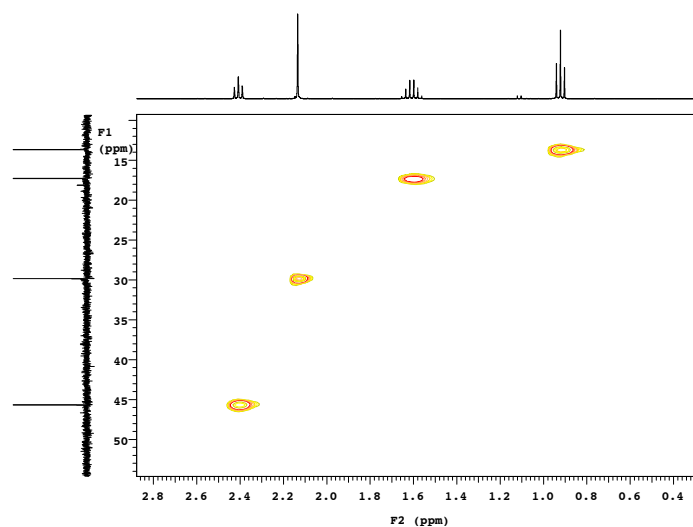
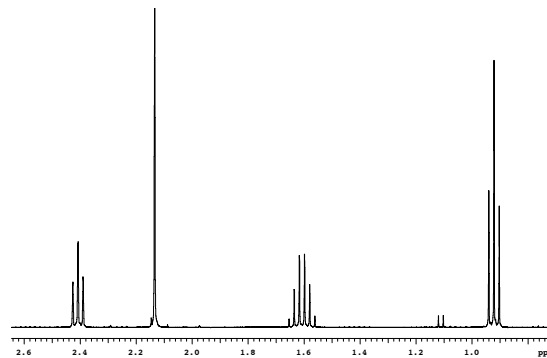


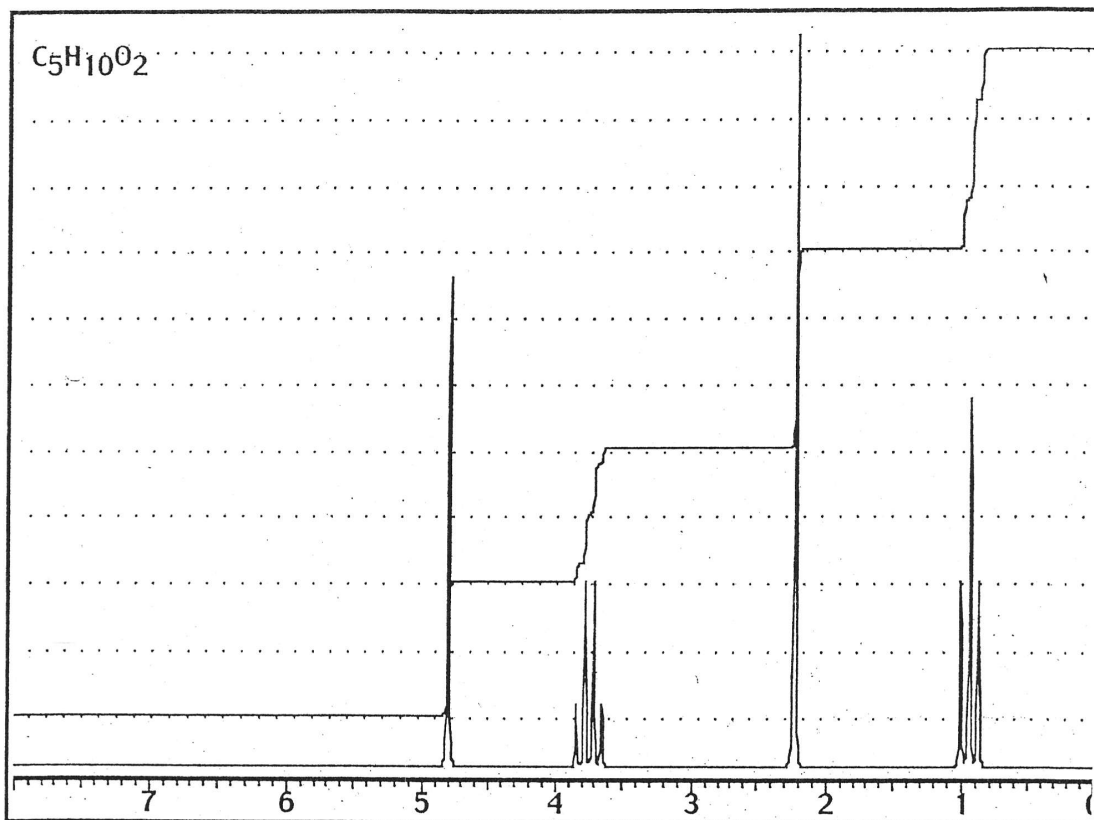
## 24. Carbon NMR Spectra Problems.

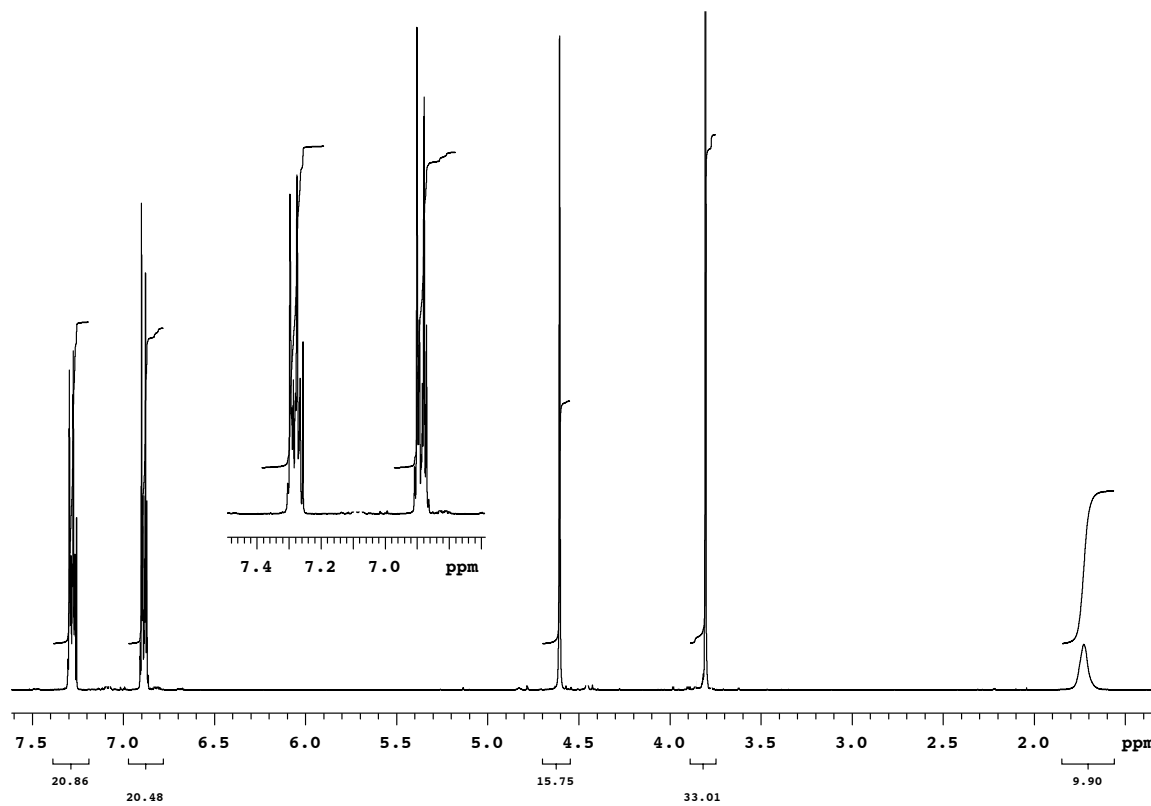


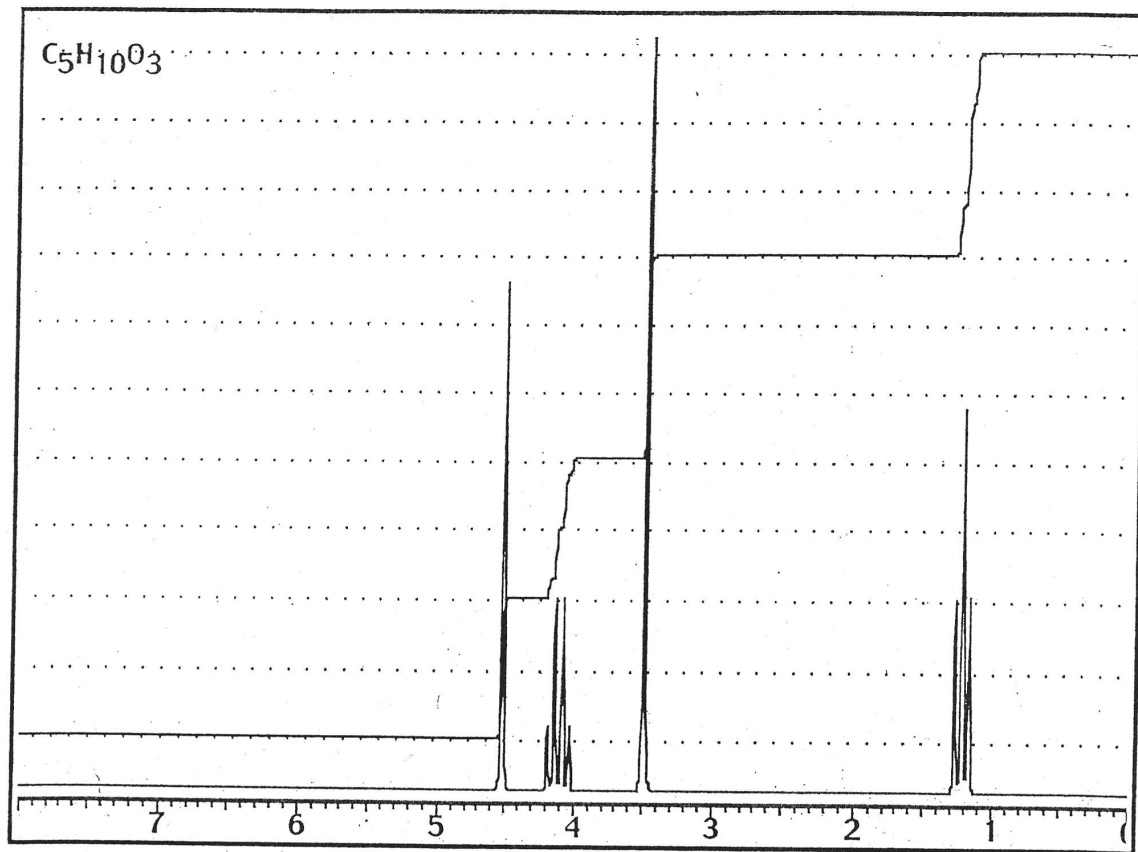


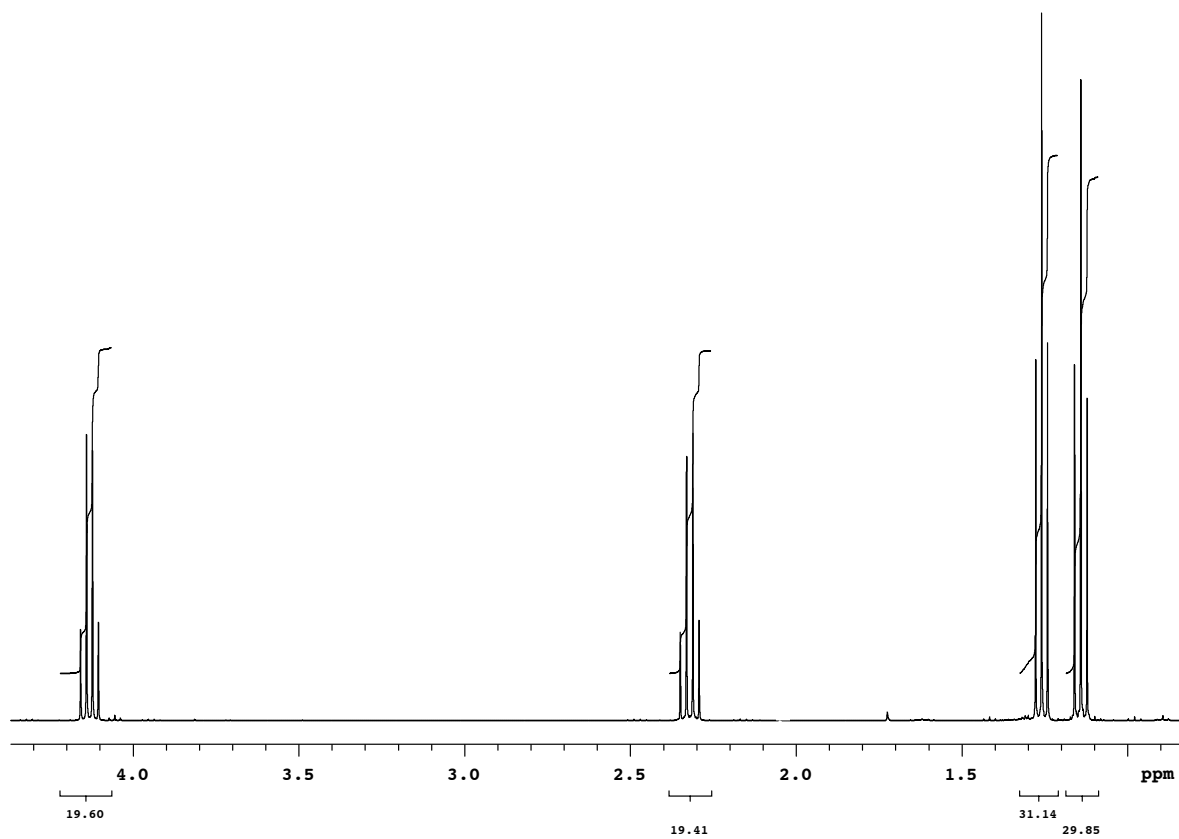
25. Carbon NMR: 2D Carbon-Hydrogen (HSQC) and 2D Hydrogen-Hydrogen (COSY) spectra.  $C_7H_{14}O$ 

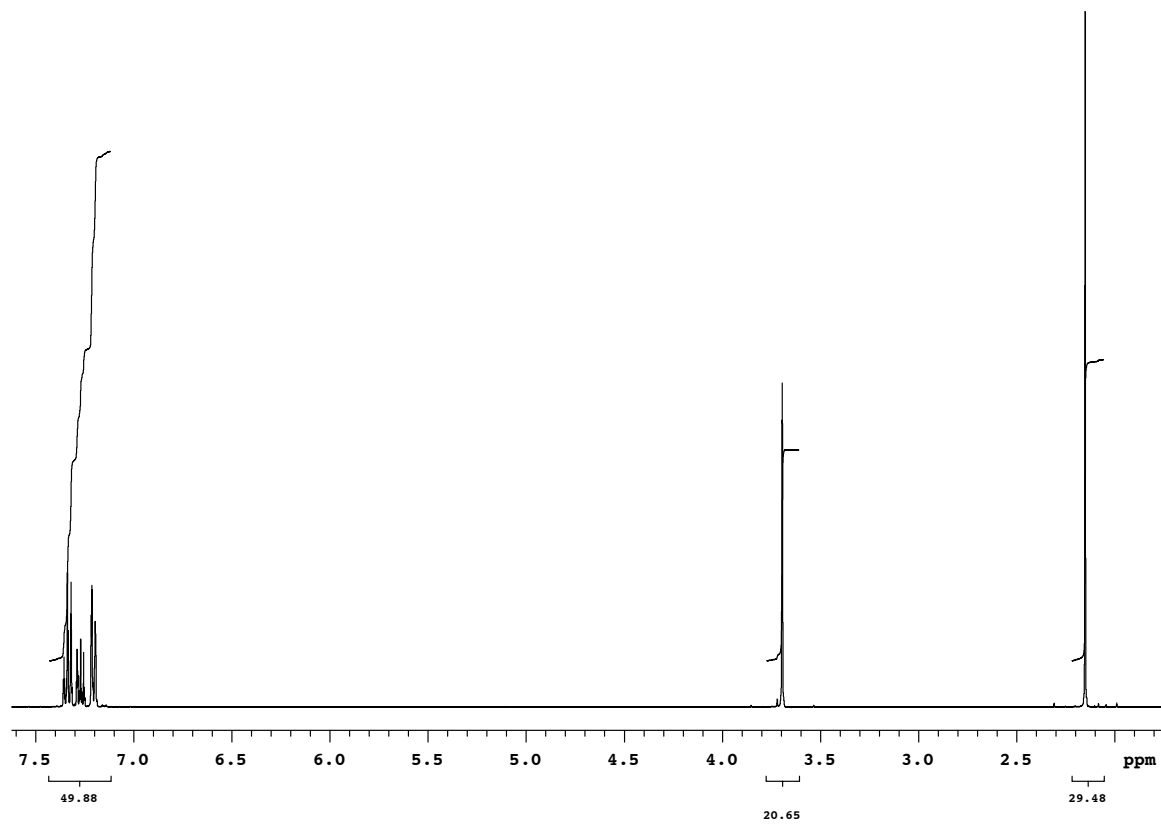
26. Carbon NMR: 2D Carbon-Hydrogen (HSQC) and 2D Hydrogen-Hydrogen (COSY) spectra.  $C_5H_{10}O$ 

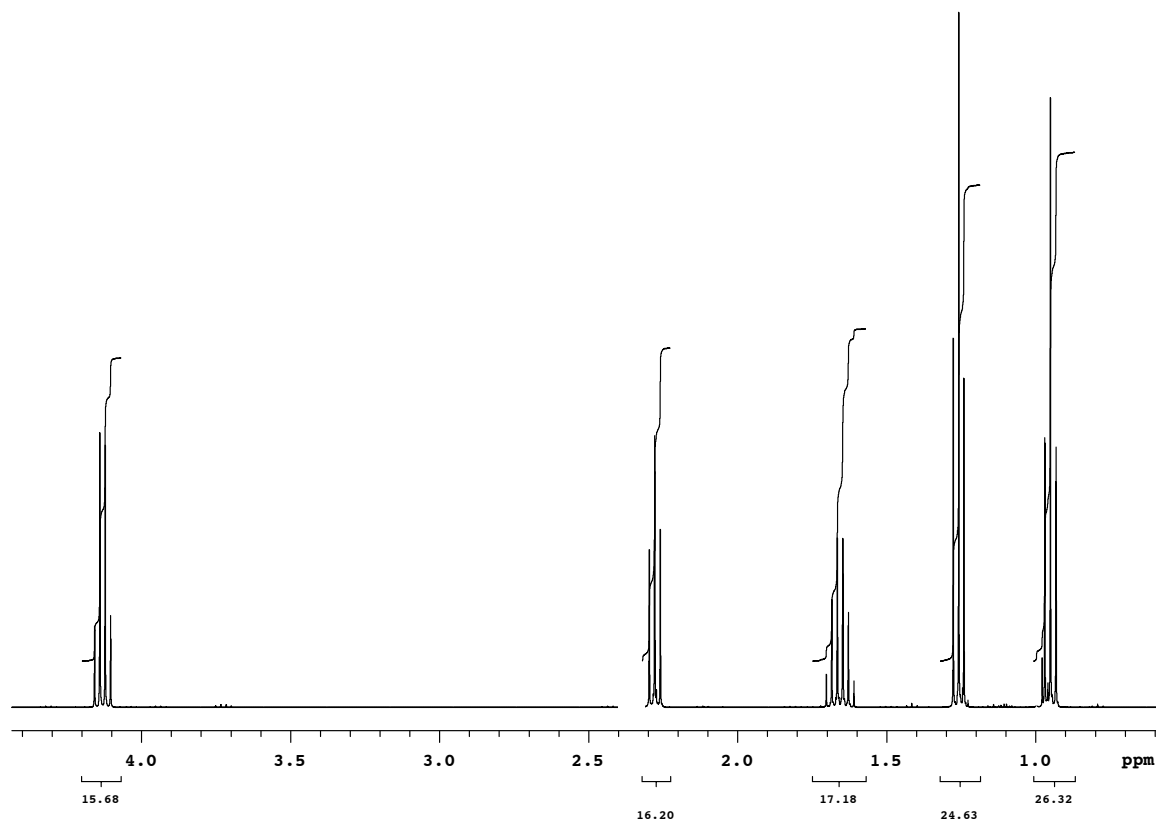
27.  $C_5H_{10}O_2$ 

28.  $C_8H_{10}O_2$ 

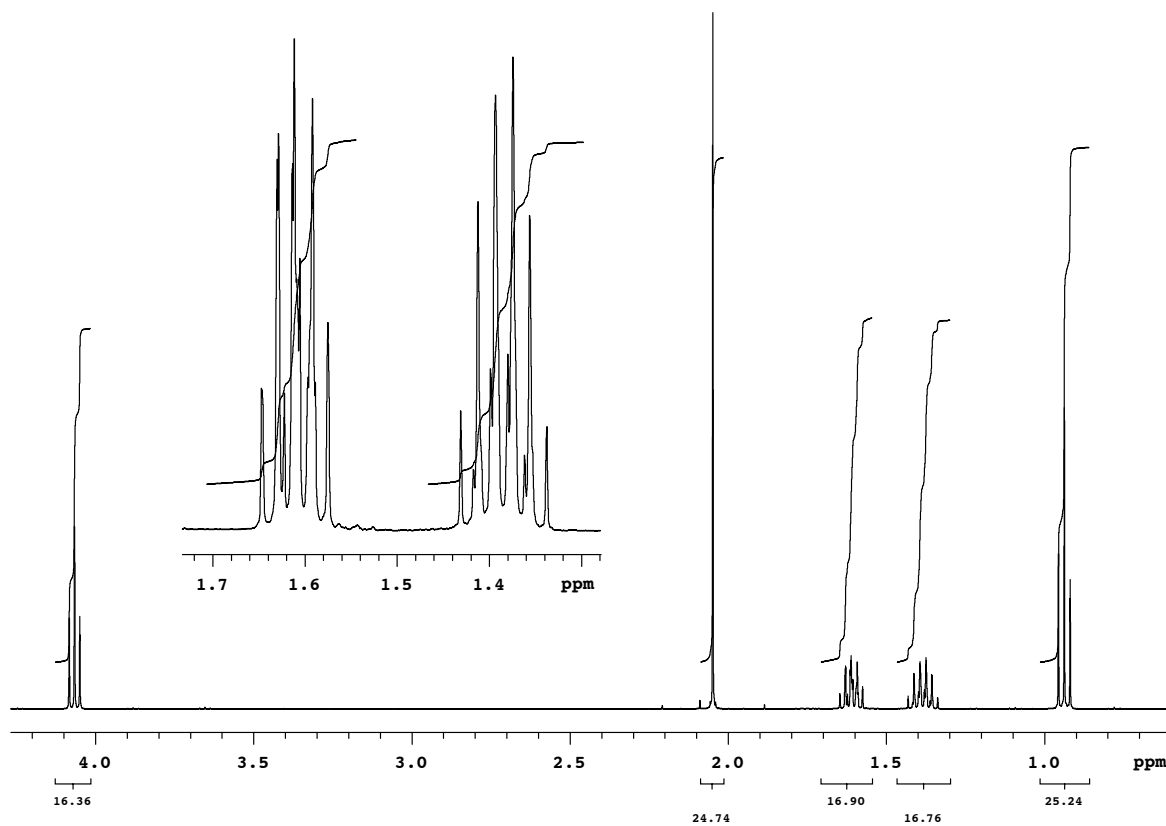
29.  $C_5H_{10}O_3$ 

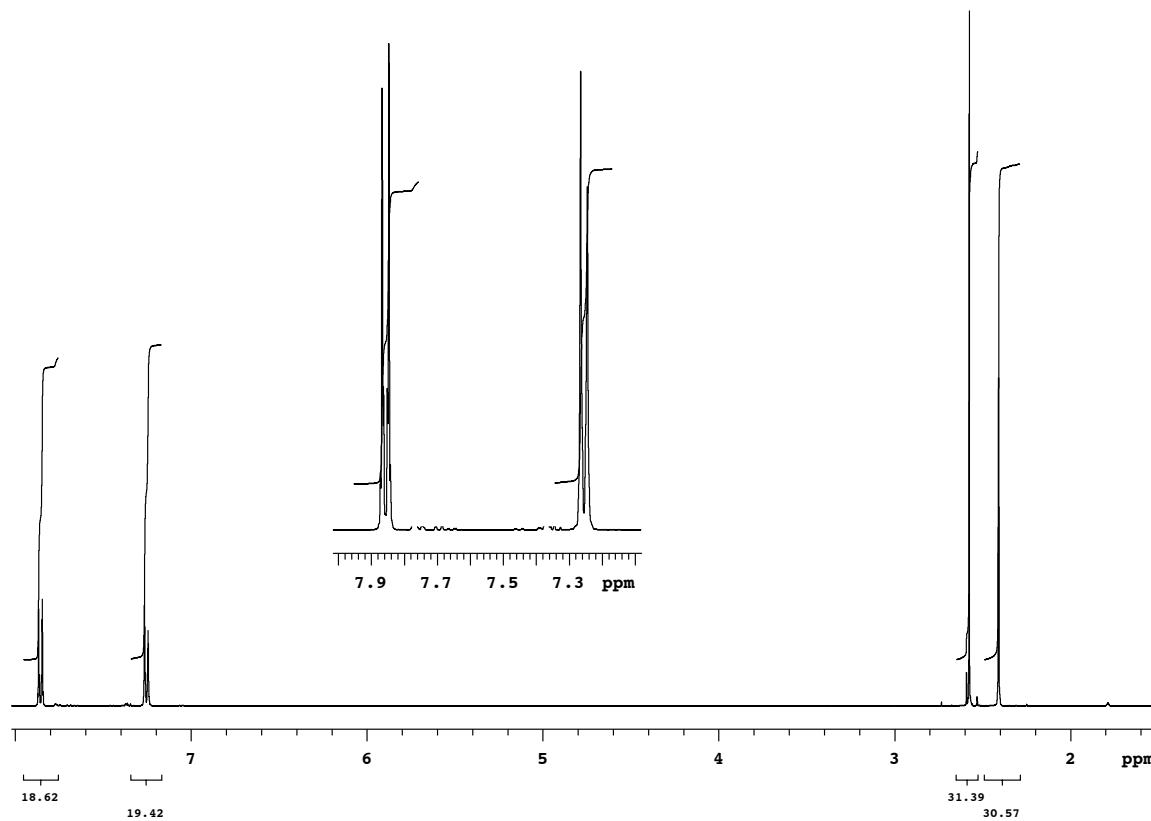
30.  $C_5H_{10}O_2$ 

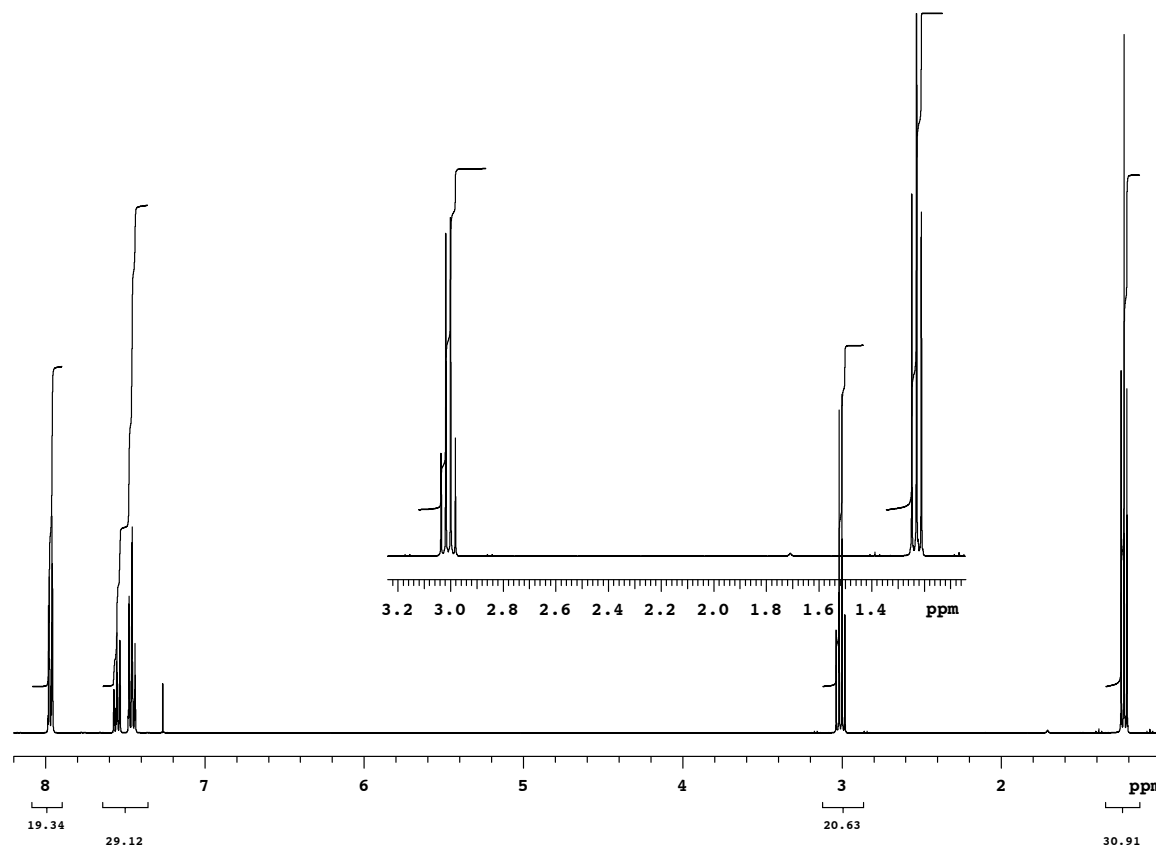
31.  $C_9H_{10}O$ 

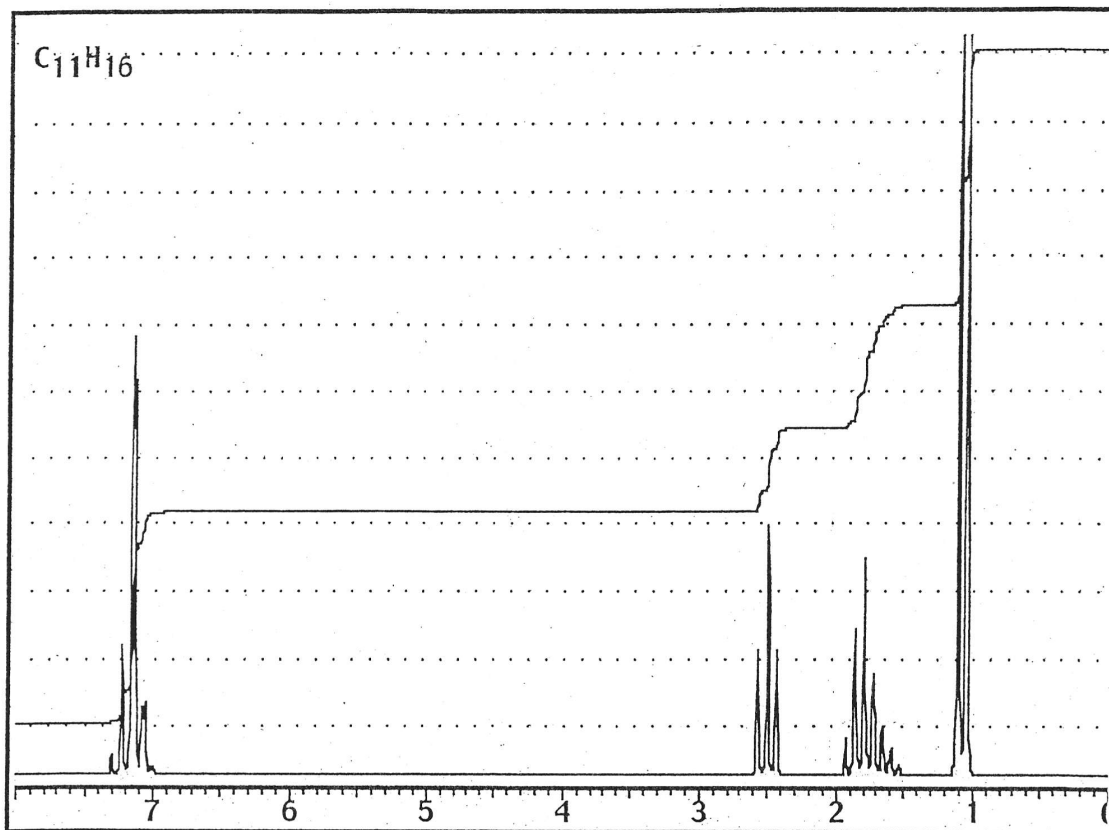
32.  $C_6H_{12}O_2$ 

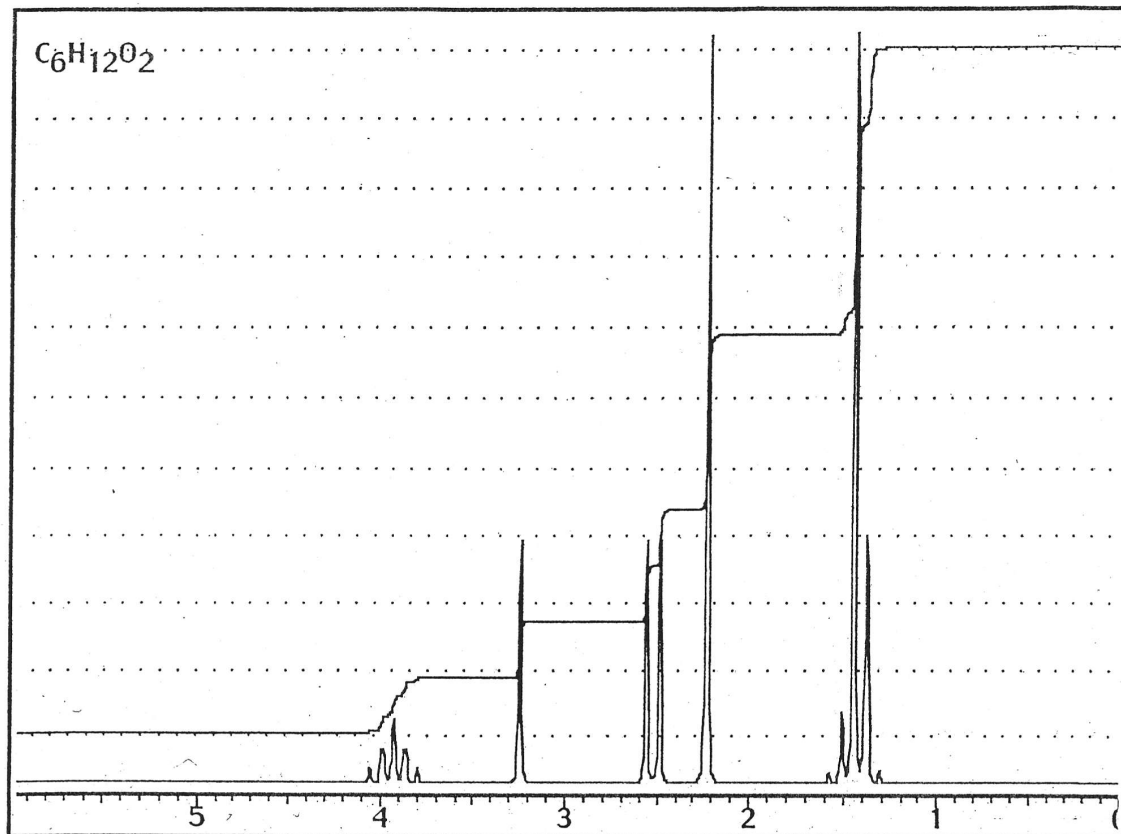


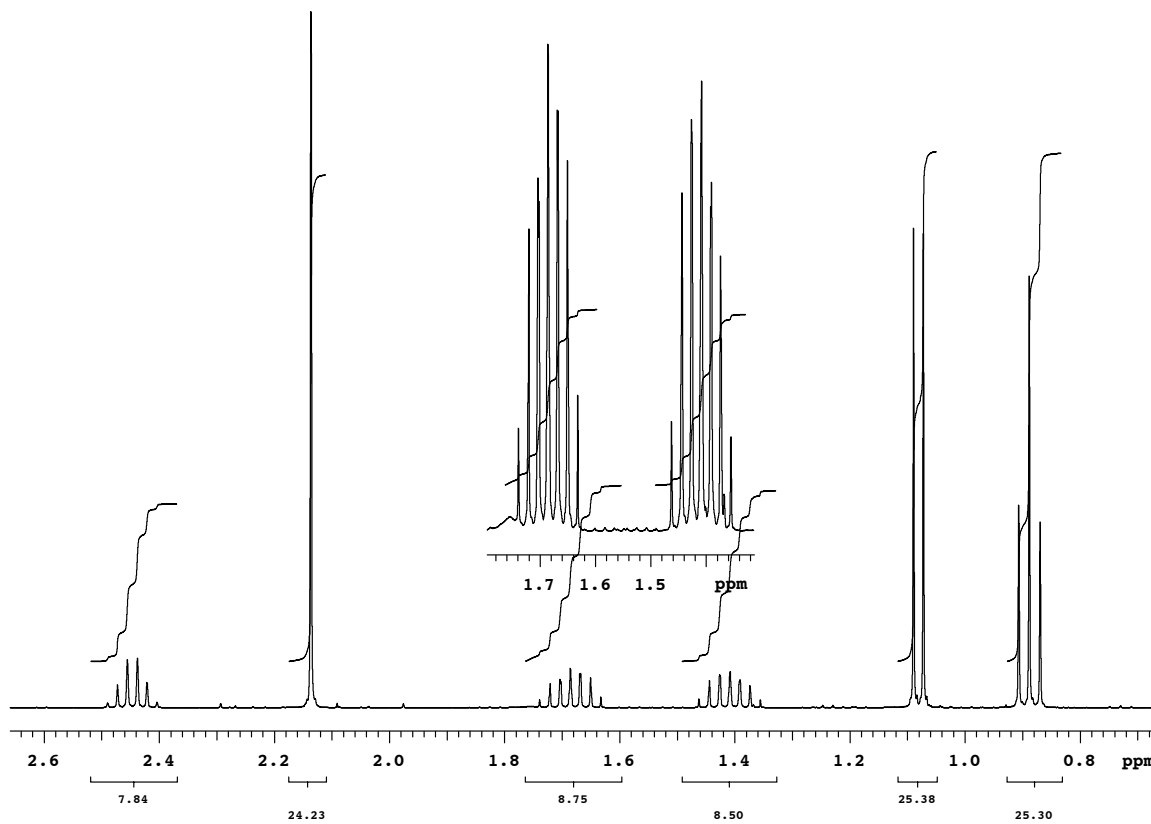
33.  $C_6H_{12}O_2$ 

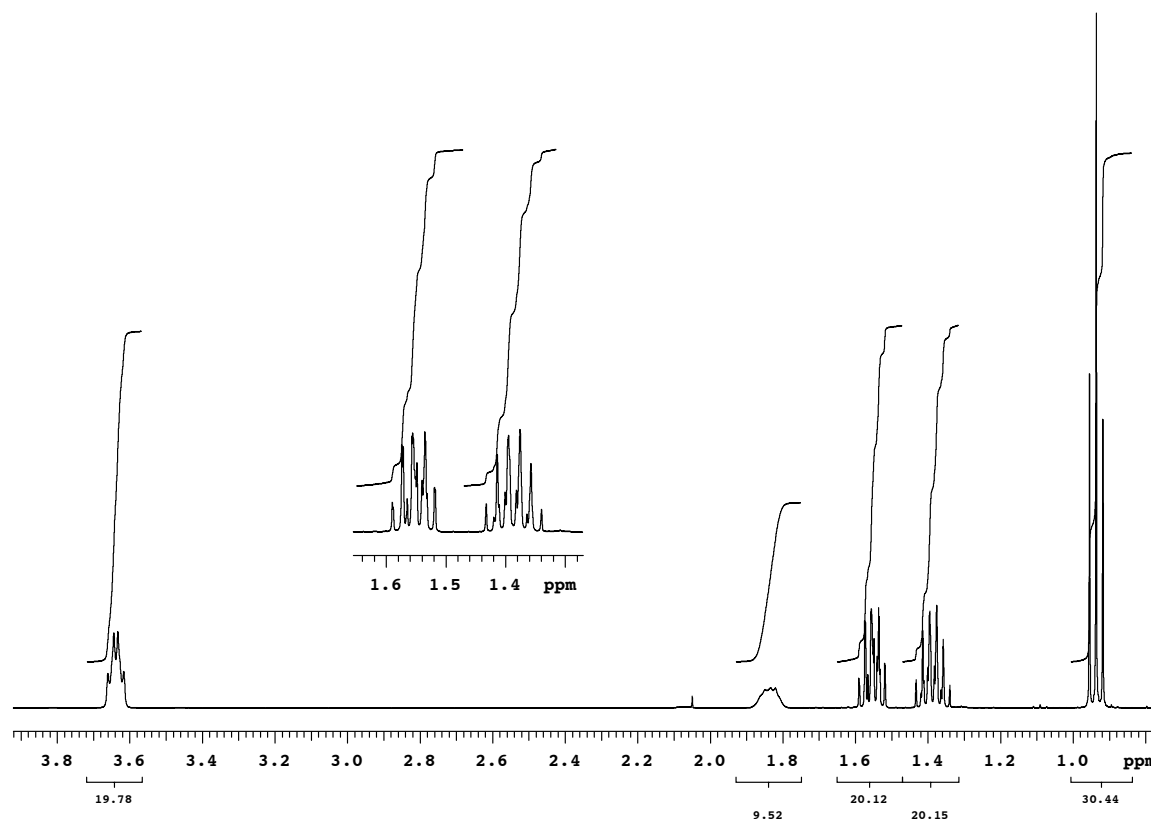
34.  $C_9H_{10}O$ 

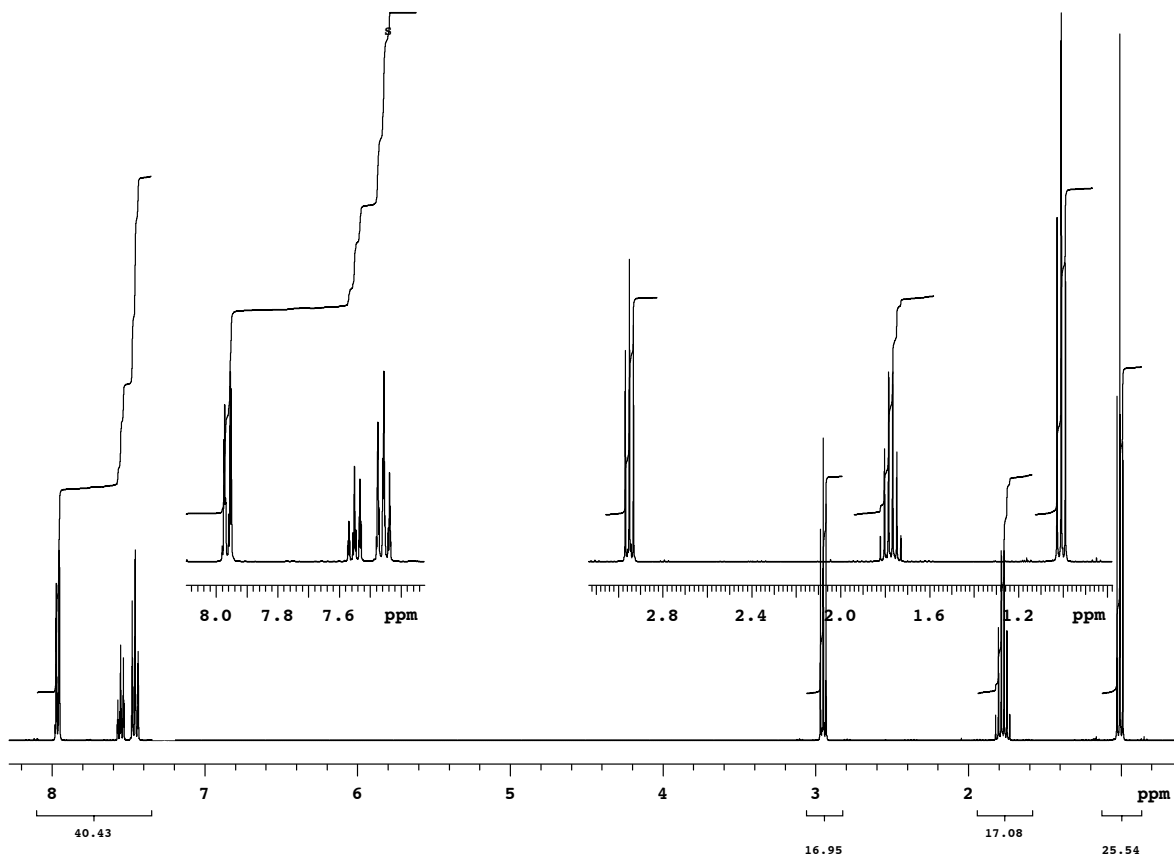
35.  $C_9H_{10}O$ 

36.  $C_{11}H_{16}$ 

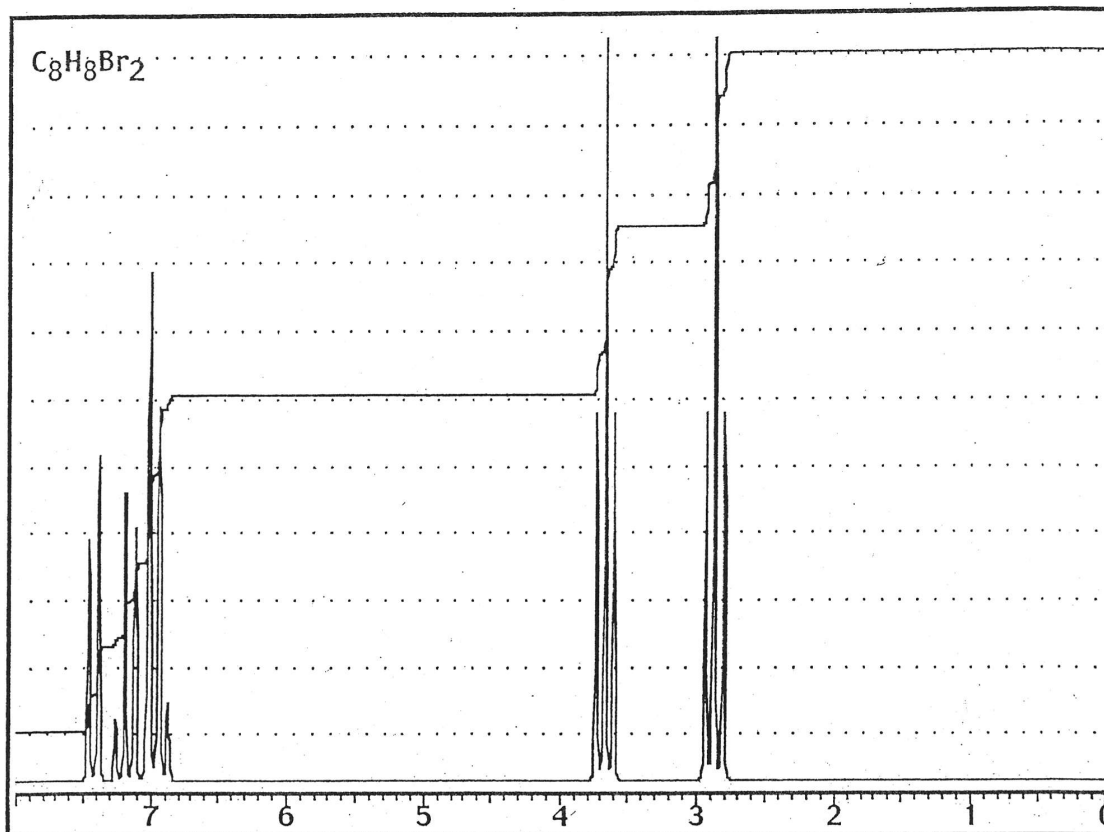
37.  $C_6H_{12}O_2$ 

38.  $C_6H_{12}O$ 

39.  $C_4H_{10}O$ 

40.  $C_{10}H_{12}O$ 



41.  $C_8H_8Br_2$ 

42.  $C_{13}H_{18}O_2$ 