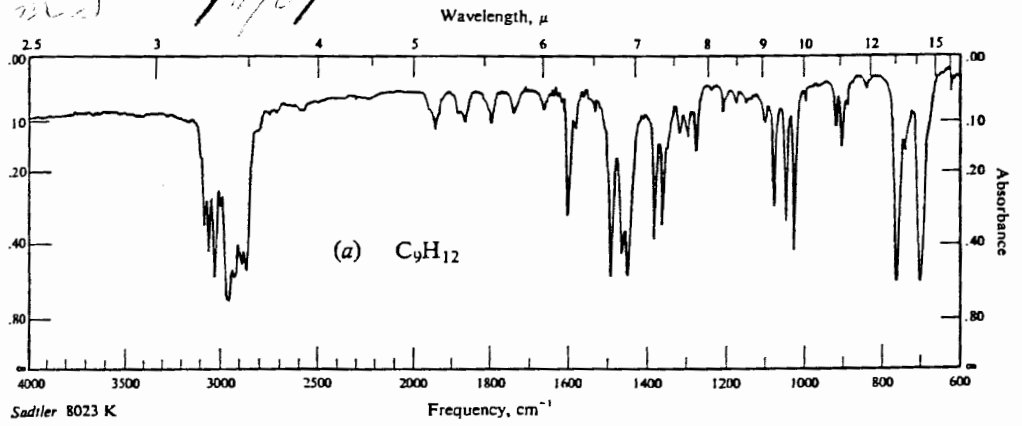
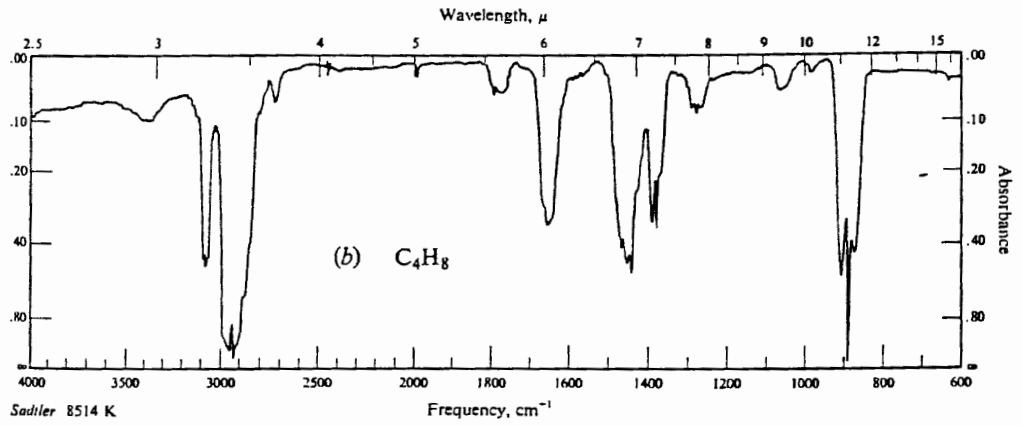


*Spectral problems 2/14/09*

*Aromatic*



*alkene*



*alkyne terminal*

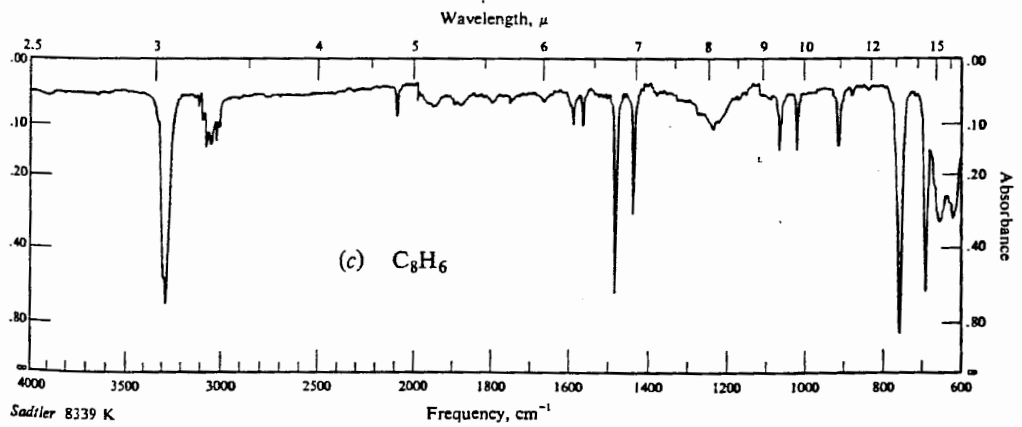


Figure 16.24 Infrared spectra for Problem 17, p. 623.

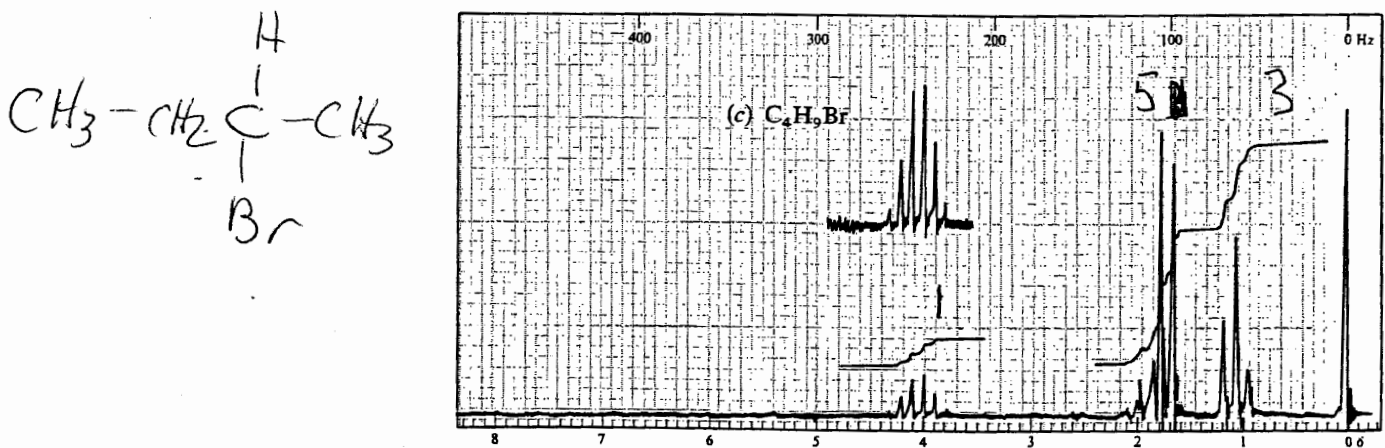
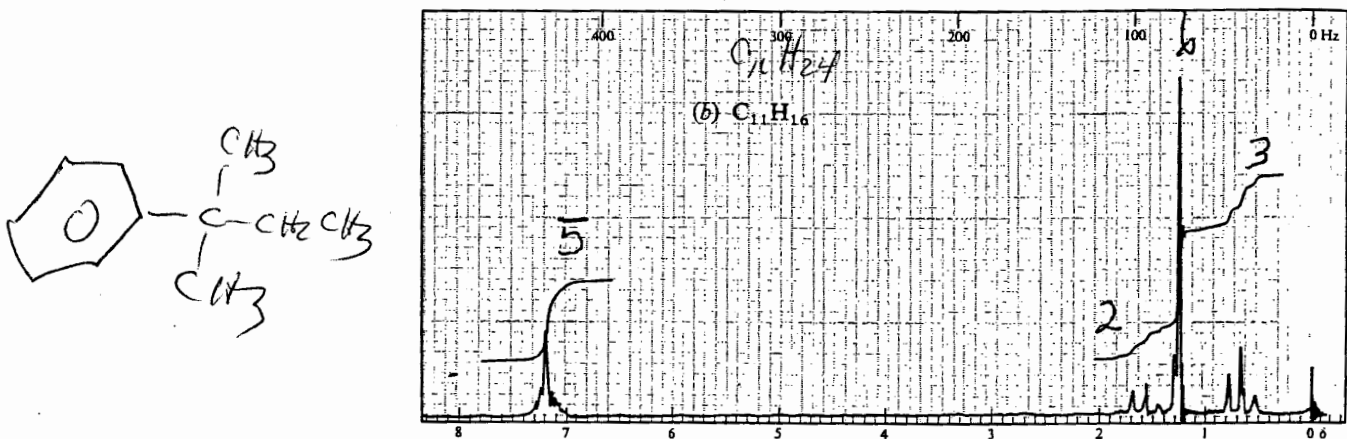
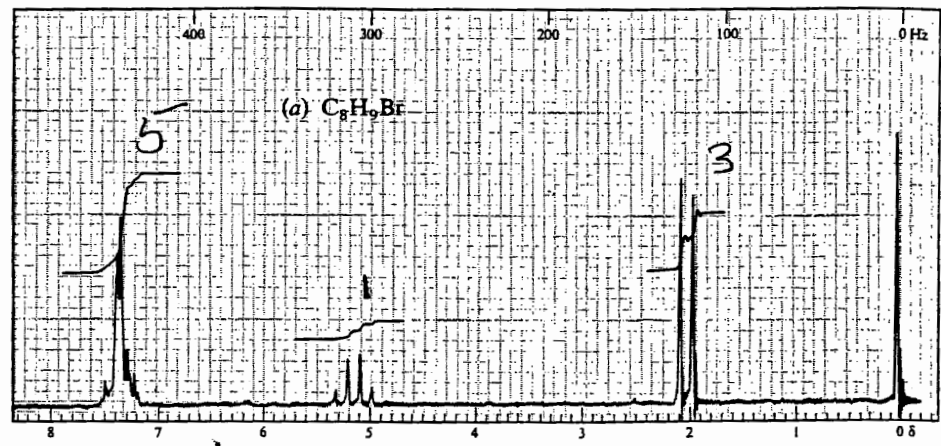


Figure 16.27 Proton NMR spectra for Problem 20, p. 624.

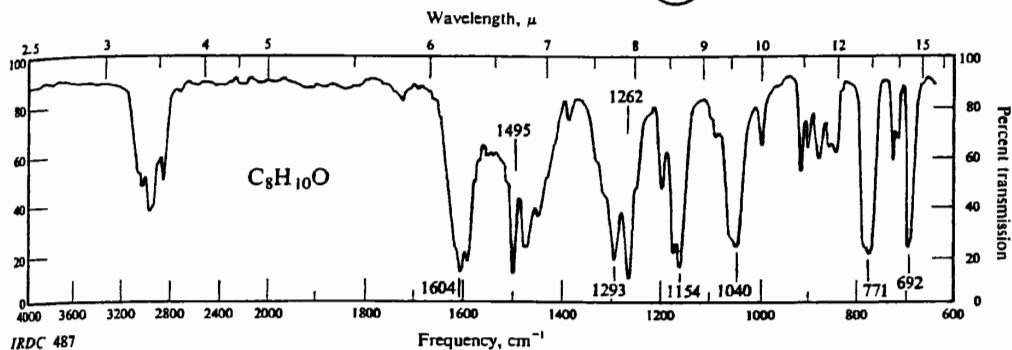
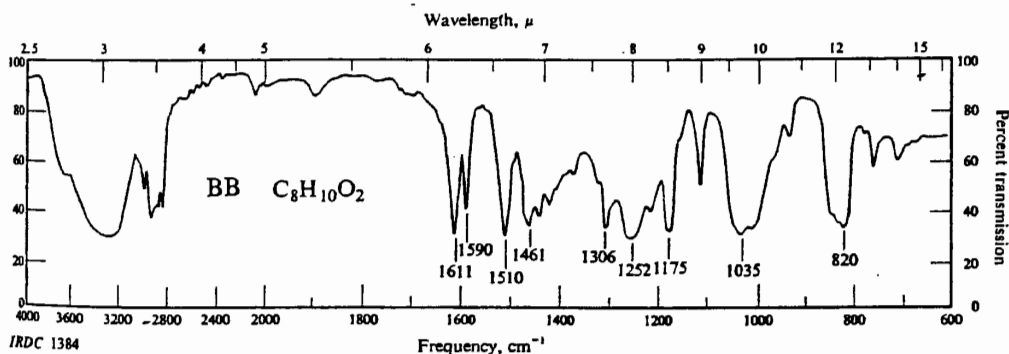


Figure 19.4 Infrared spectrum for Problem 16, p. 726.



$C_8H_{18}O_2$   
 $C_8H_{10}O_2$   
 $\frac{8}{2} = 4$

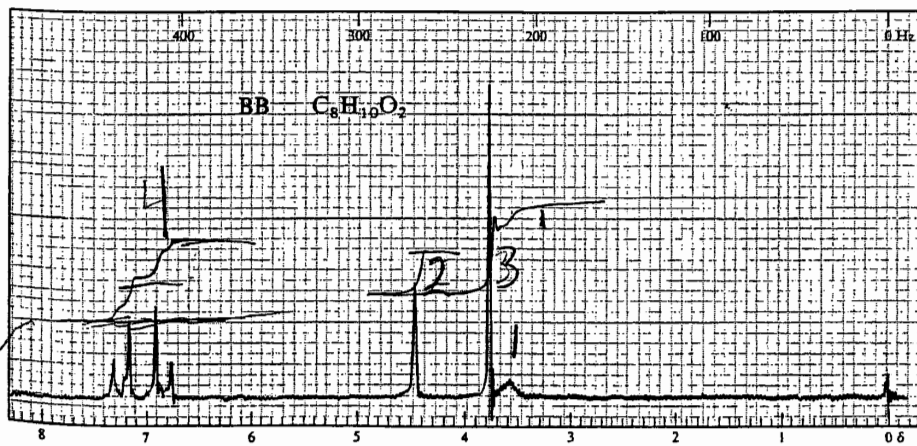
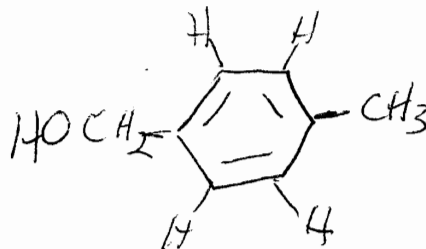


Figure 19.5 Infrared and proton NMR spectra for Problem 17, p. 726.



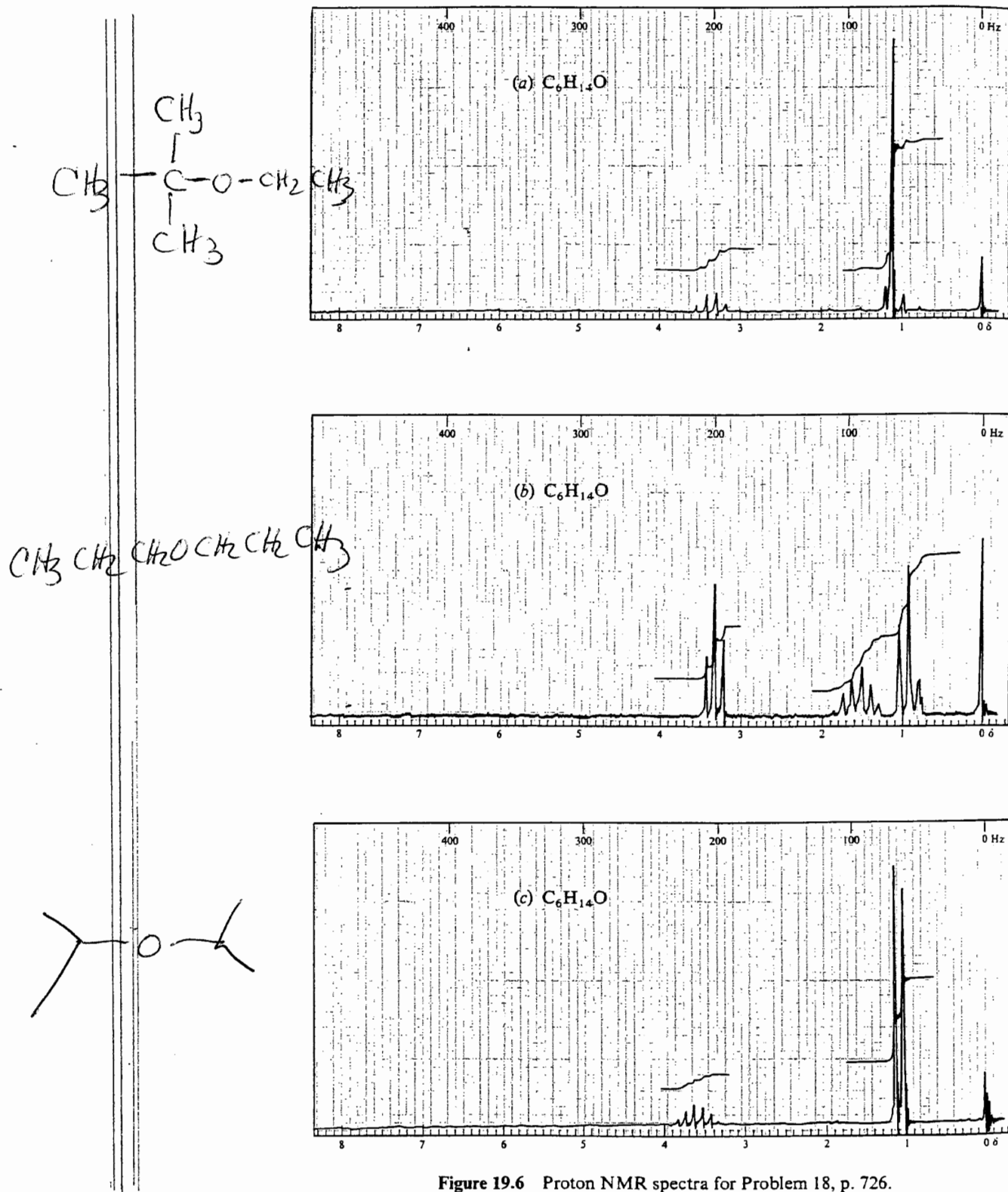


Figure 19.6 Proton NMR spectra for Problem 18, p. 726.

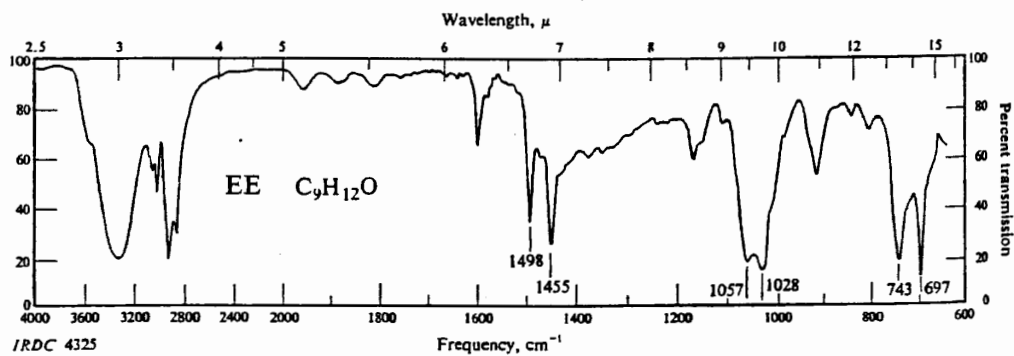
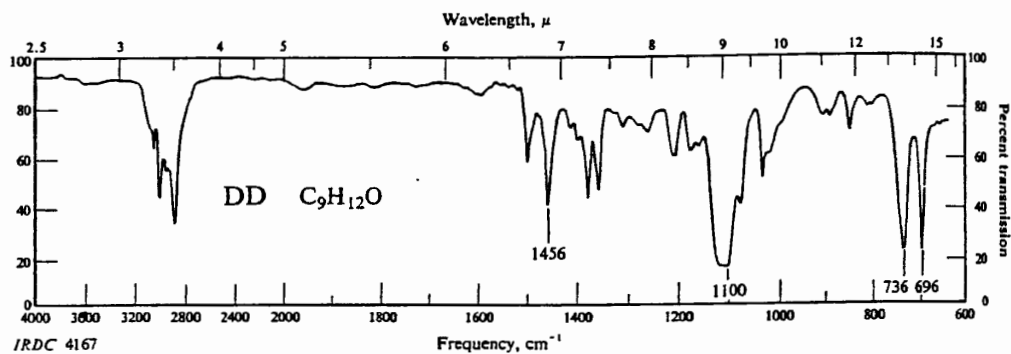
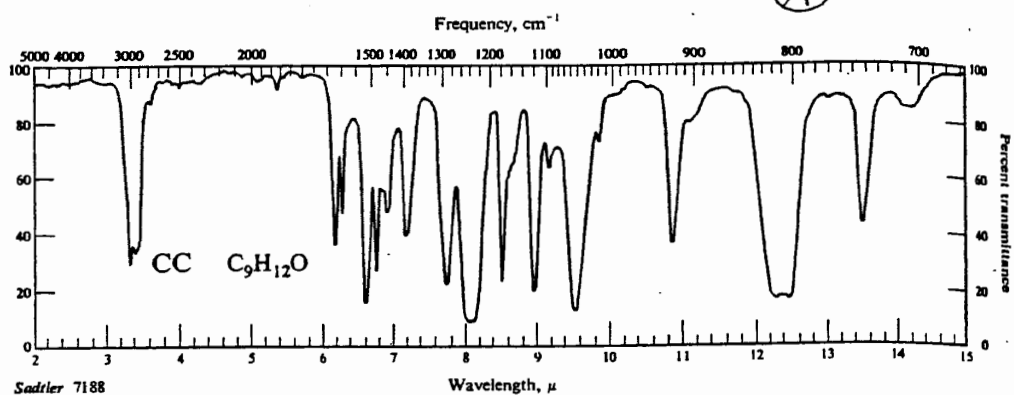


Figure 19.8 Infrared spectra for Problem 20, p. 726.

$C_9H_{20}O$   
 $C_9H_{12}O$   
 $\frac{8}{2} = 4$

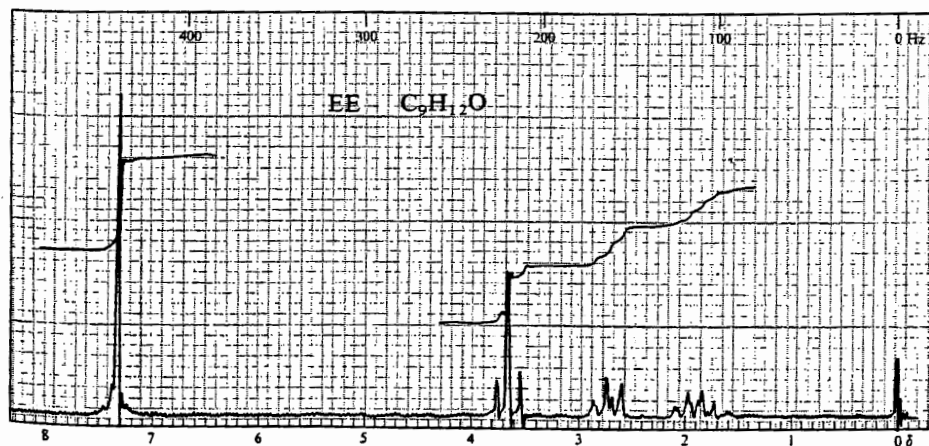
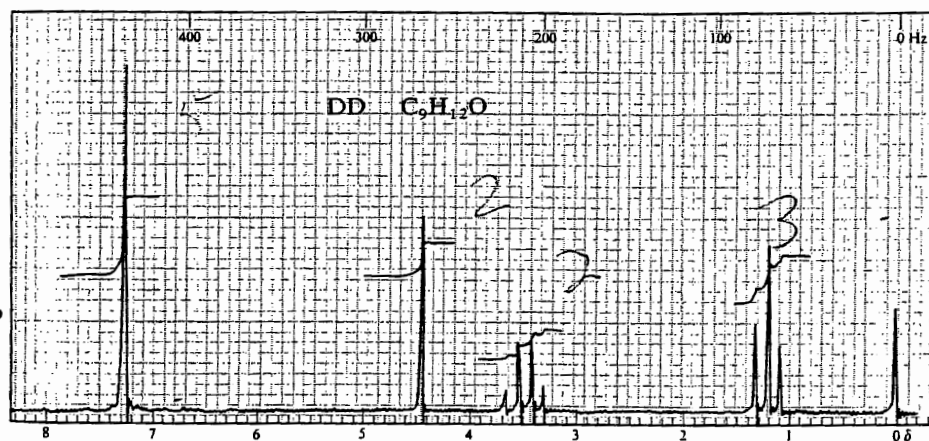
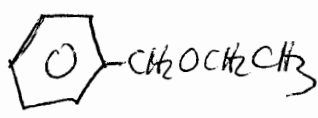
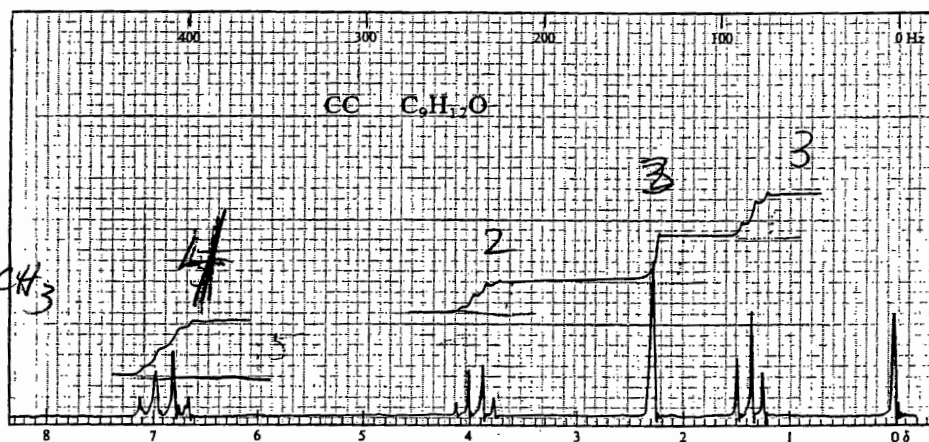
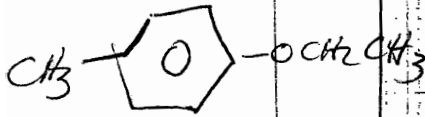


Figure 19.9 Proton NMR spectra for Problem 20, p. 726.