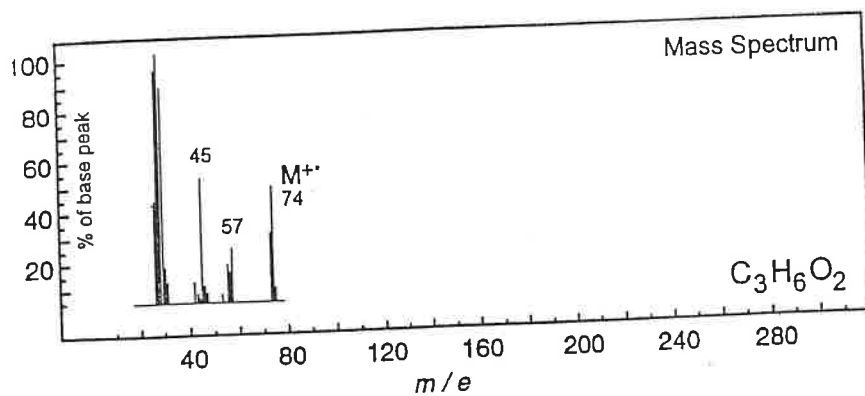
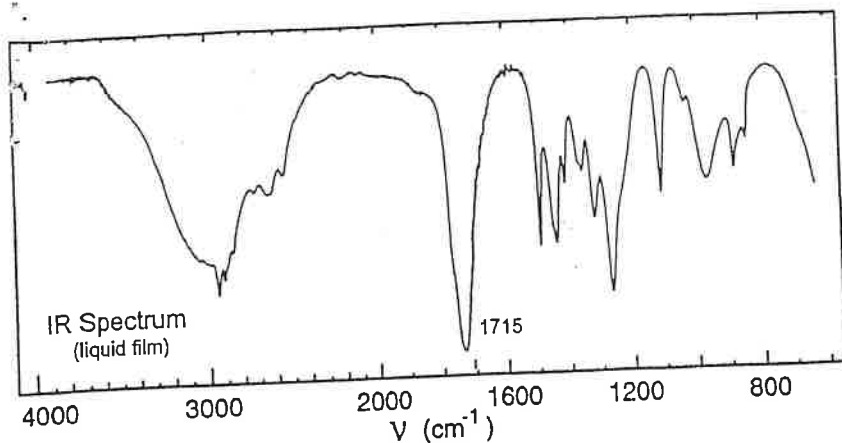
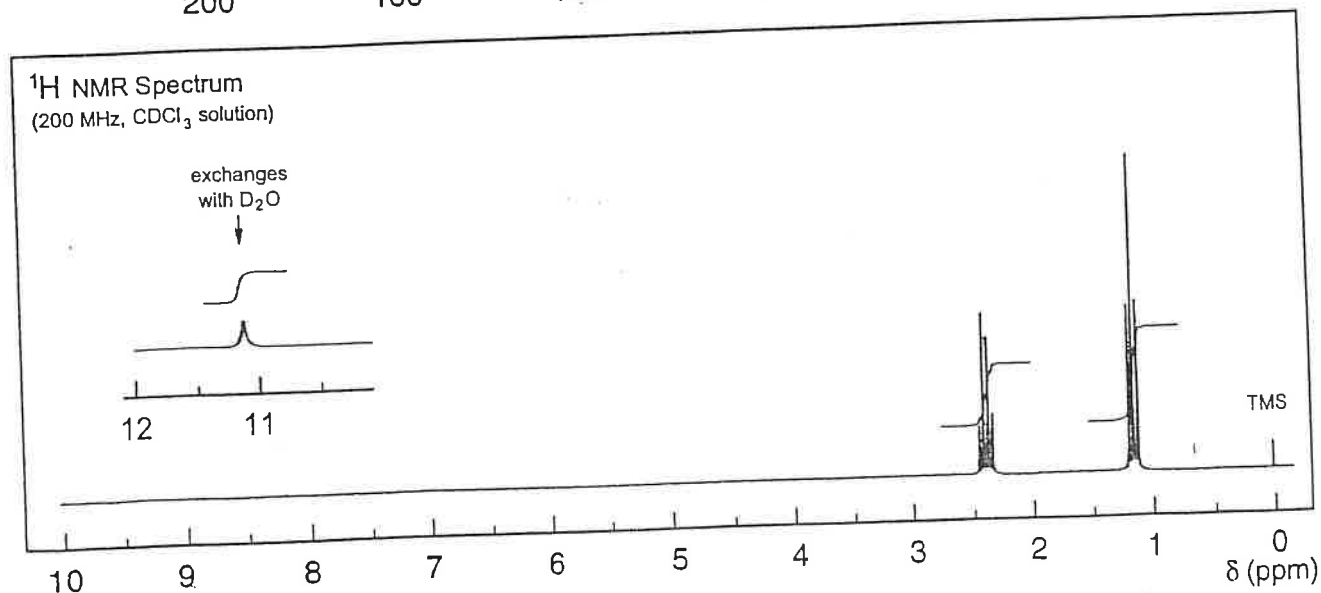
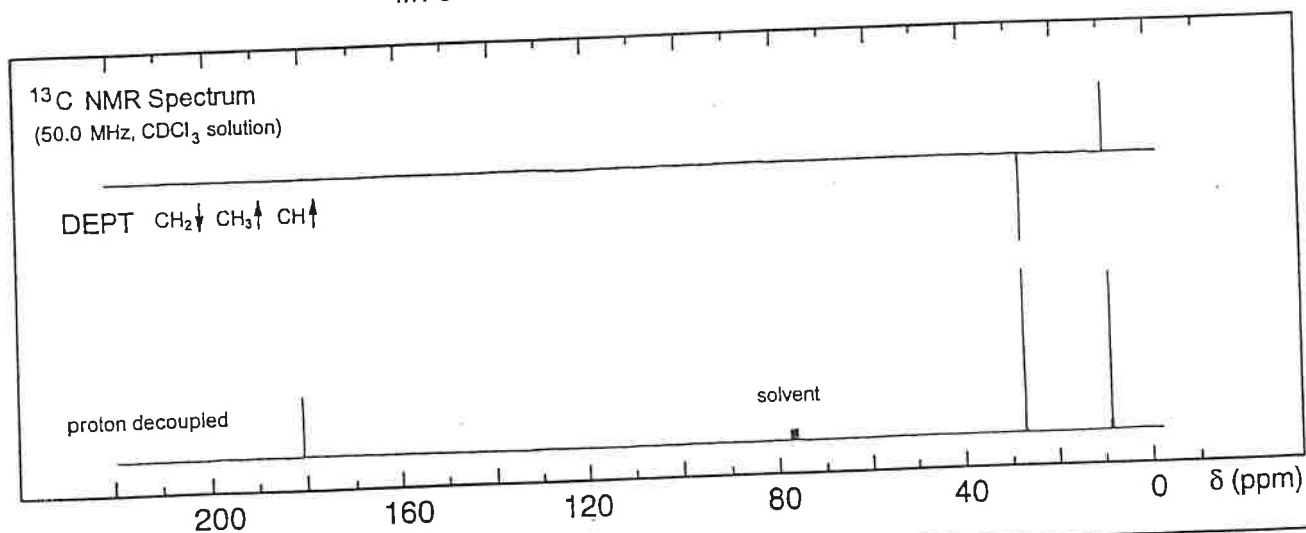


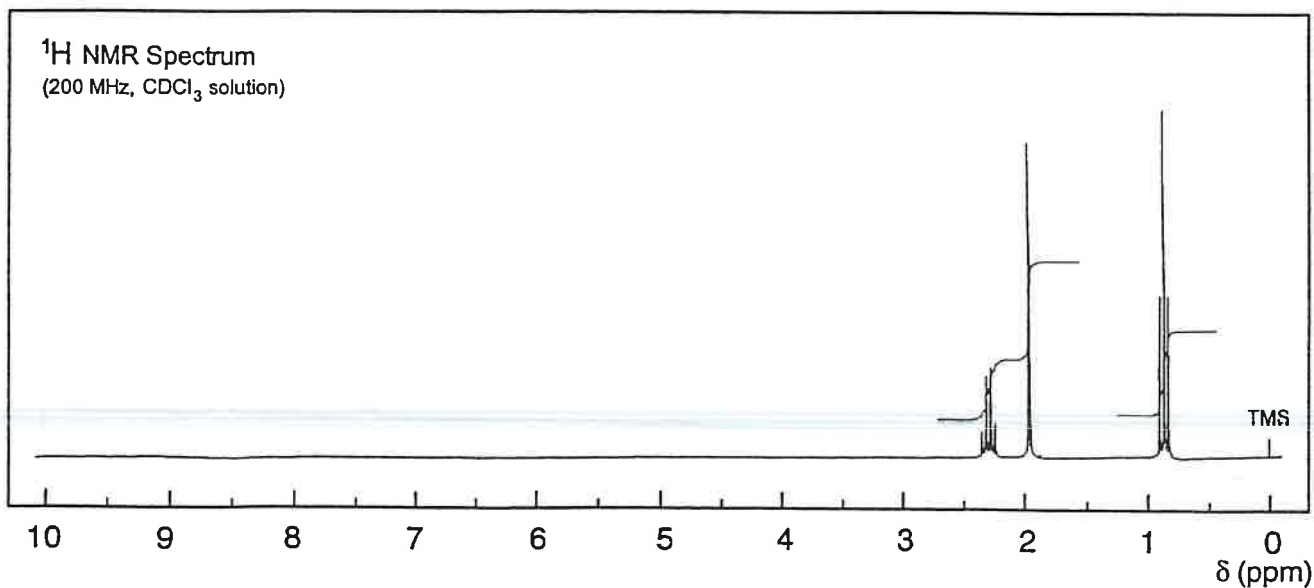
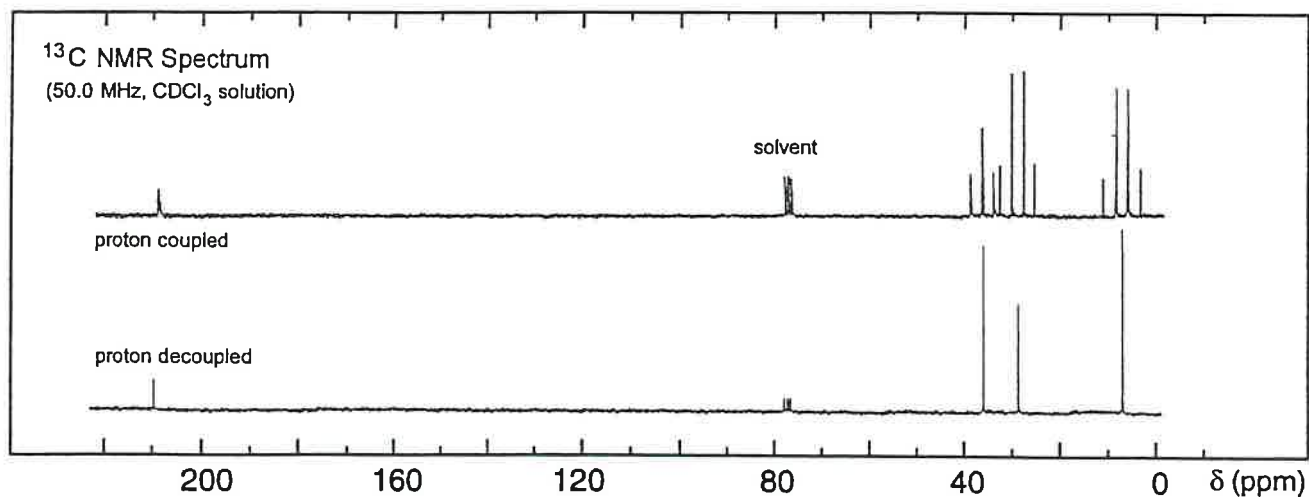
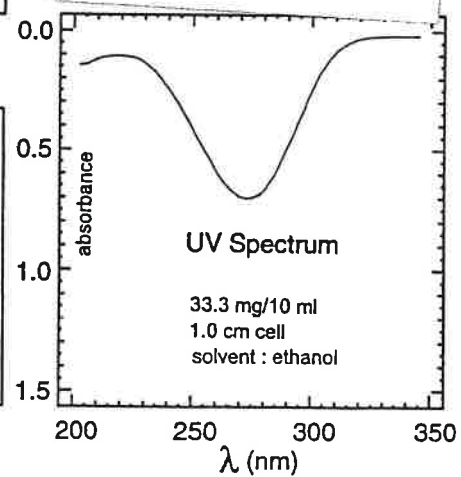
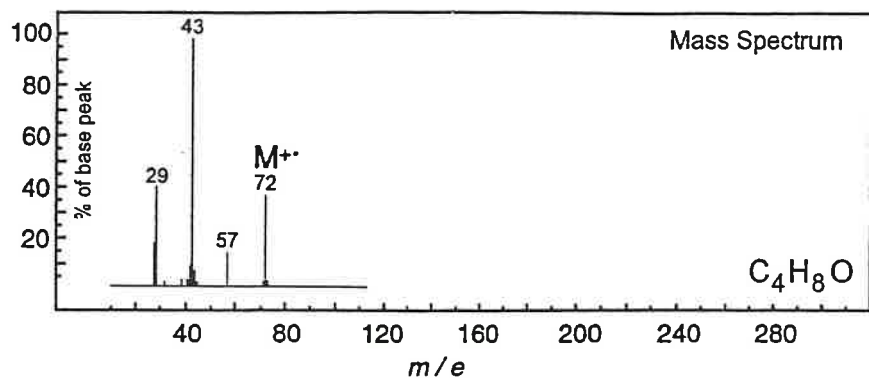
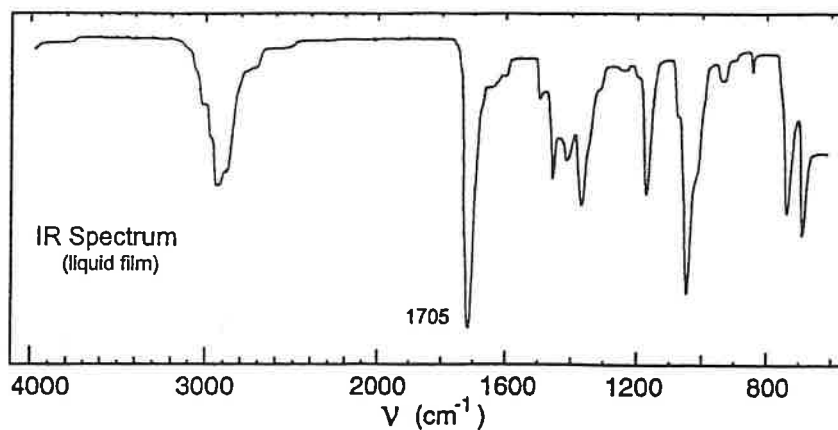
problem 1



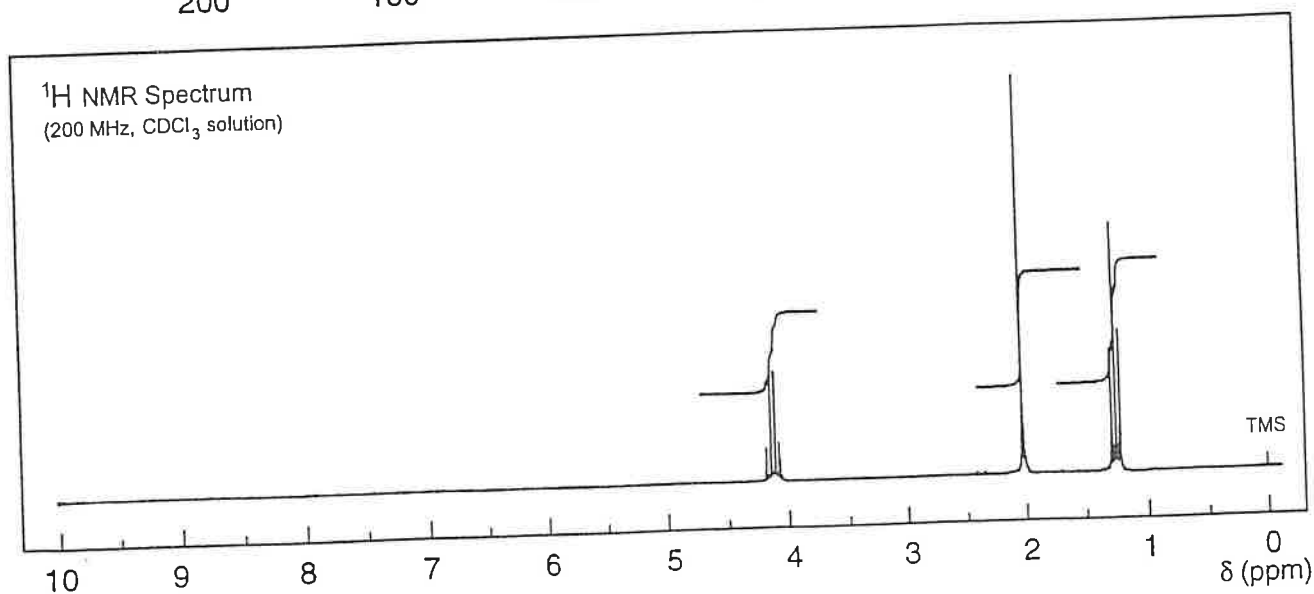
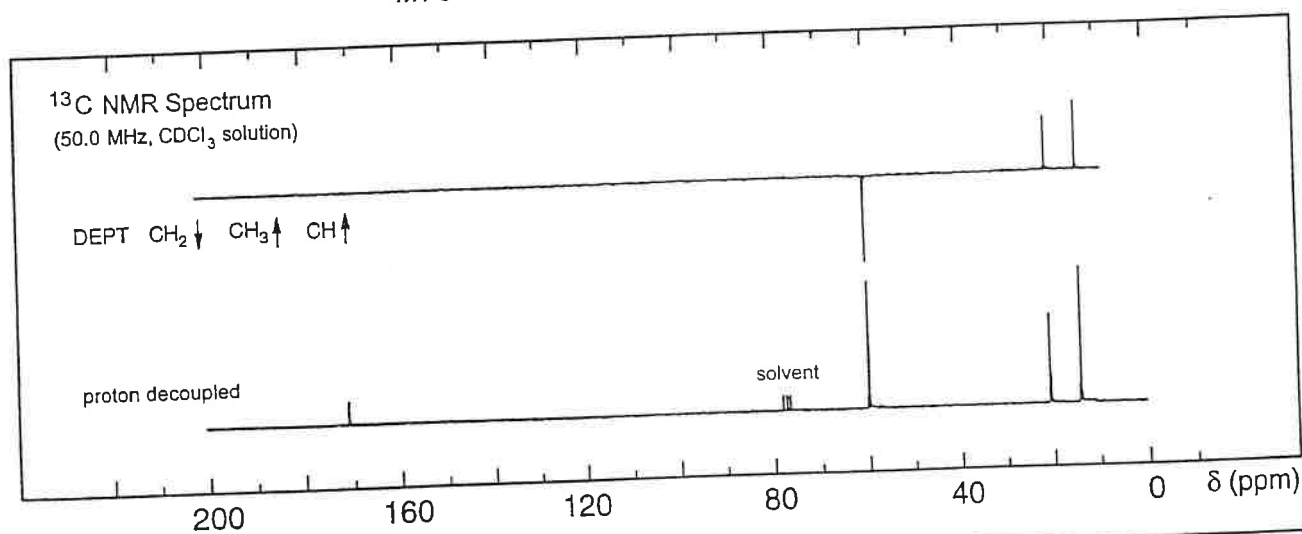
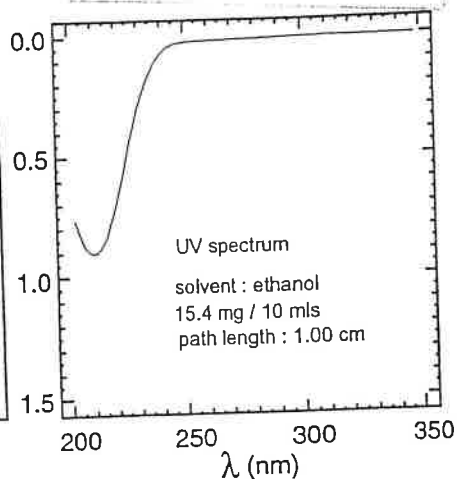
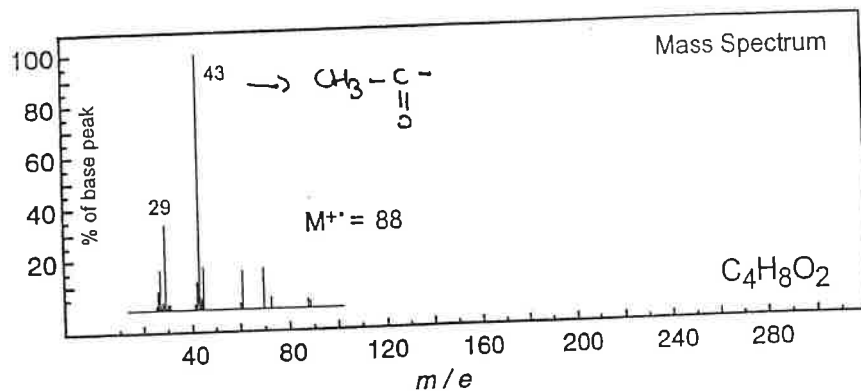
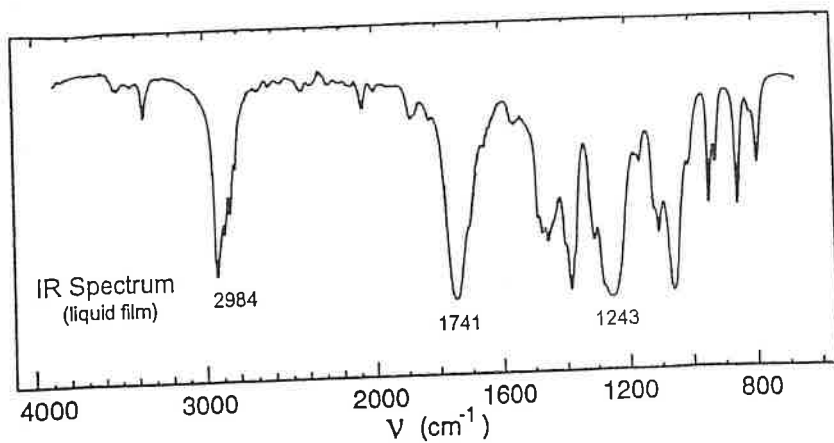
no significant UV
absorption above 220 nm



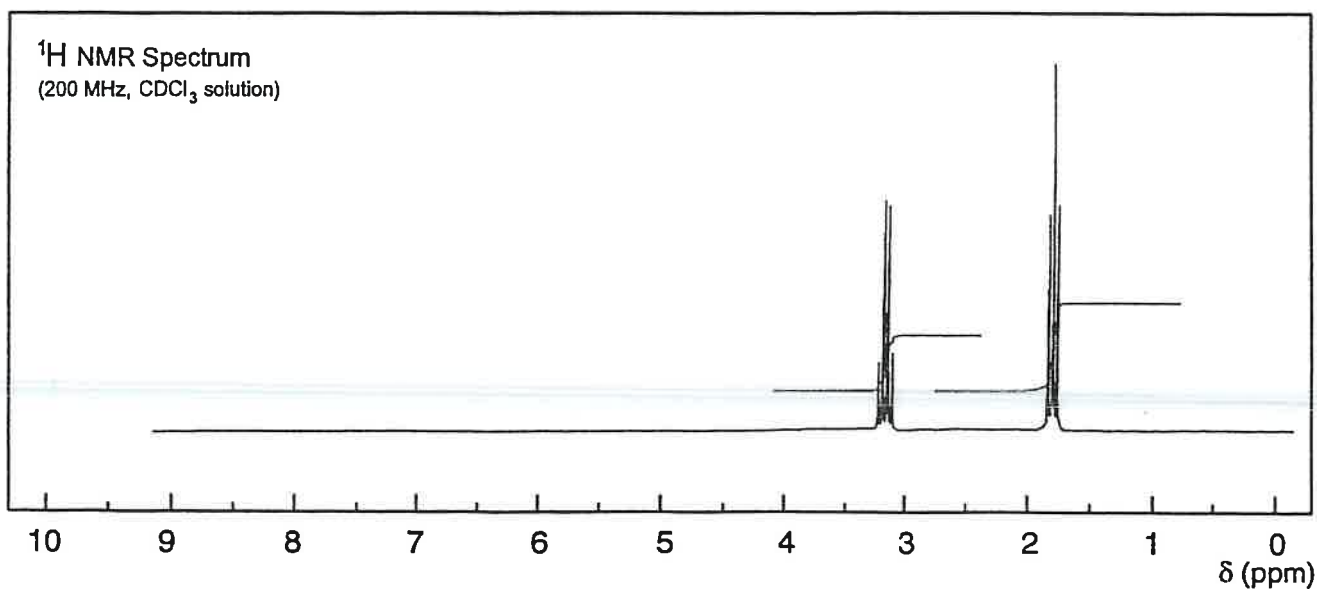
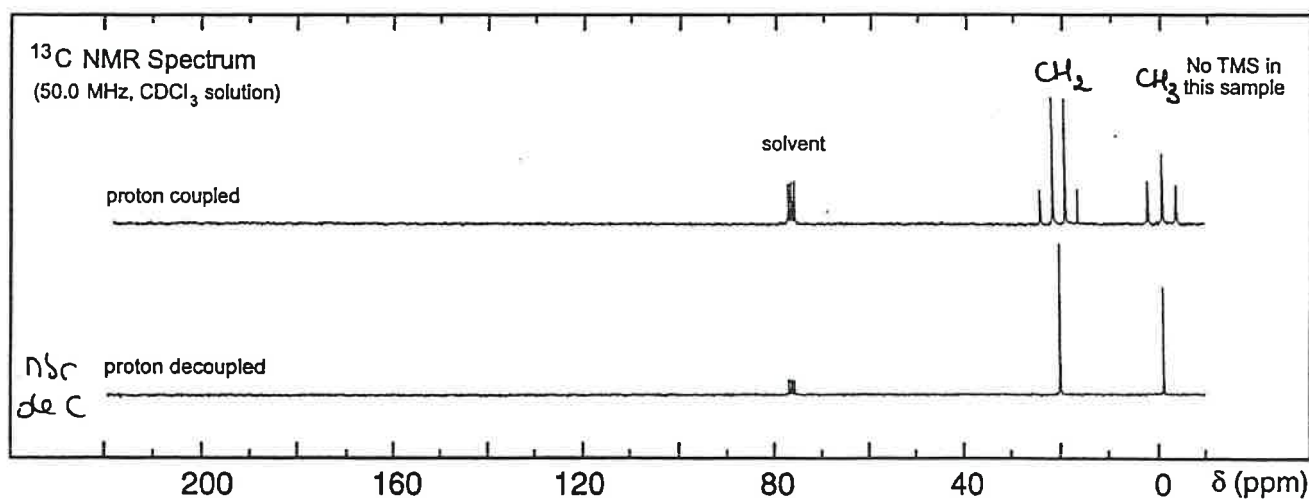
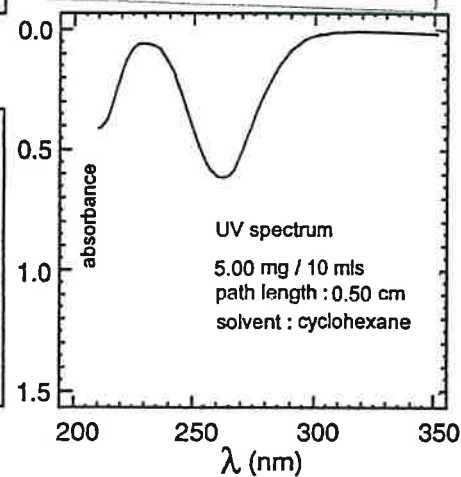
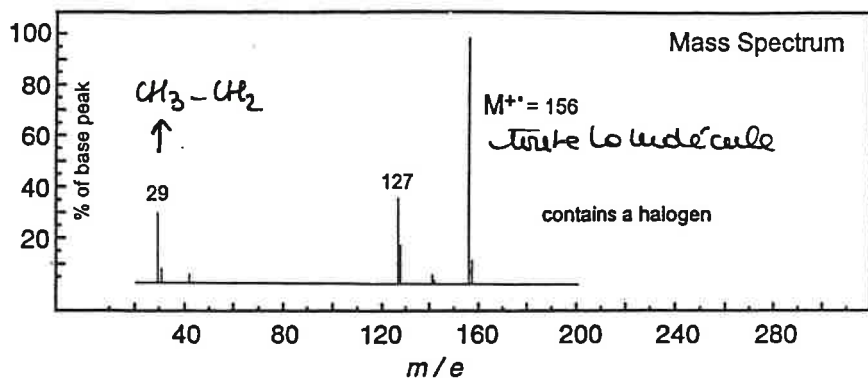
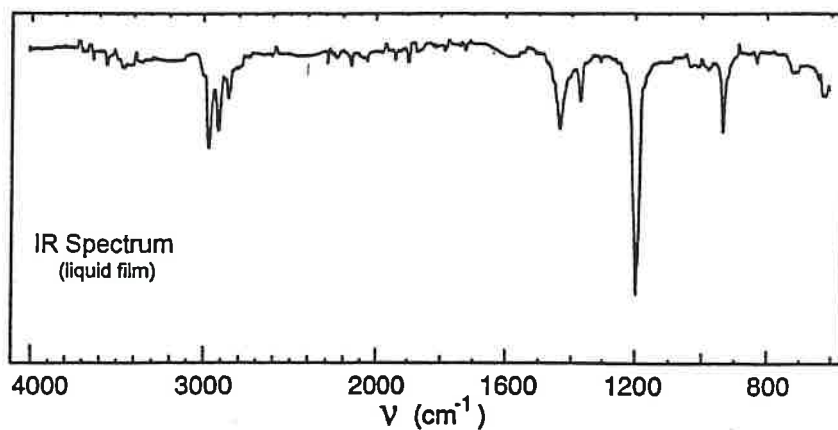
problem 2



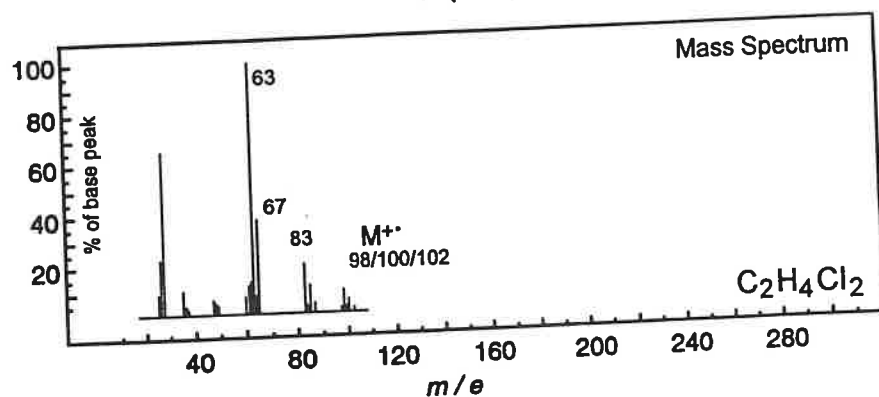
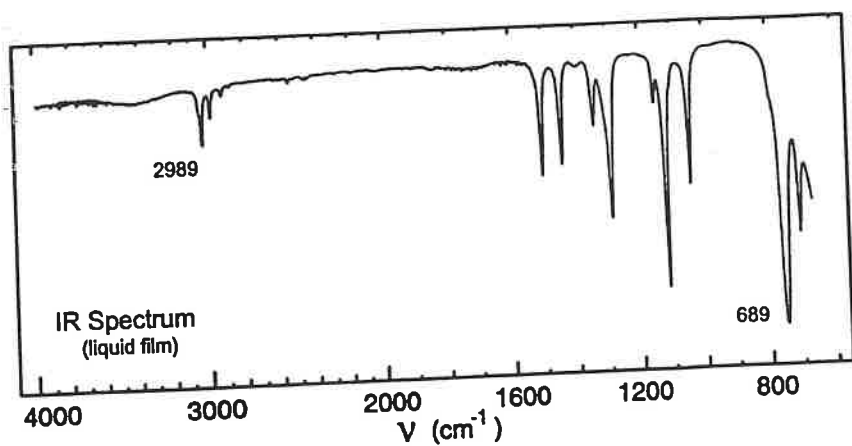
problem 3



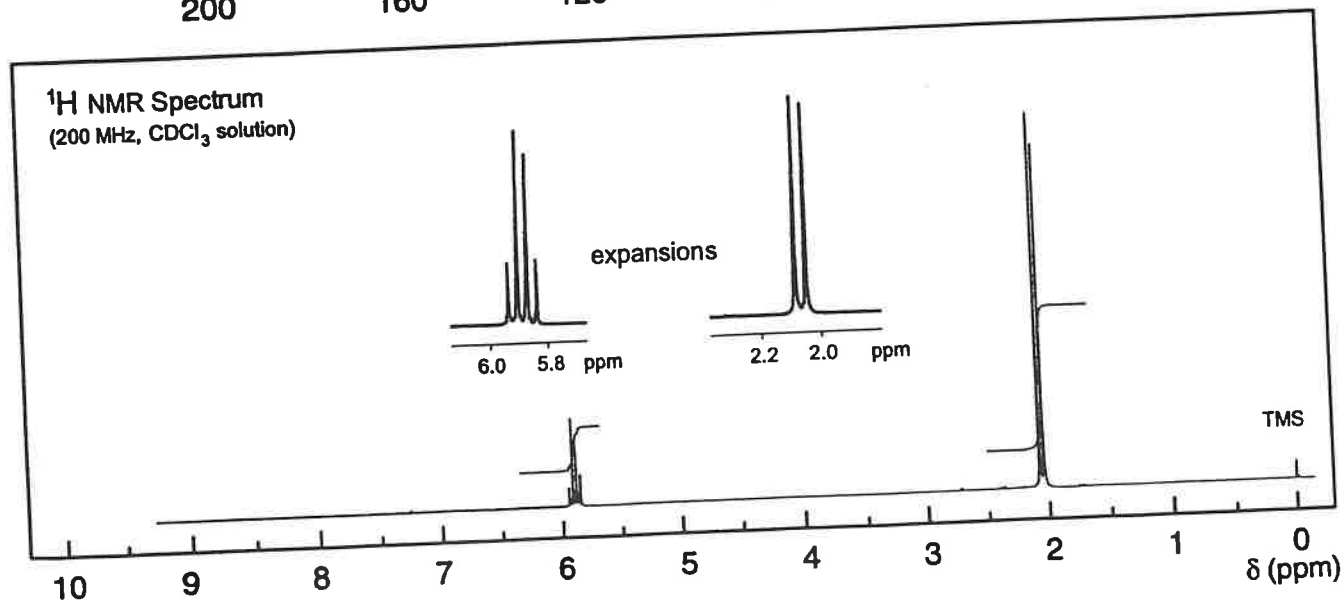
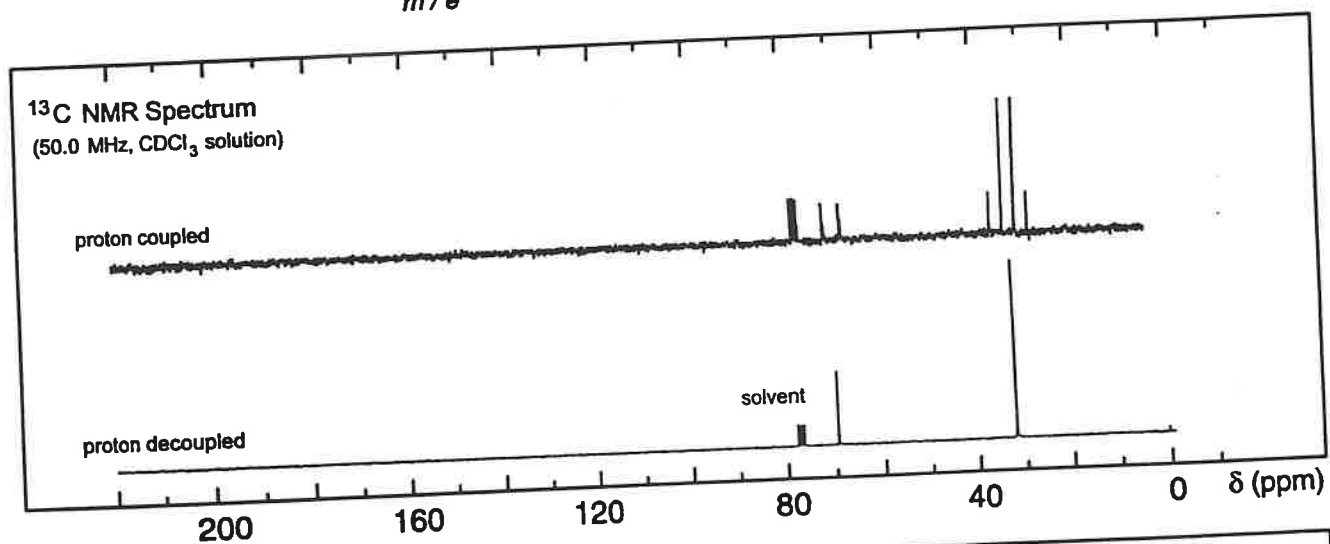
problem 4



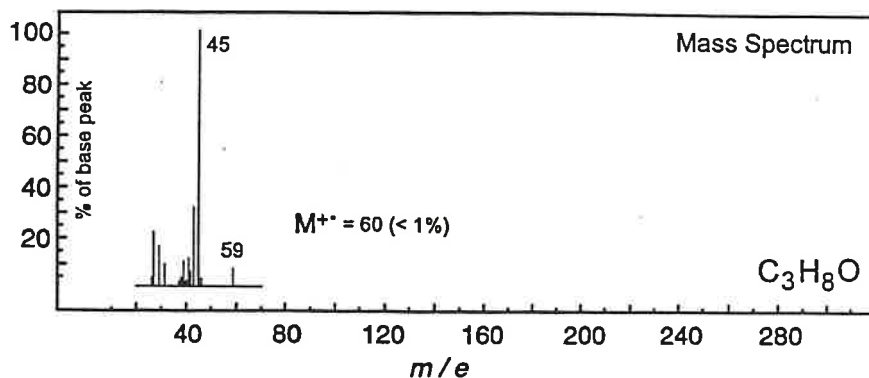
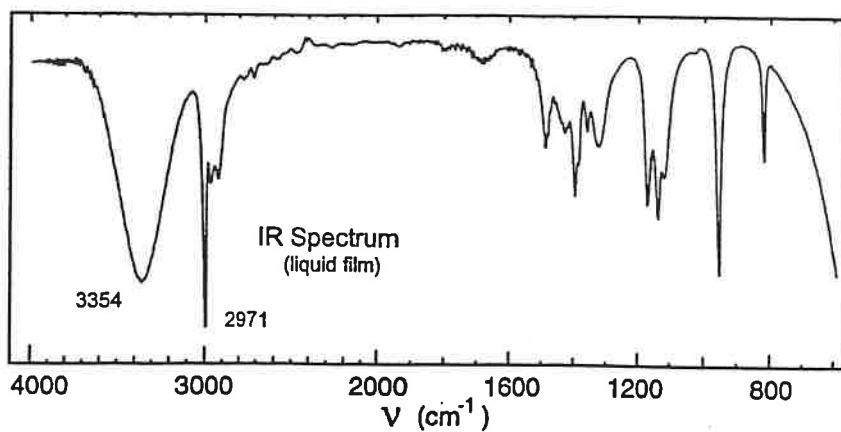
problem 5



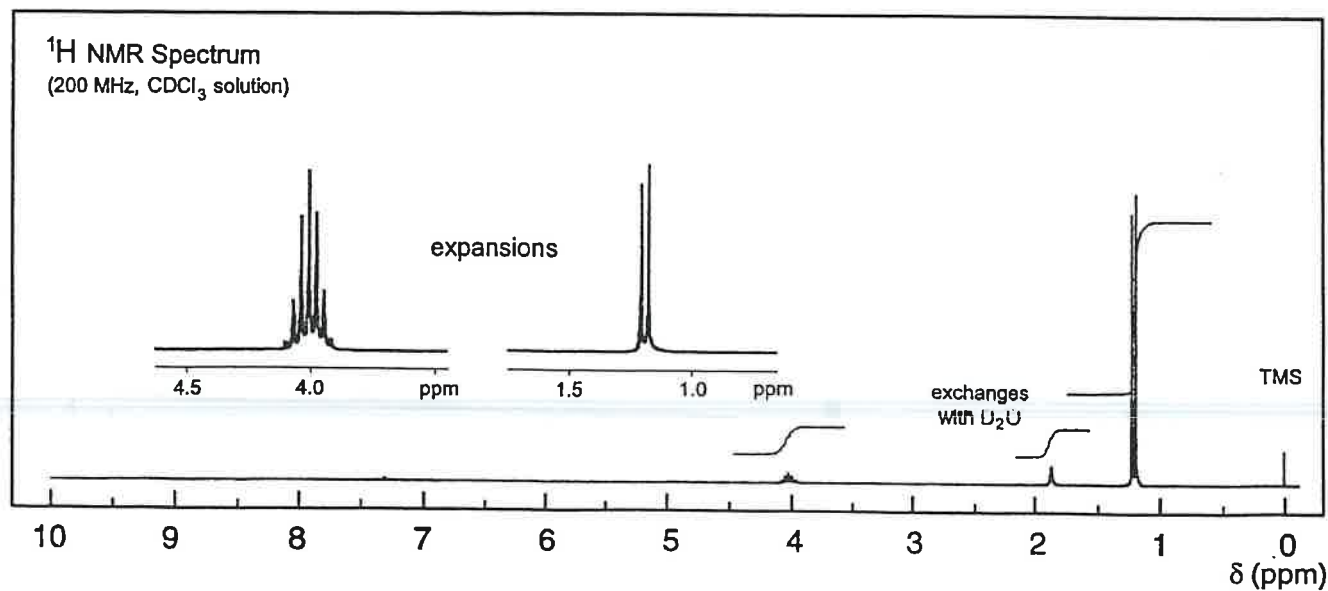
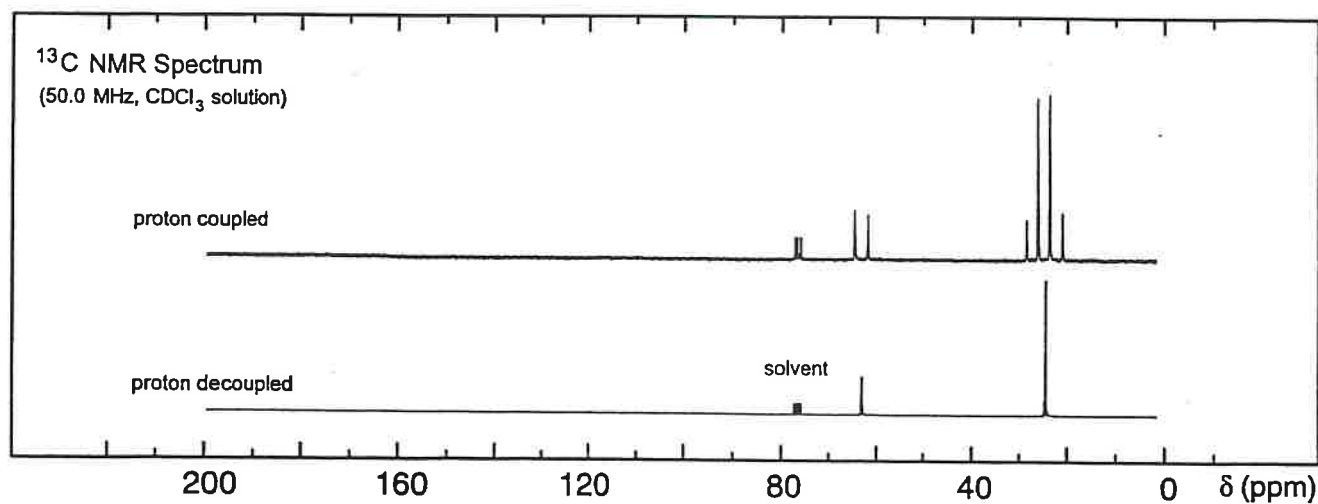
No significant UV
absorption above 220 nm



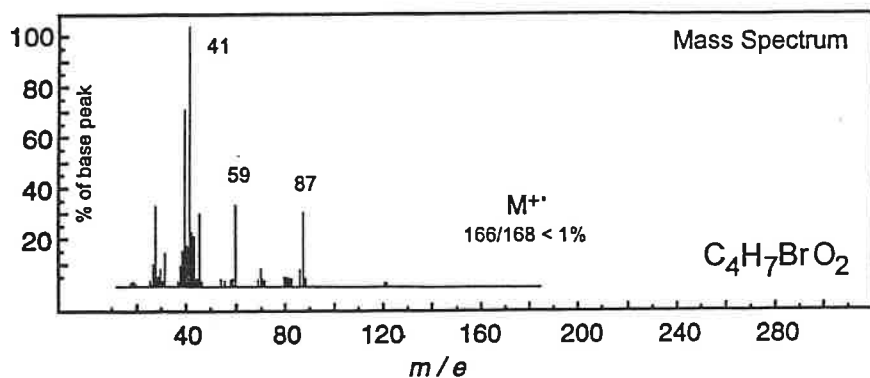
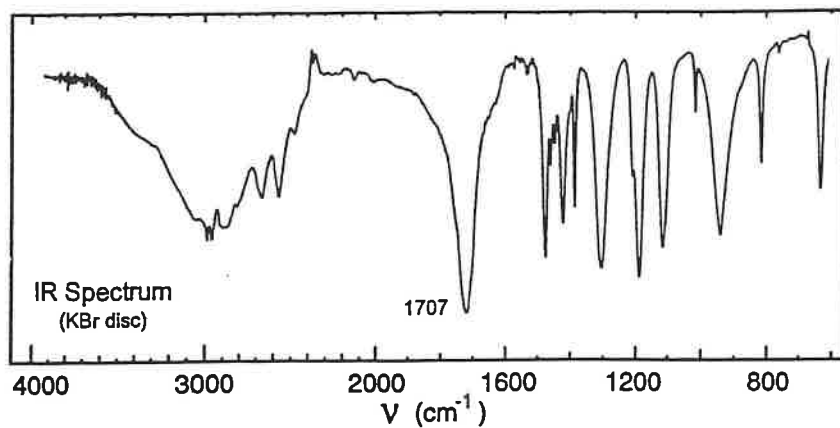
problem 6



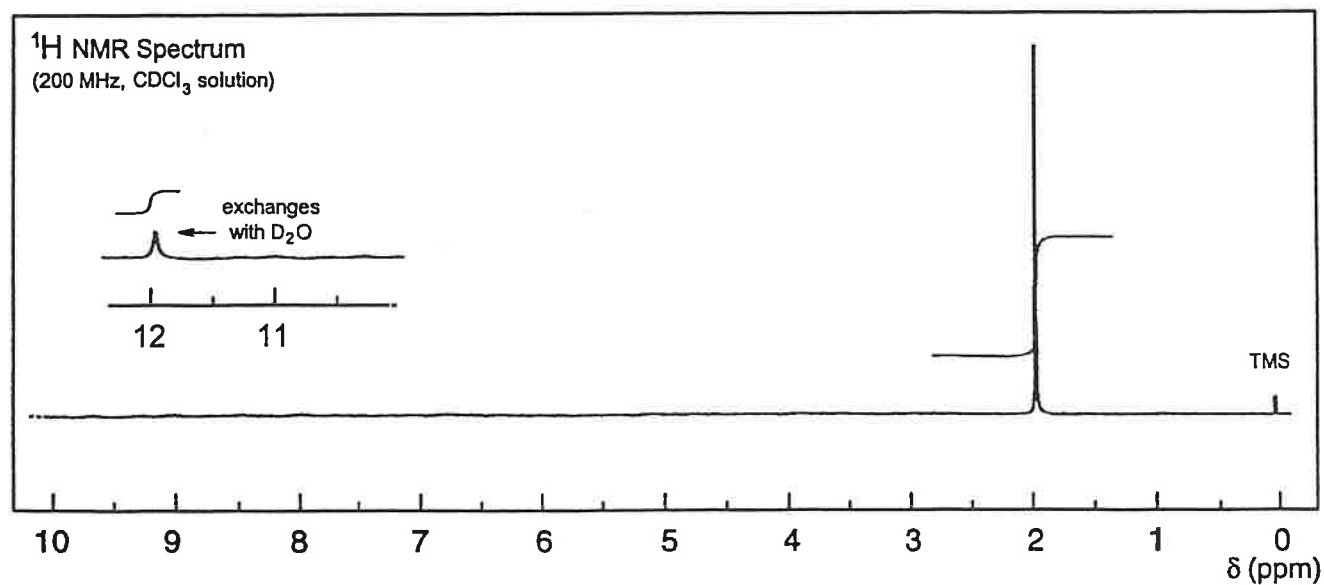
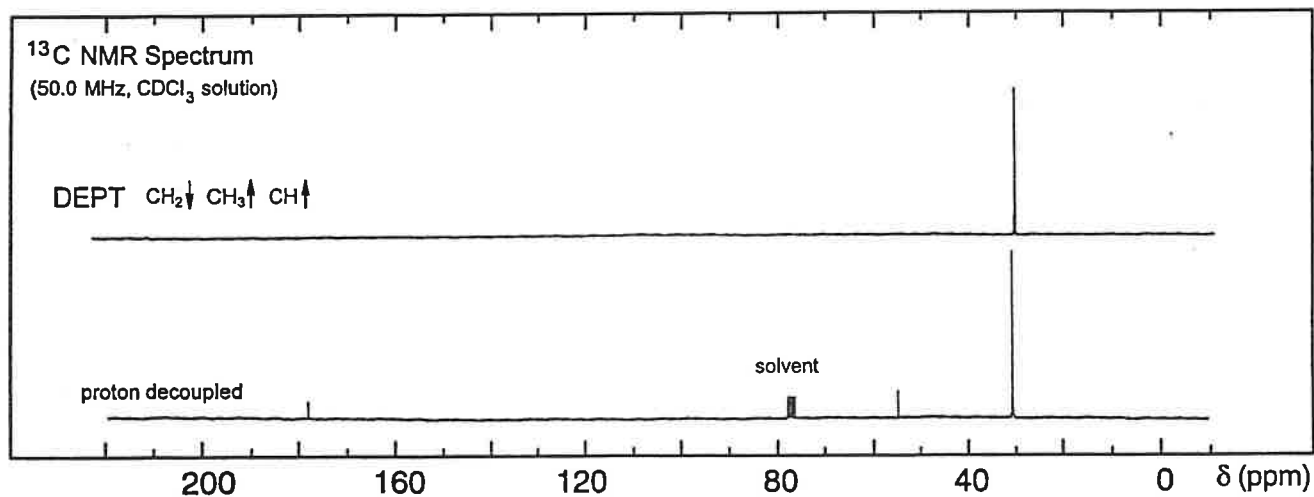
No significant UV
absorption above 220 nm



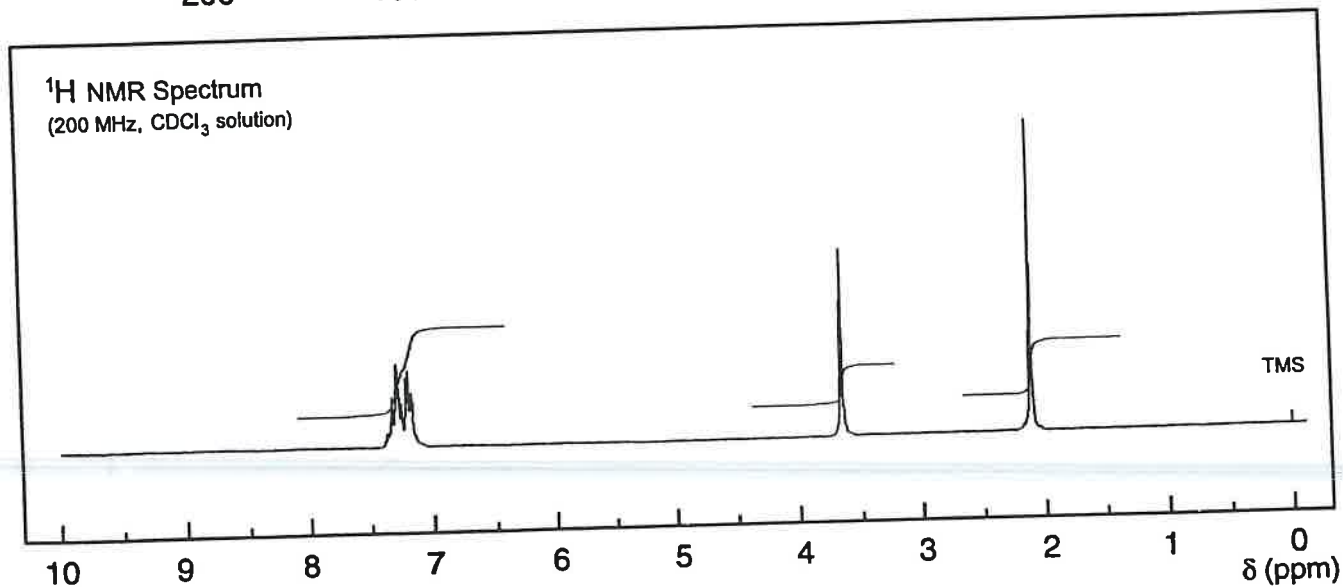
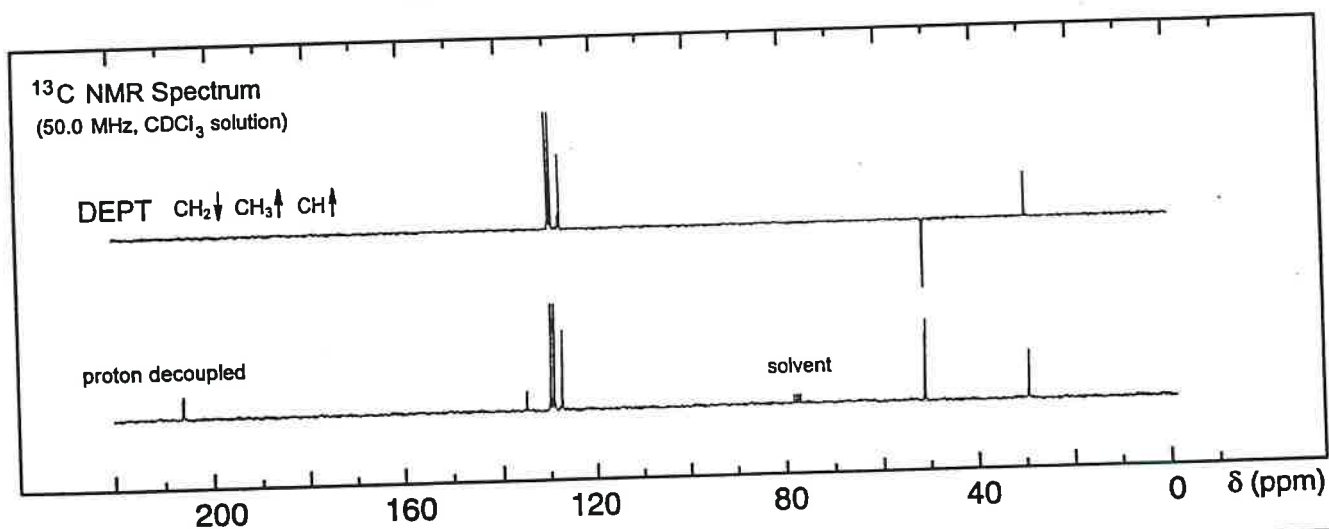
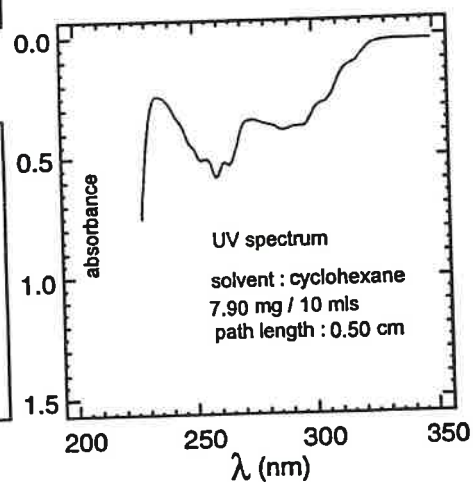
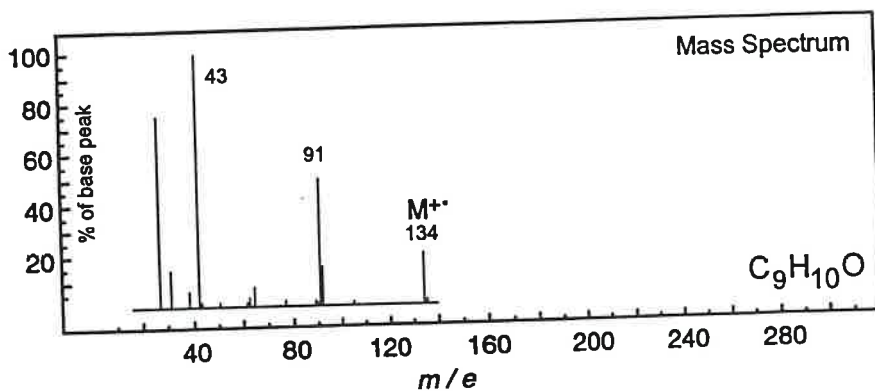
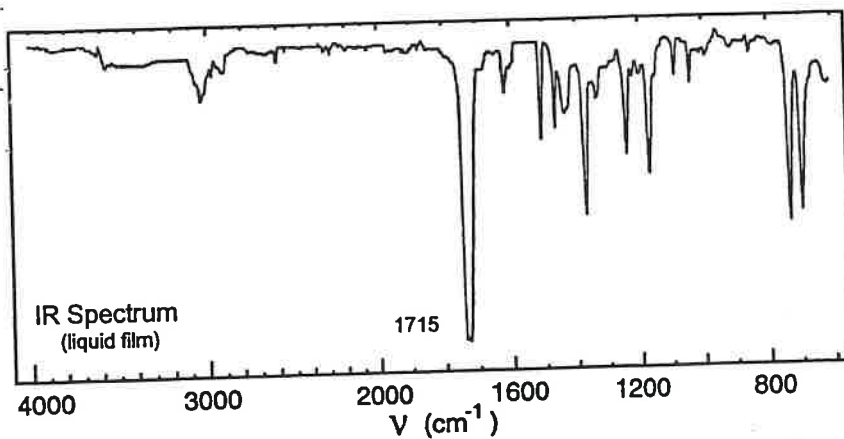
problem 8



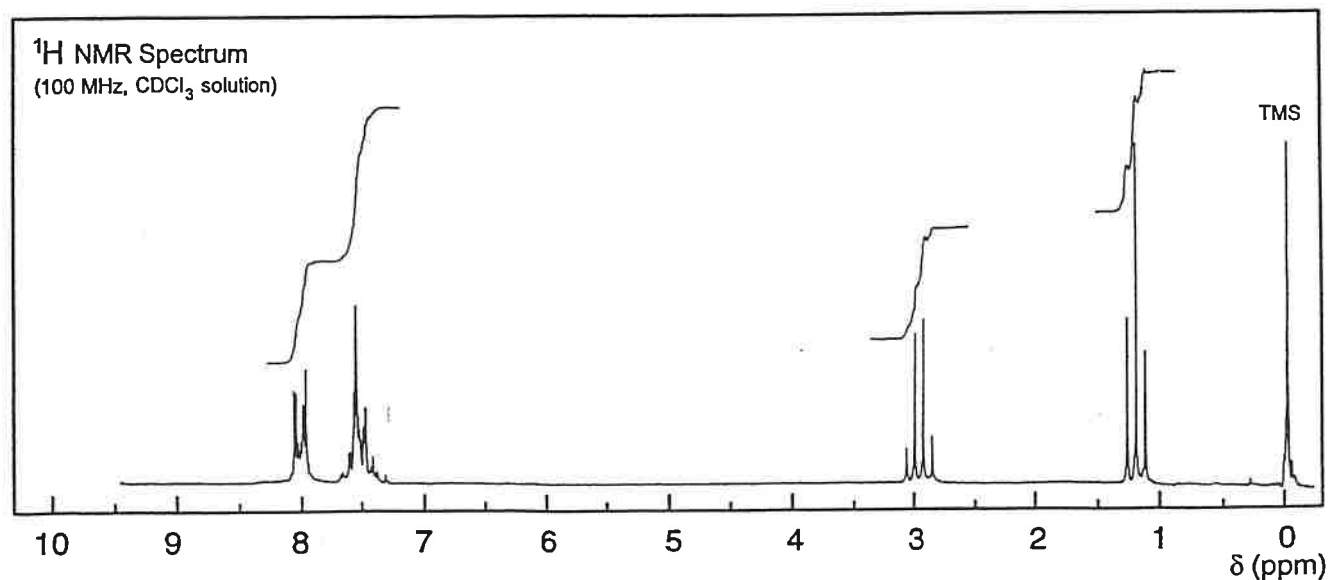
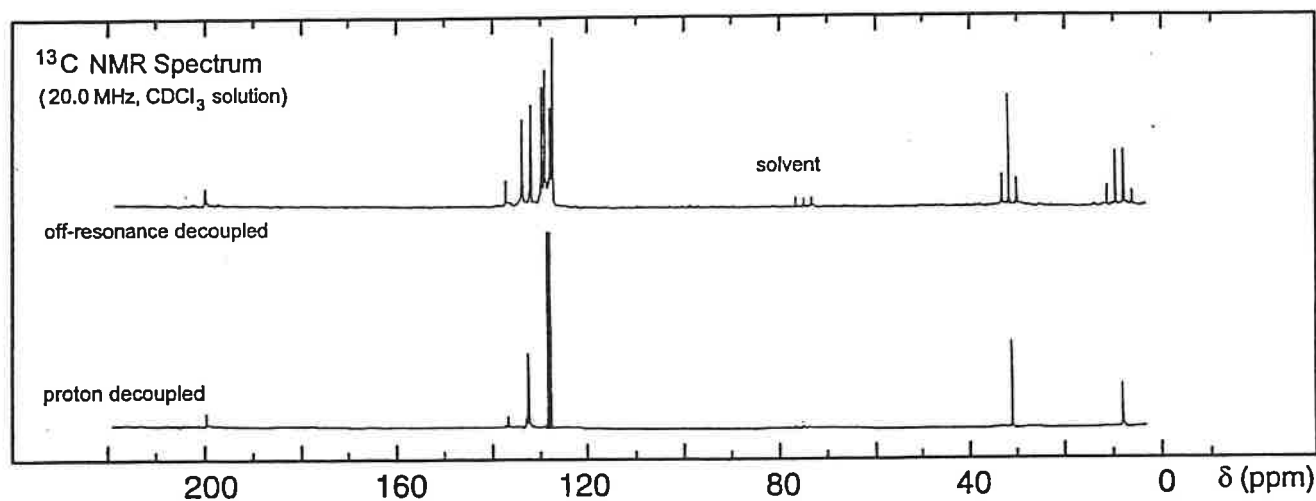
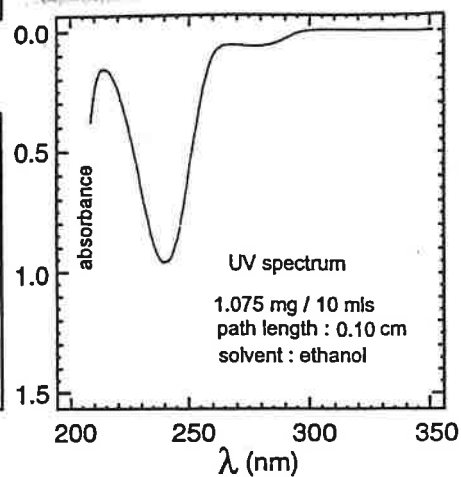
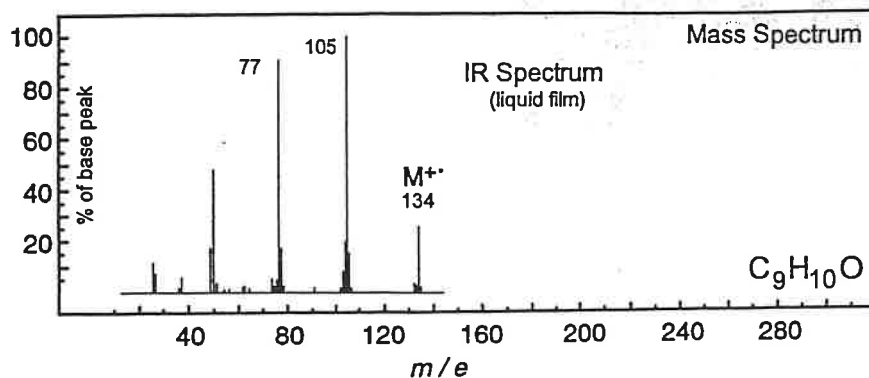
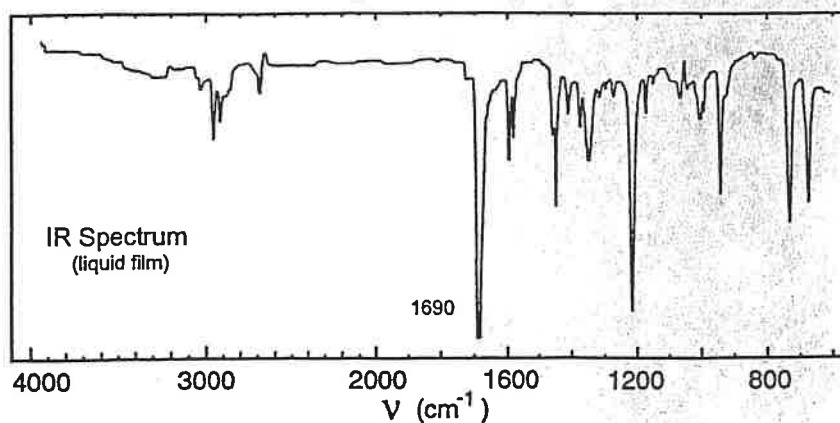
No significant UV
absorption above 220 nm



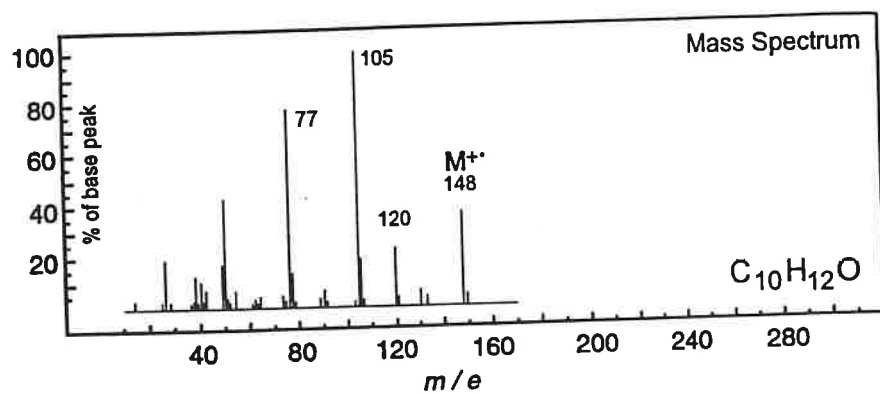
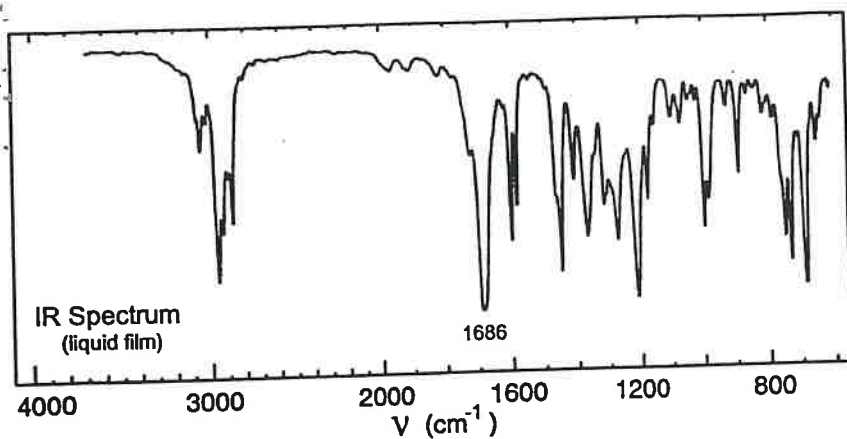
problem 9



problem 10



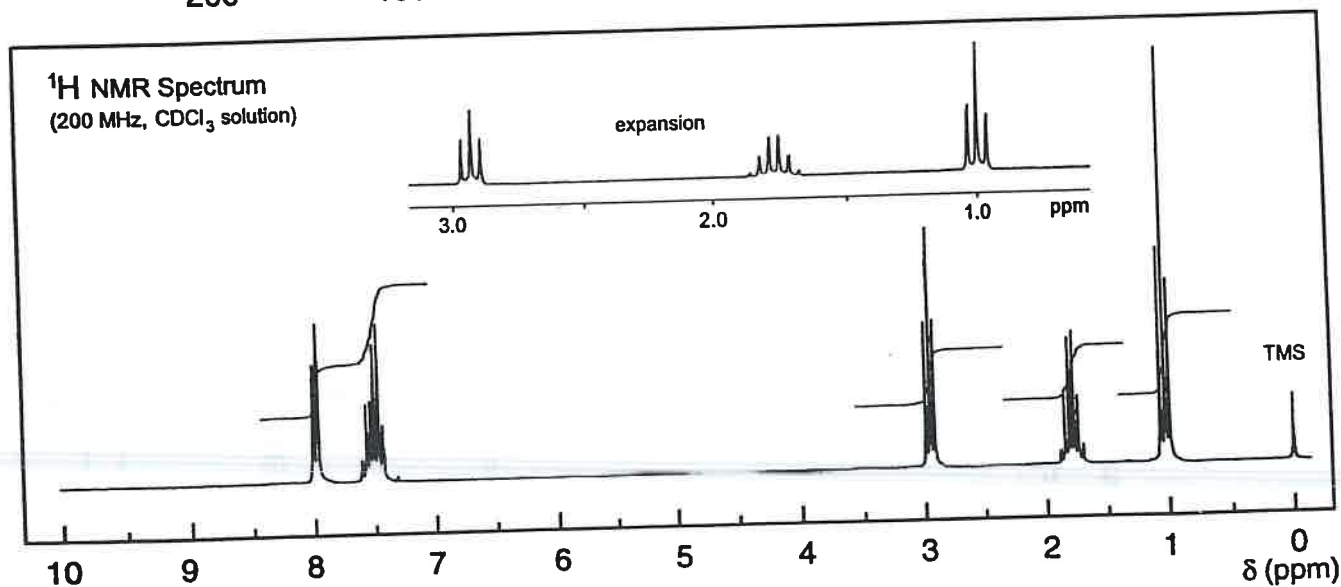
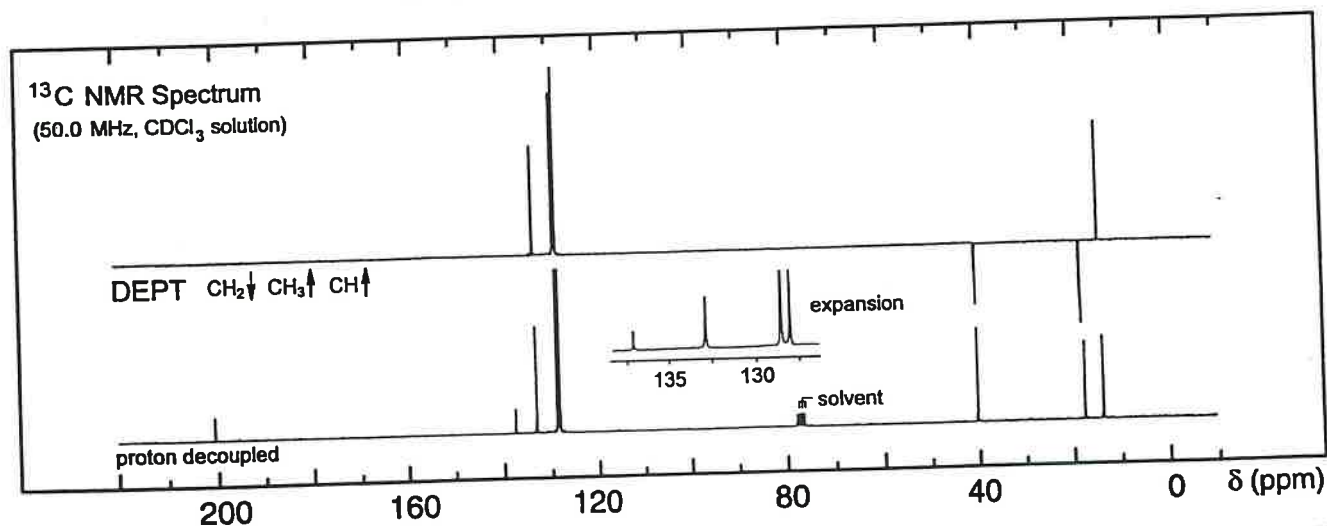
problem 11



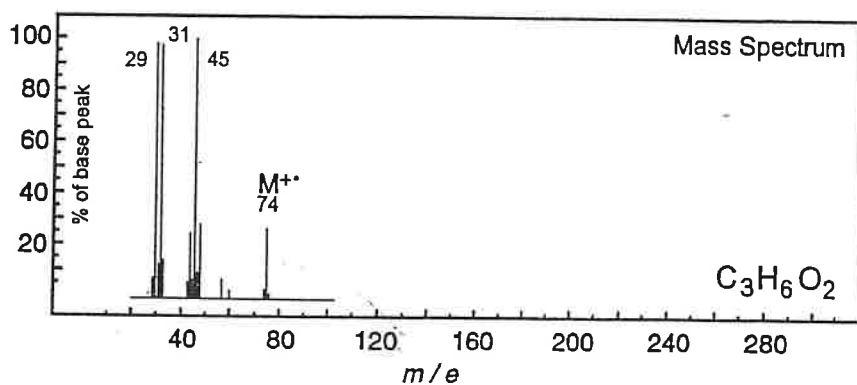
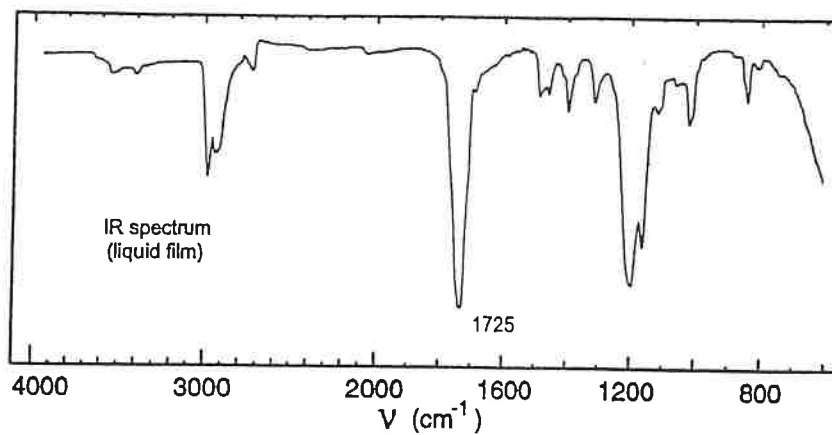
UV Spectrum

λ_{max} 241 nm ($\log_{10} \epsilon$ 4.1)

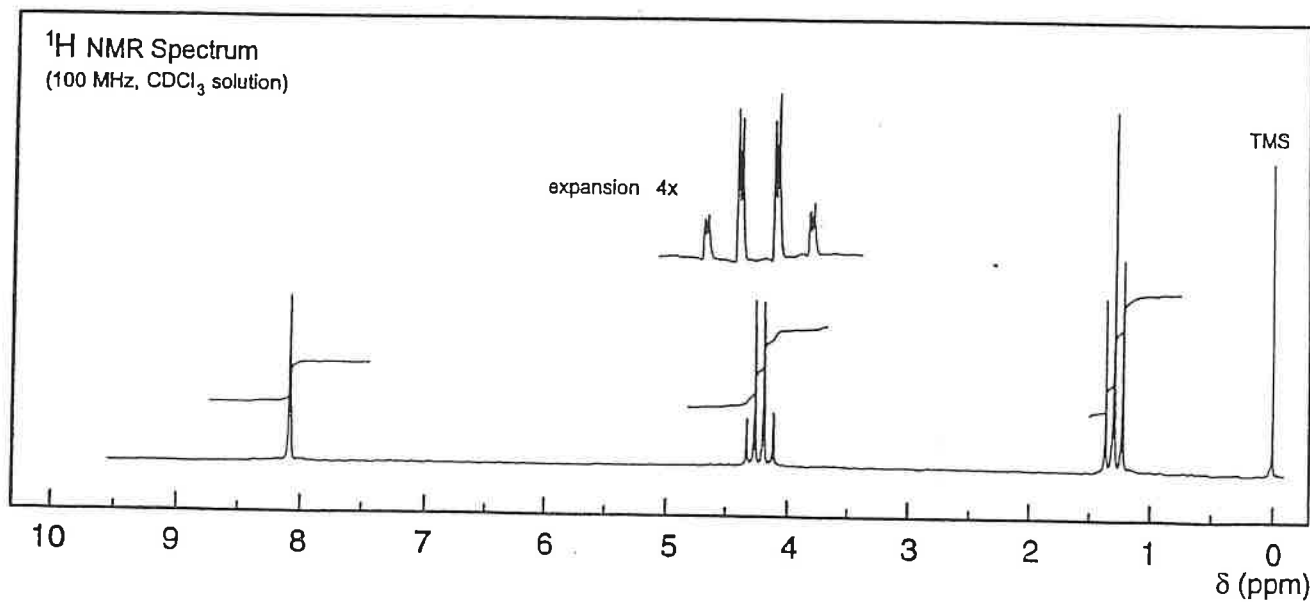
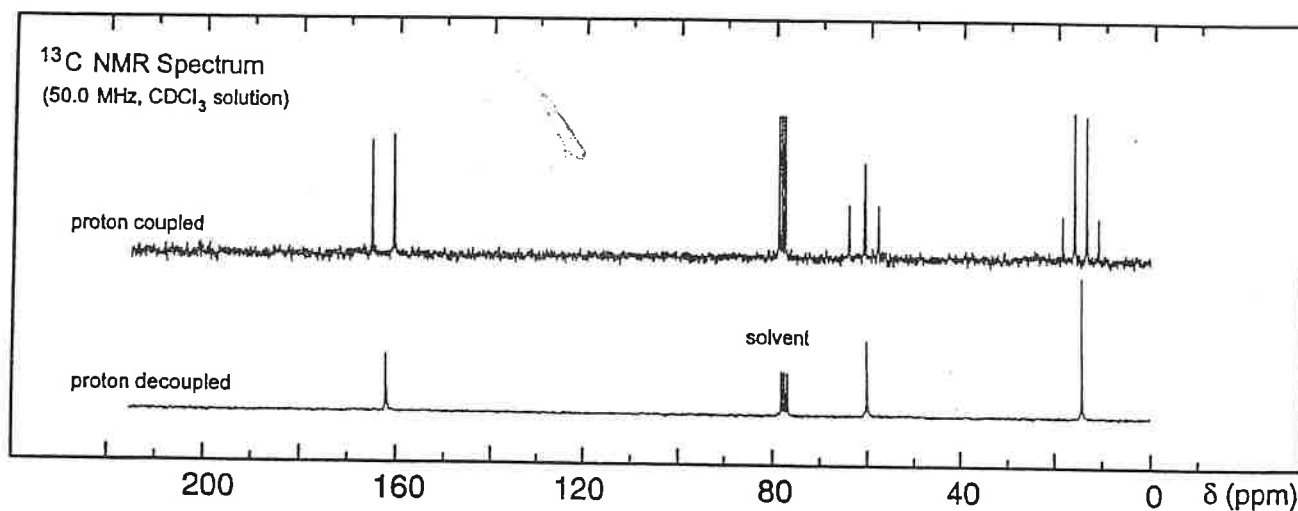
solvent : methanol



problem 12

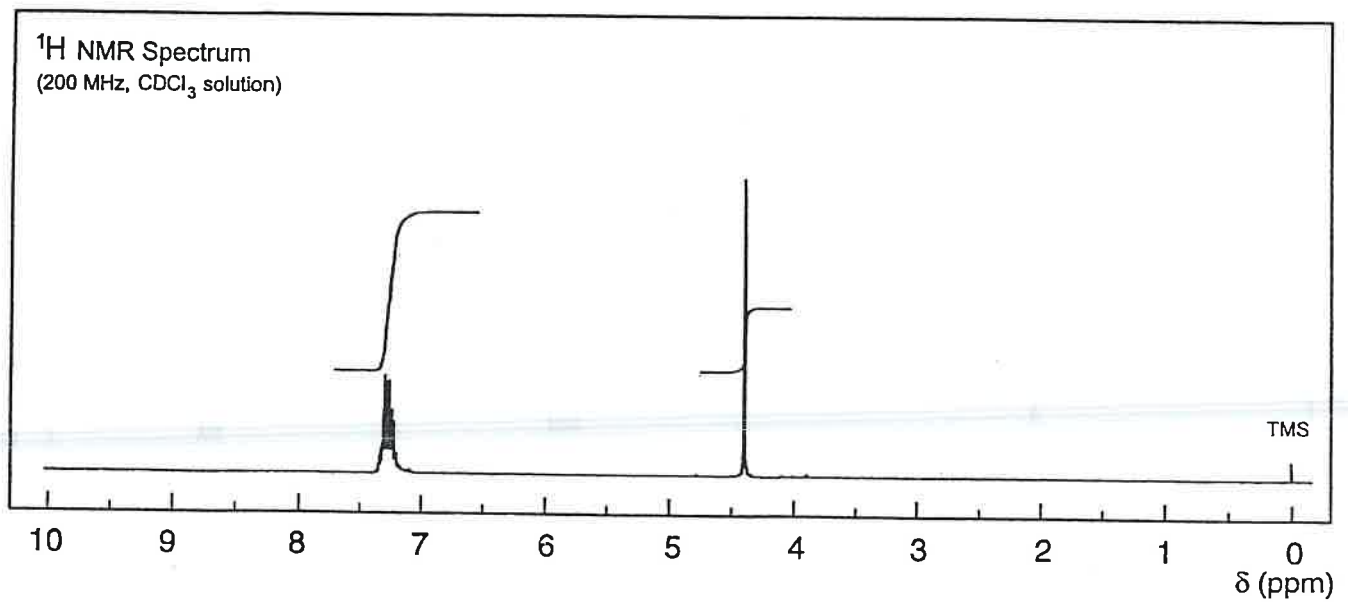
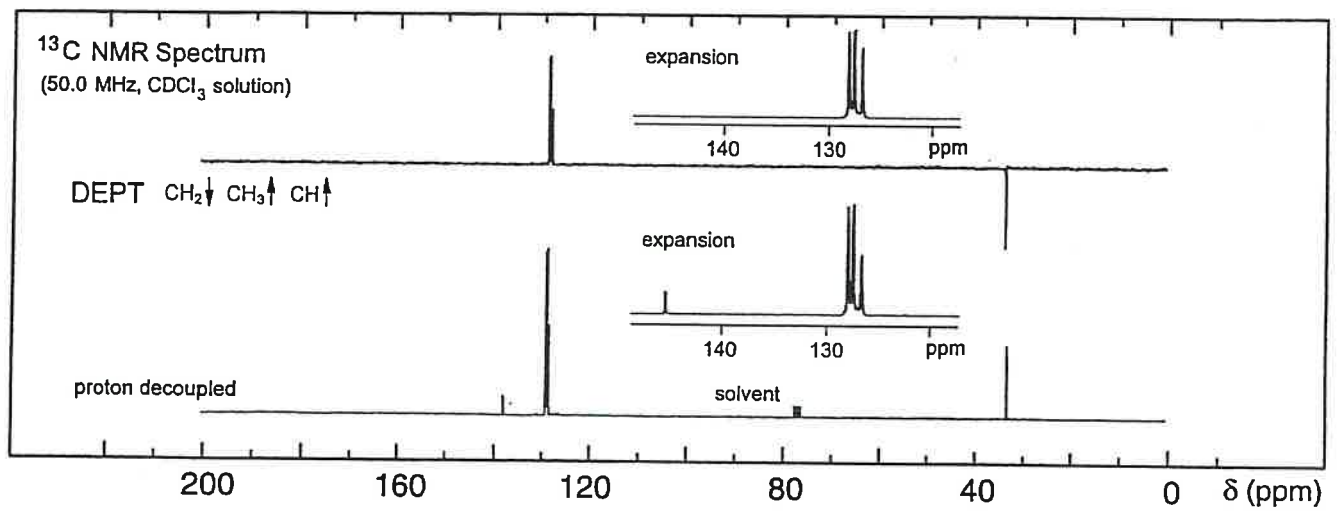
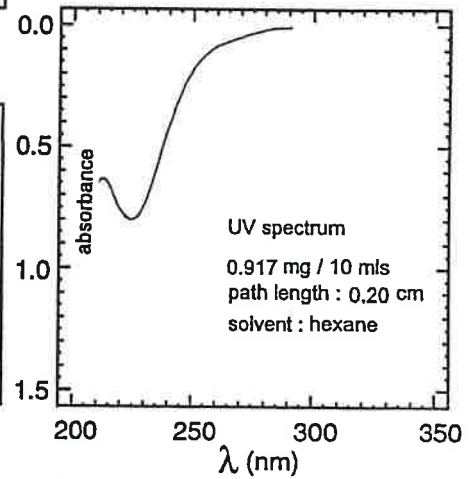
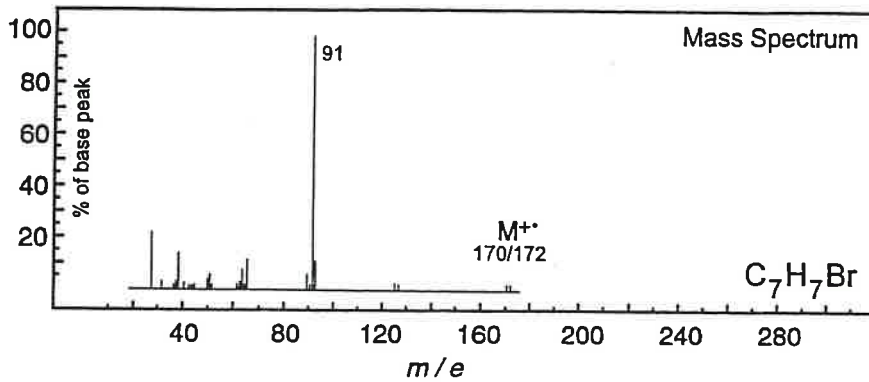
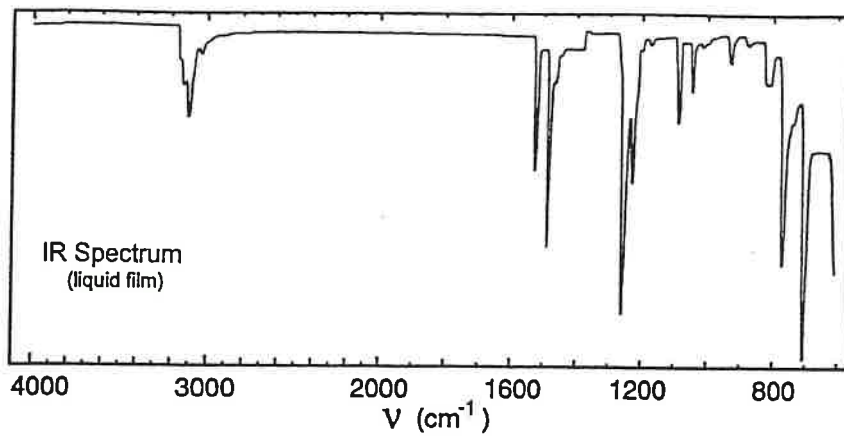


No significant UV
absorption above 210 nm



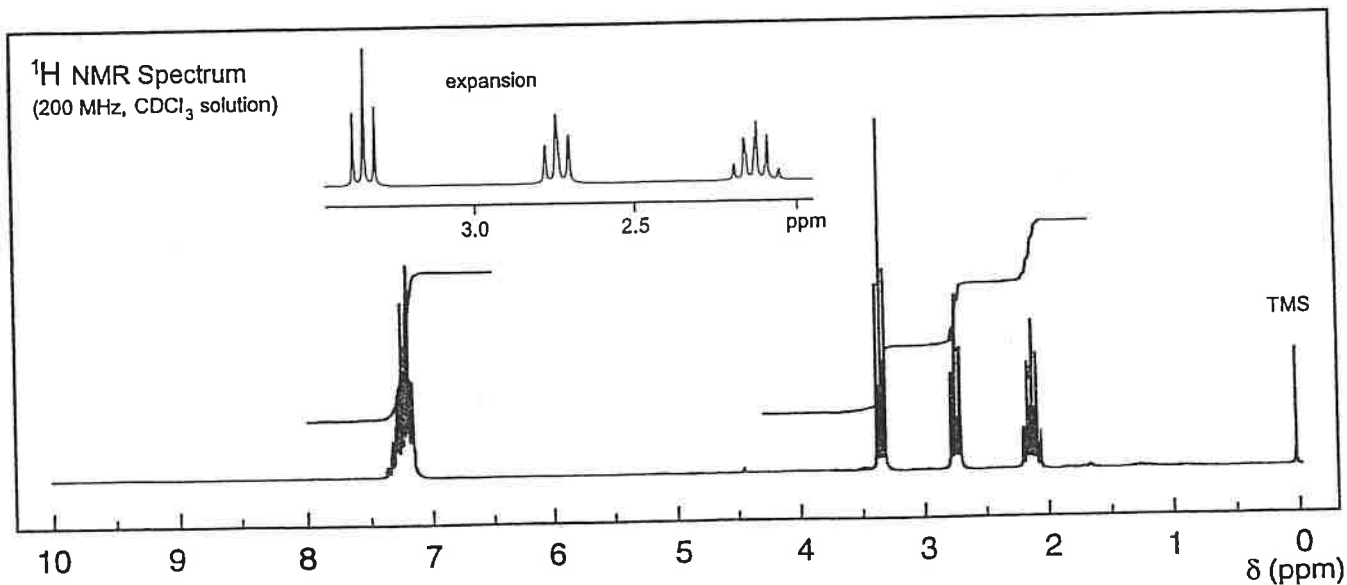
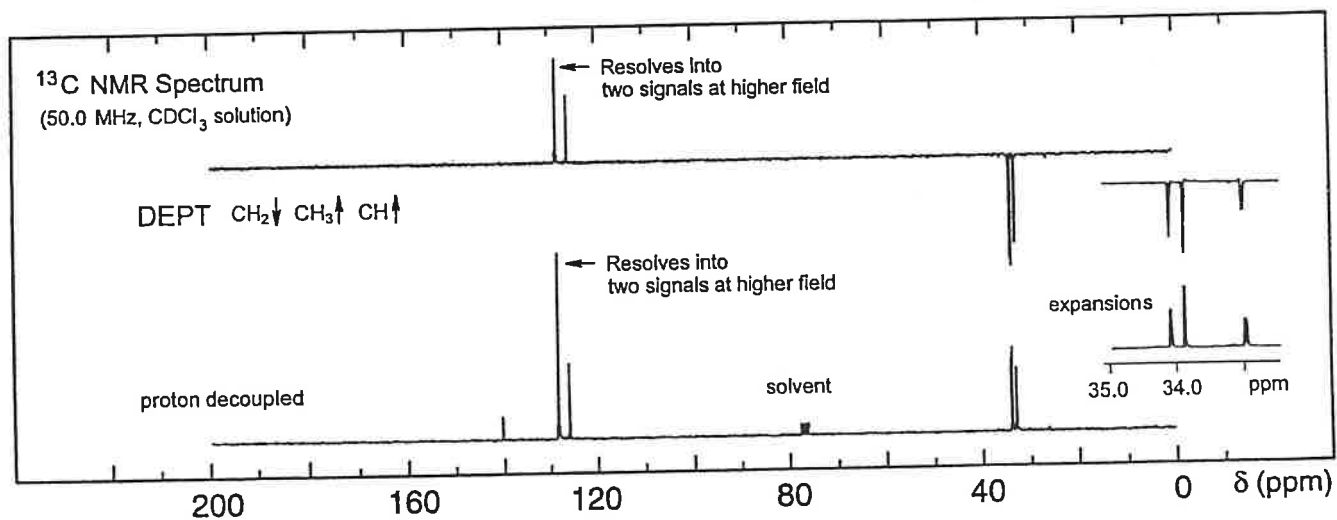
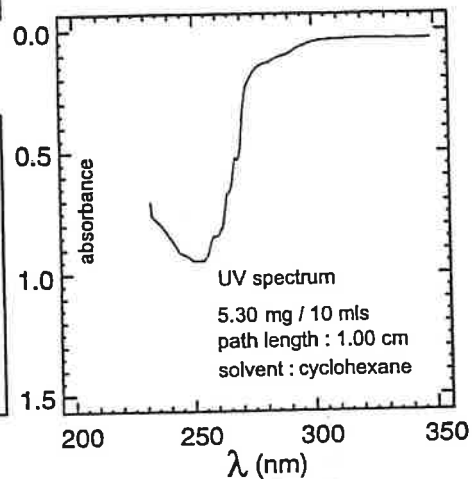
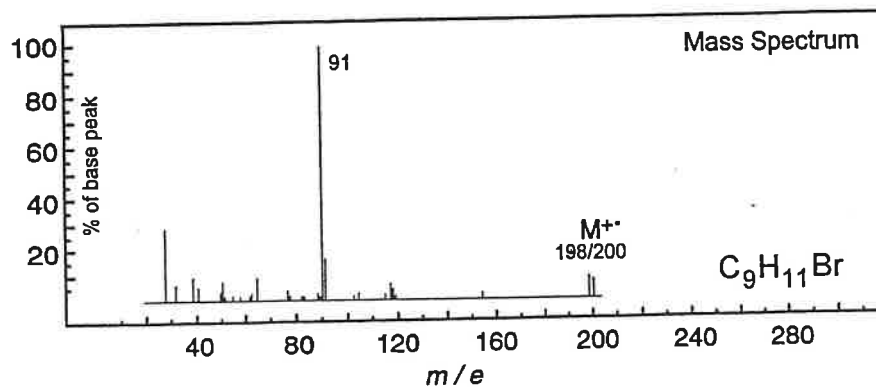
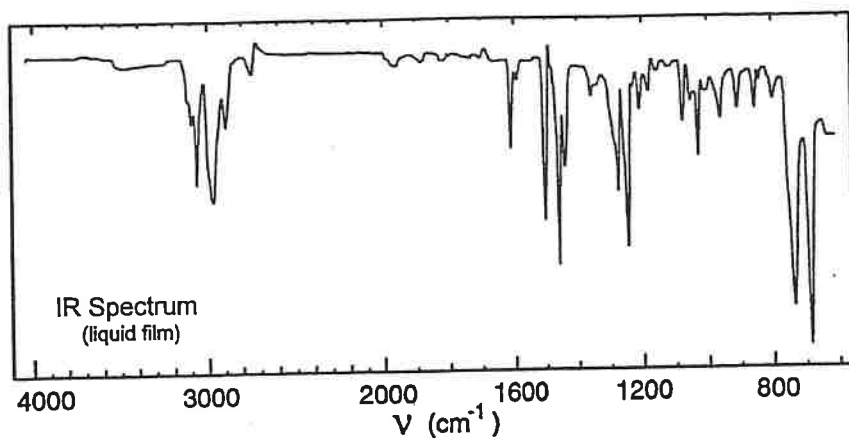
3

problem 15



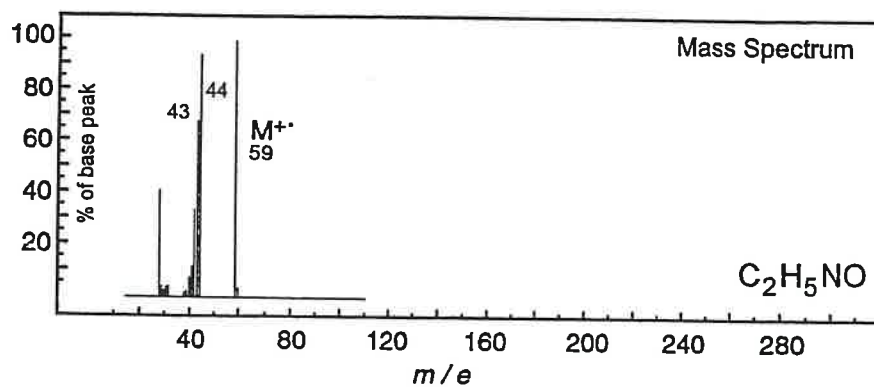
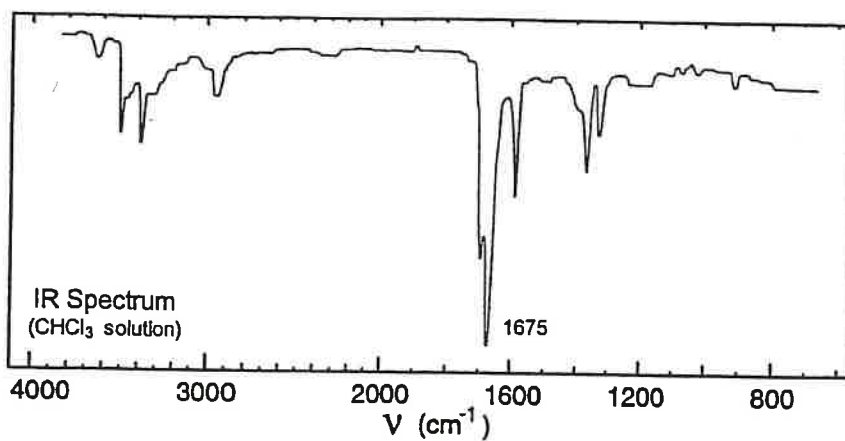
4

problem 16

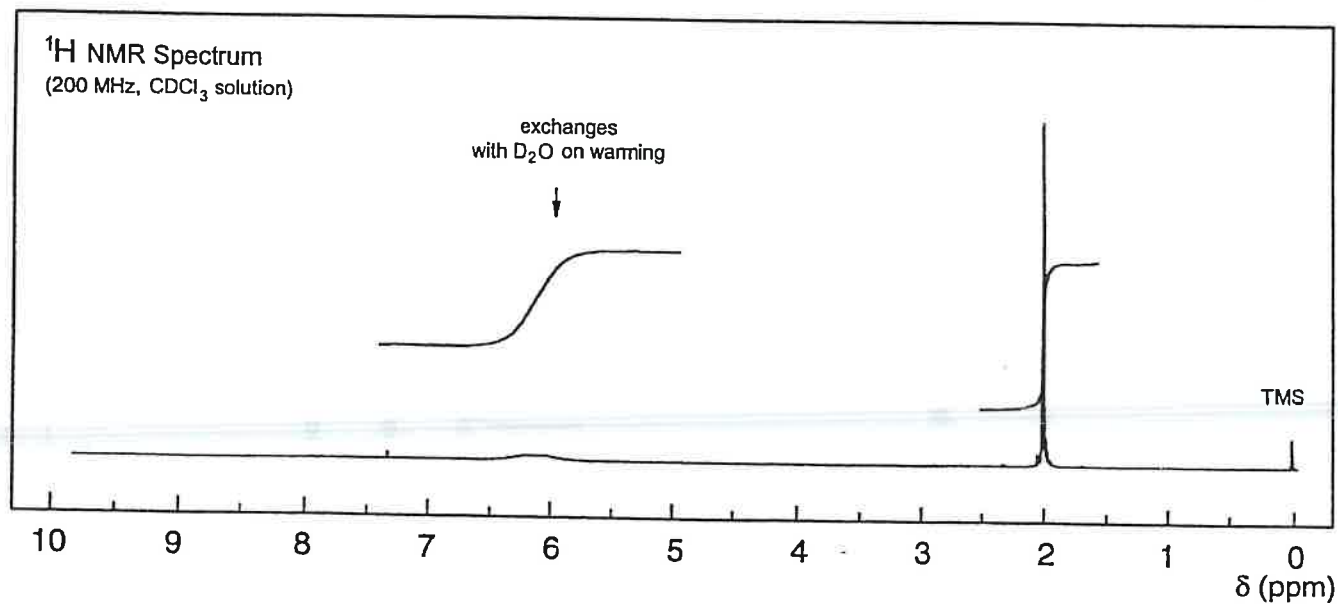
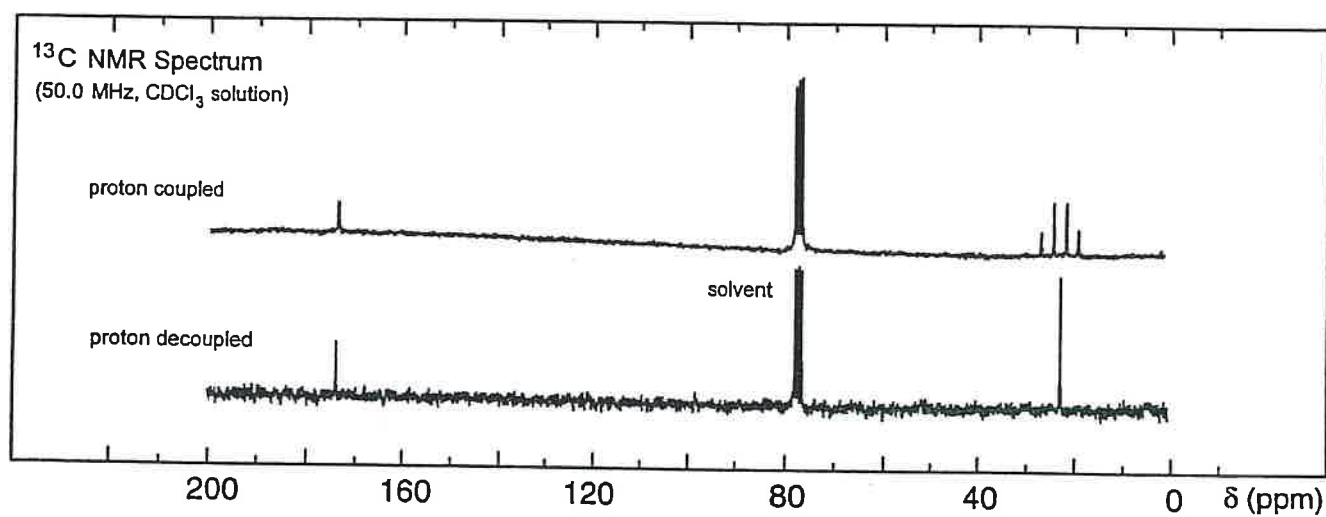


5

problem 17

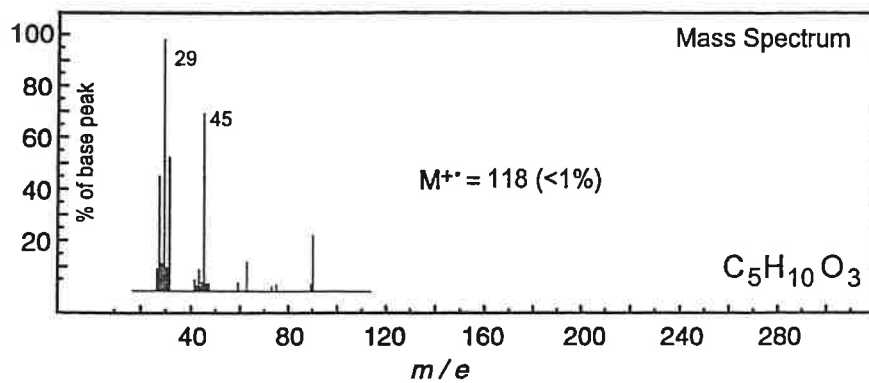
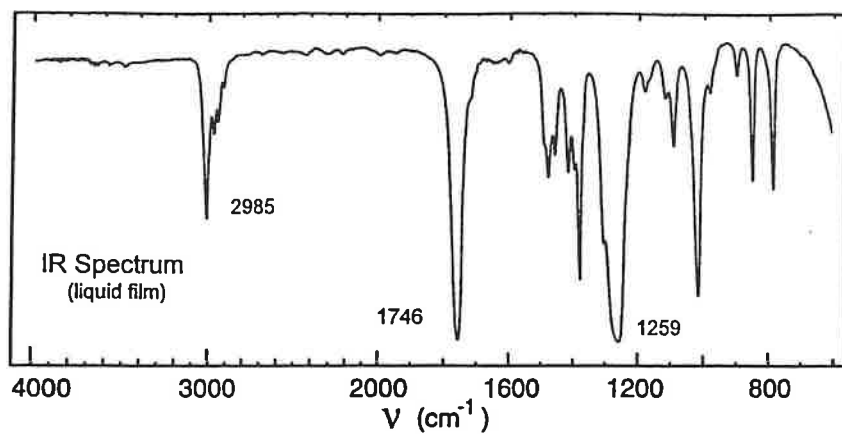


No significant UV
absorption above 210 nm

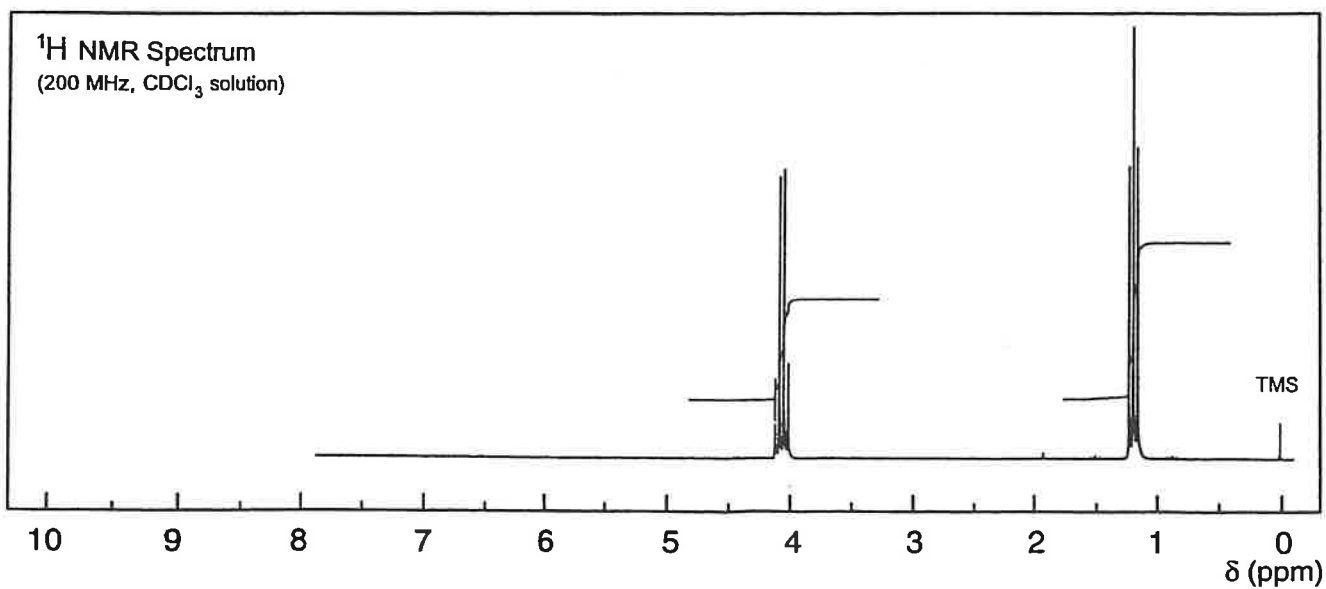
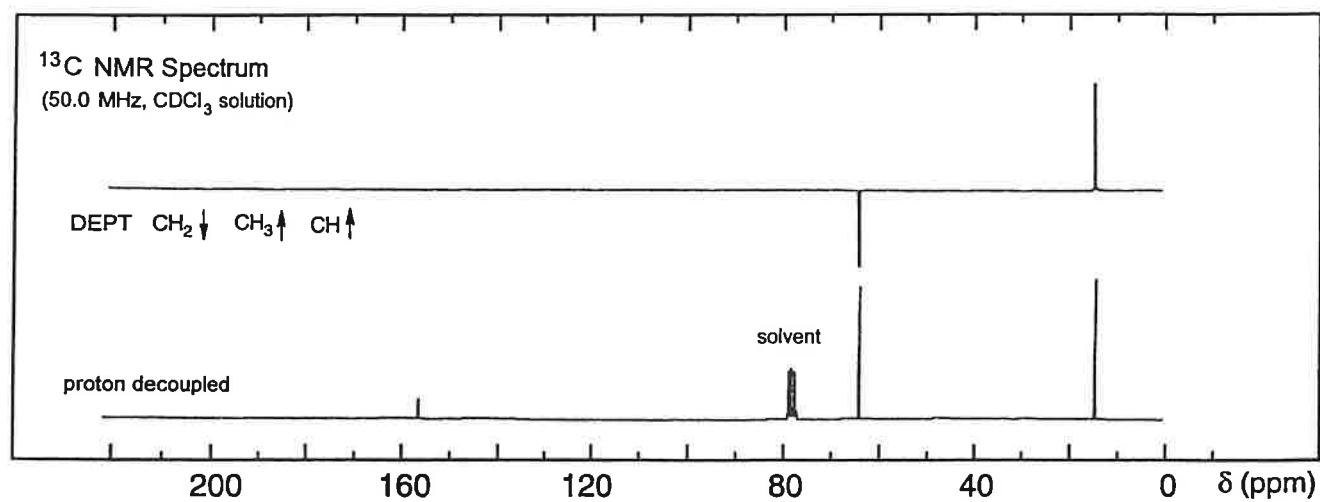


6

problem 19

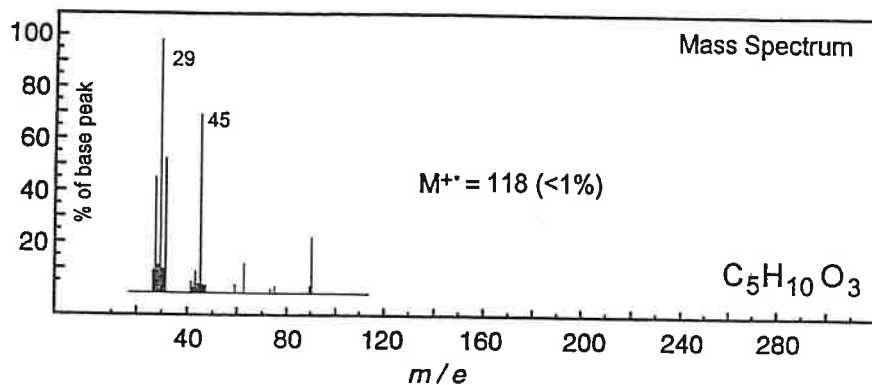
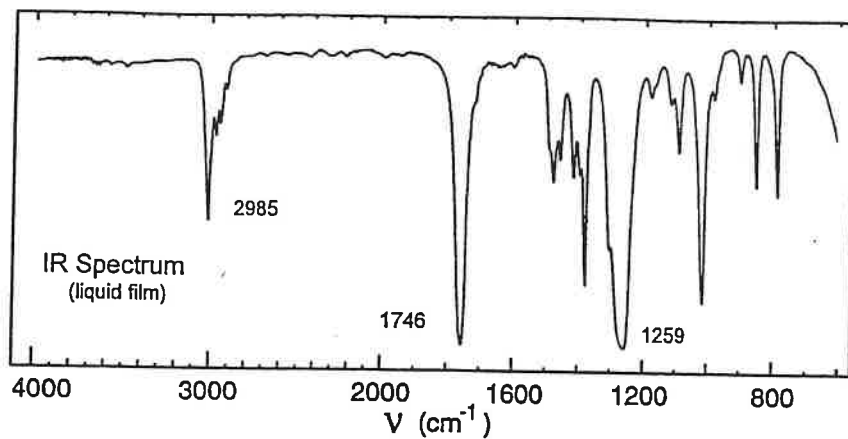


No significant UV
absorption above 220 nm

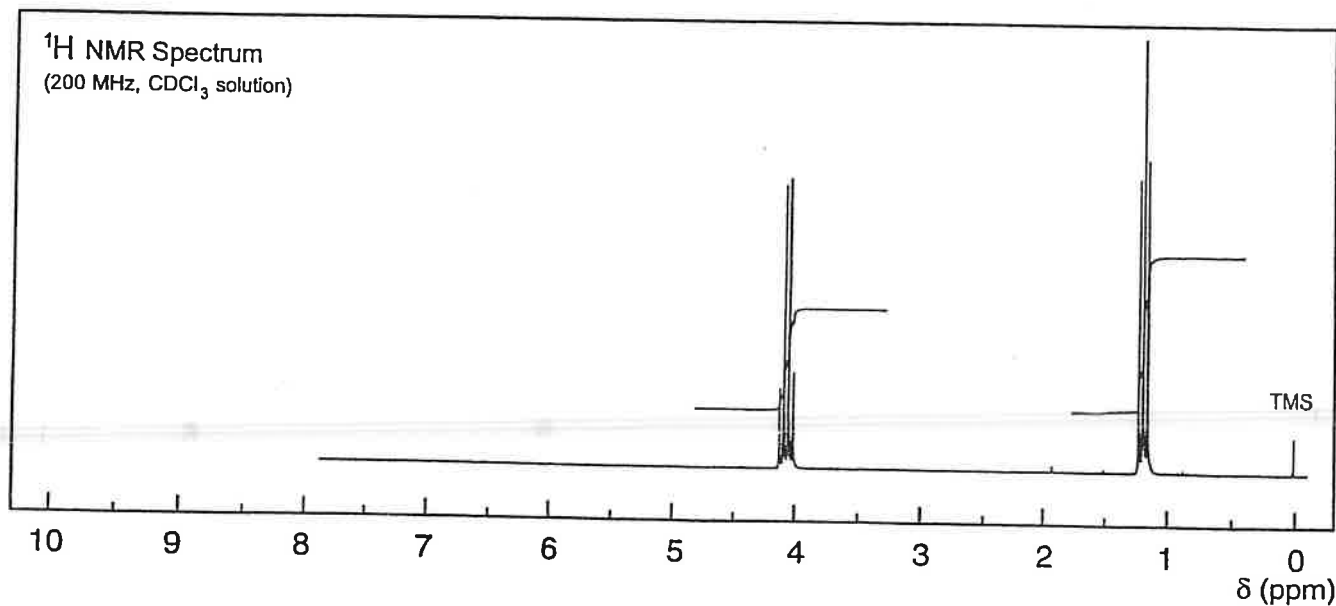
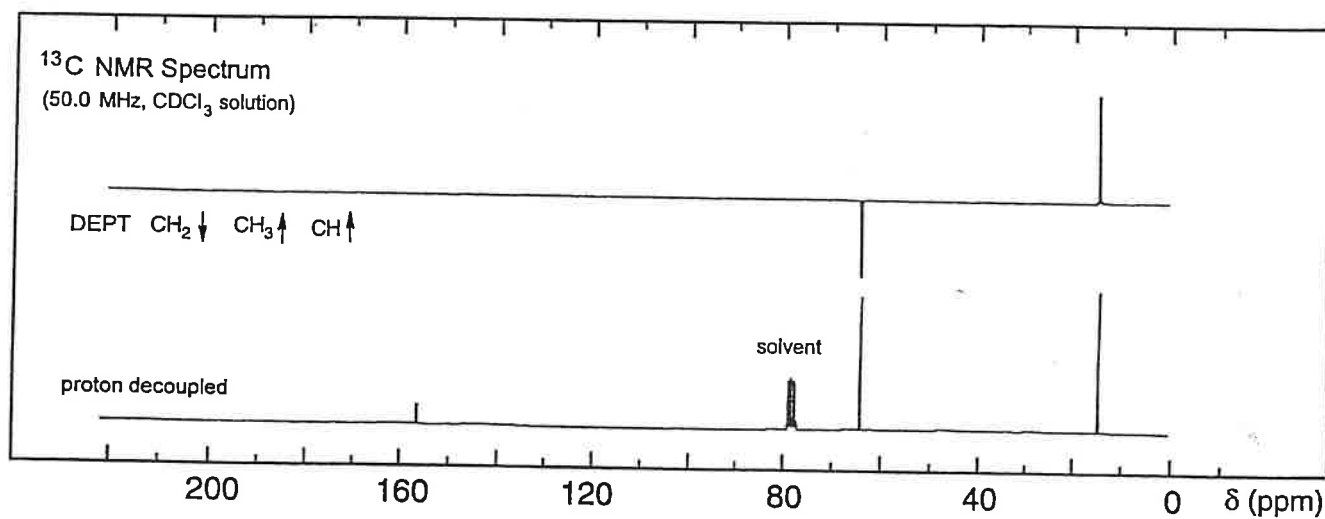


6

problem 19

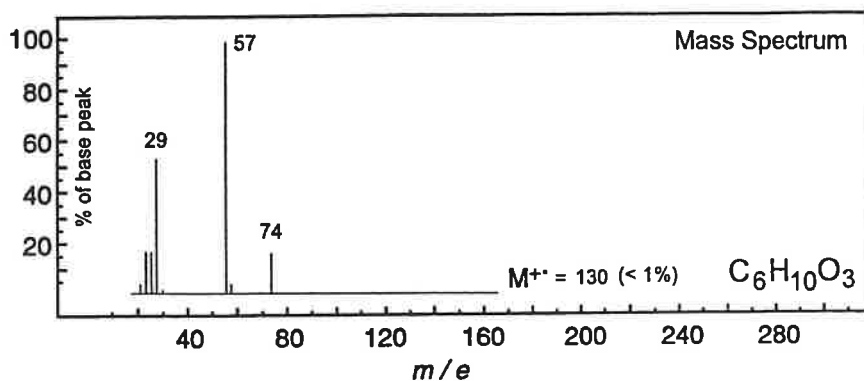
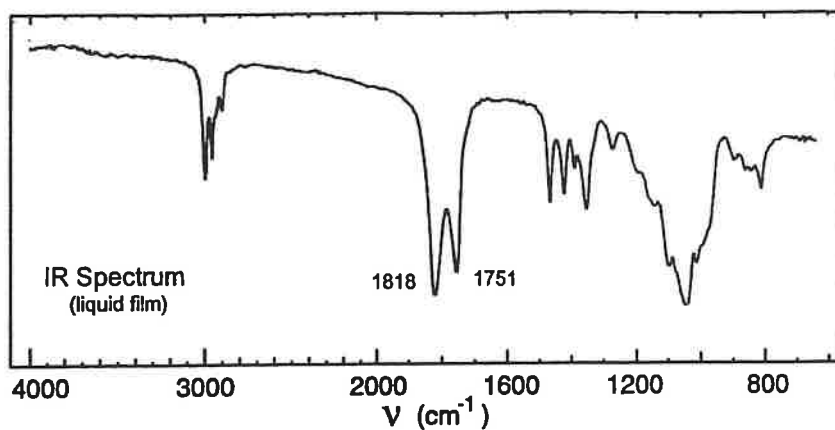


No significant UV
absorption above 220 nm

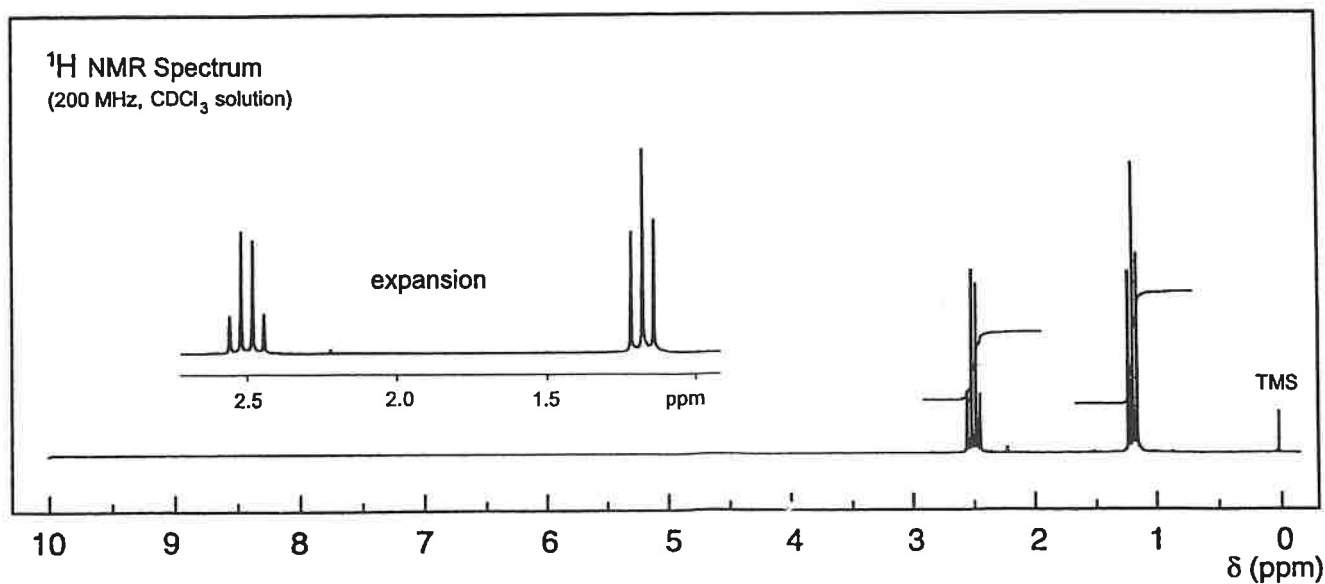
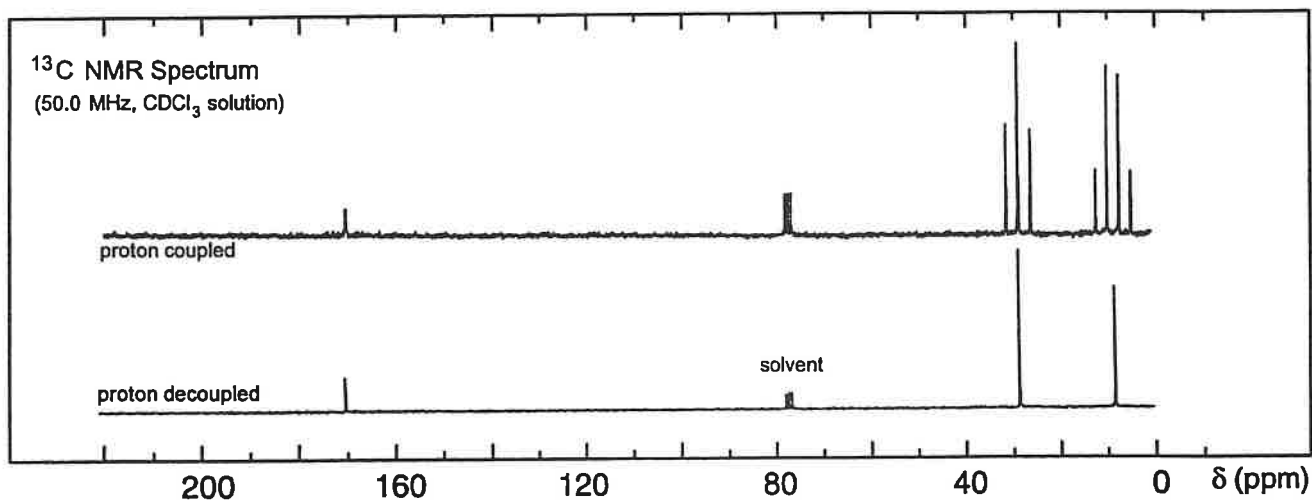


7

problem 20

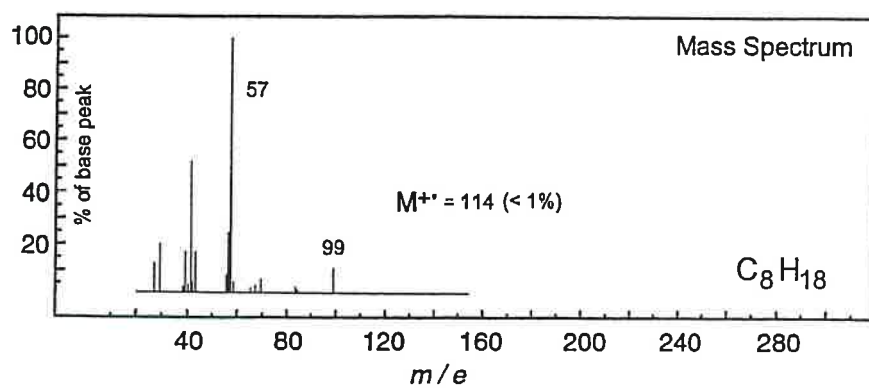
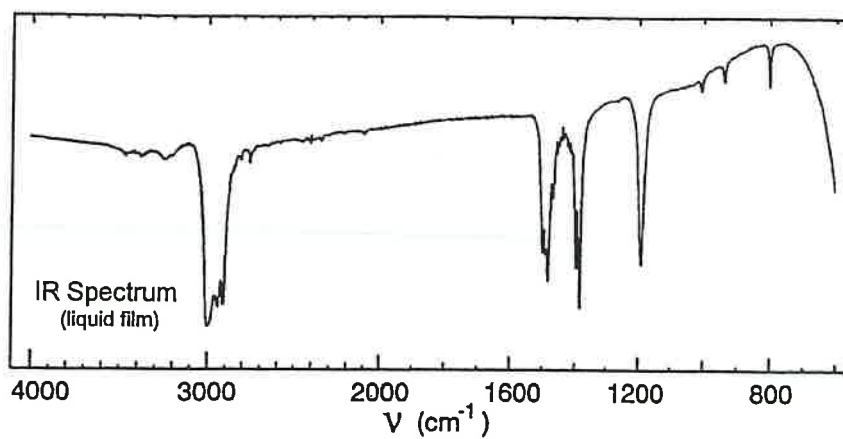


No significant UV
absorption above 220 nm

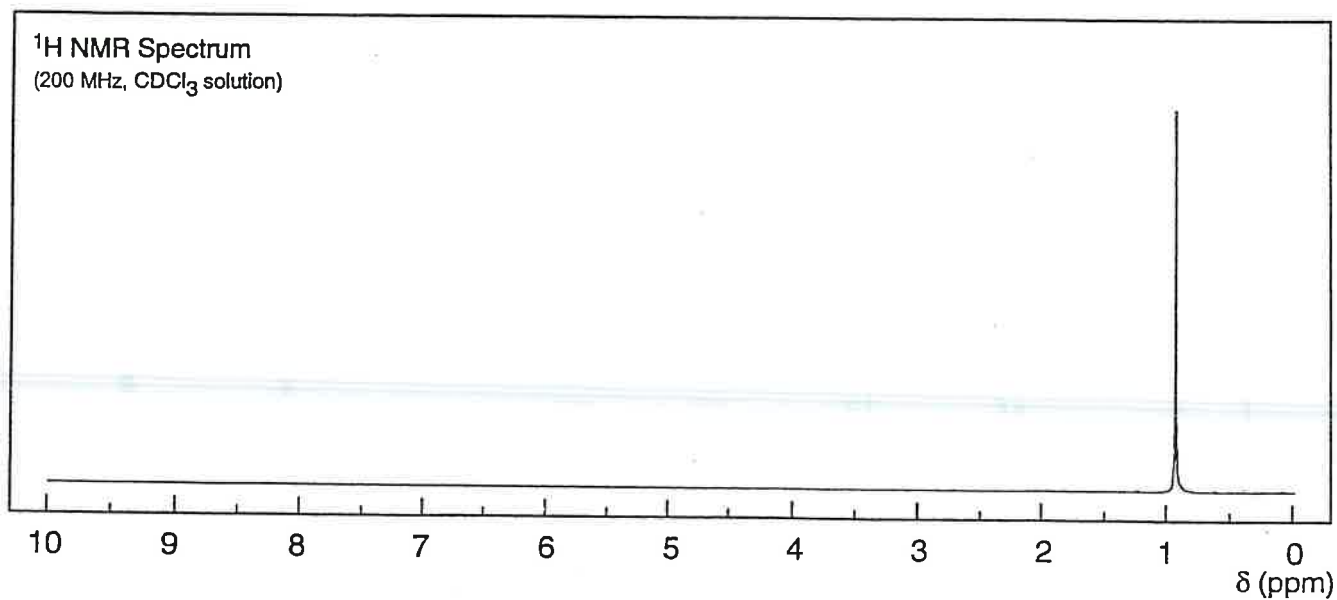
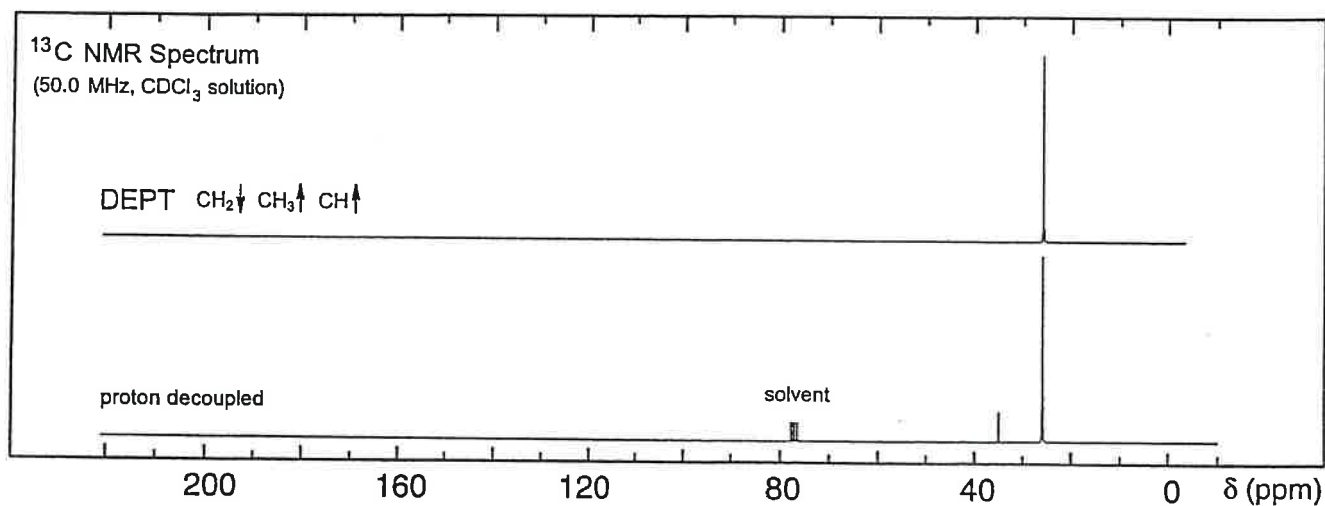


8

problem 22



No significant UV
absorption above 220 nm



Déplacements chimiques δ des protons en RMN

Méthyle -CH ₃		Méthylène -CH ₂ -		Méthyne -CH-	
Proton	δ (ppm)	Proton	δ (ppm)	Proton	δ (ppm)
CH ₃ -C	0,9	C-CH ₂ -C	1,3	C-CH-C	1,5
CH ₃ -C-O	1,4	C-CH ₂ -C (cycle)	1,5	C-CH-C-O	2,0
CH ₃ -C=C	1,6	C-CH ₂ -C-O	1,9	C-CH-Ar	3,0
CH ₃ -Ar ⁽¹⁾	2,3	C-CH ₂ -C=C	2,3	C-CH-CO-R	2,7
CH ₃ -CO-R ⁽²⁾⁽³⁾	2,2	C-CH ₂ -Ar	2,7	C-CH-O-R	3,7
CH ₃ -CO-Ar	2,6	C-CH ₂ -CO-R	2,4	C-CH-O-H	3,9
CH ₃ -CO-O-R	2,0	C-CH ₂ -CO-O-R	2,2	C-CH-O-CO-R	4,8
CH ₃ -CO-O-Ar	2,4	C-CH ₂ -O-R	3,4	C-CH-N	2,8
CH ₃ -CO-N-R	2,0	C-CH ₂ -O-H	3,6	C-CH-Cl	4,0
CH ₃ -O-R	3,3	C-CH ₂ -O-Ar	4,3	C-CH-C-Cl	1,6
CH ₃ -OH	3,4	C-CH ₂ -O-CO-R	4,1	C-CH-Br	3,6
CH ₃ -O-Ar	3,8	C-CH ₂ -N	2,5	C-CH-C-Br	1,7
CH ₃ -O-CO-R	3,7	C-CH ₂ -C=C-CO	2,4	C-CH-I	4,2
CH ₃ -N	2,3	C-CH ₂ -Cl	3,4	C-CH-C-I	1,9
CH ₃ -C=C-CO	2,0	C-CH ₂ -C-Cl	1,7	C-CH-C≡N	2,7
CH ₃ -Cl	3,0	C-CH ₂ -Br	3,3		
CH ₃ -C-Cl	1,5	C-CH ₂ -C-Br	1,7		
CH ₃ -Br	2,7	C-CH ₂ -I	3,1		
CH ₃ -C-Br	1,7	C-CH ₂ -C-I	1,8		
CH ₃ -I	2,2	-CH ₂ -C≡N	2,3		
CH ₃ -C-I	1,9	C-CH ₂ -C-C=C	1,5		
CH ₃ -C≡N	2,0	-CO-CH ₂ -Ar	3,8		

Proton	δ (ppm)	Proton	δ (ppm)	Proton	δ (ppm)
-C=CH ₂	5,3	R-CO-H	9,9	-C=C-OH	11-17
-C=CH-	5,1	Ar-CO-H	9,9	R-OH	0,5-5,5
C ₆ H ₆	7,2	H-CO-O	8,0	Ar-OH	4,2-7,1
Ar-H	7,0-9,0	H-CO-N	8,0	R-NH-	0,6-5
R-C≡C-H	3,1	-CO-OH	8,5-13	R-CO-NH-	5-8,5

(1) Ar : désigne un composé avec un cycle aromatique comme le benzène  ou ses dérivés.

(2) R : désigne un radical alkyle comme les radicaux méthyle -CH₃, éthyle -C₂H₅, etc.

(3) -CO- : désigne le groupe C=O, présent dans les aldéhydes, les cétones, les acides carboxyliques, les esters, les amides, les anhydrides d'acides, etc.

