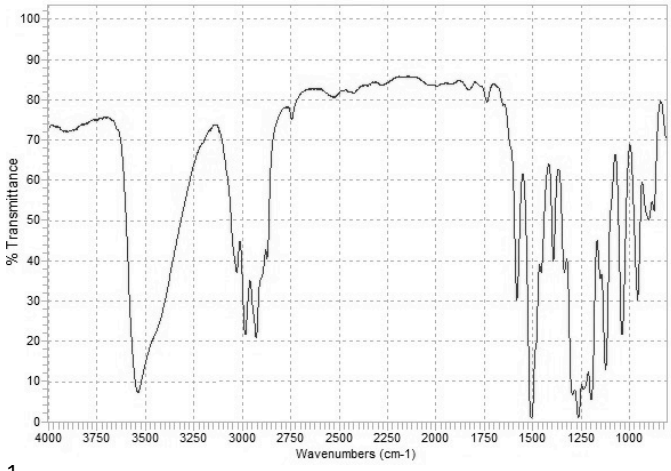
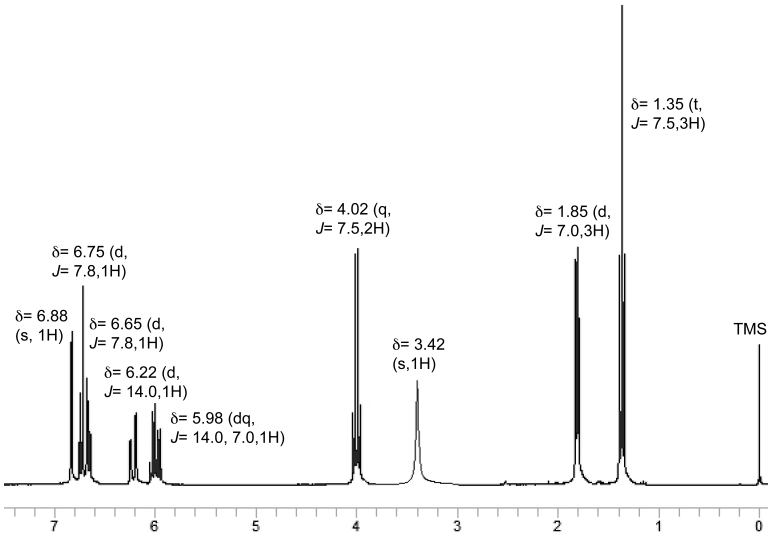
molecular formula: $\mathbf{C_{11}H_{14}O_2}$

IR:



^{1}H NMR :

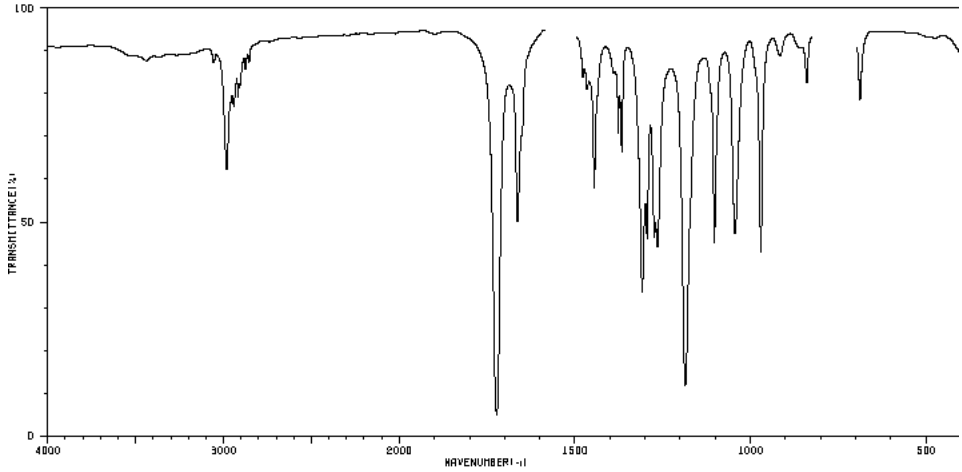


^{13}C NMR:

δ (ppm) = 147.0
145.5
130.8
130.0
122.6
117.2
113.1
112.0
64.0
18.2
14.9

molecular formula: $\mathbf{C_6H_{10}O_2}$

IR:



^{1}H NMR :

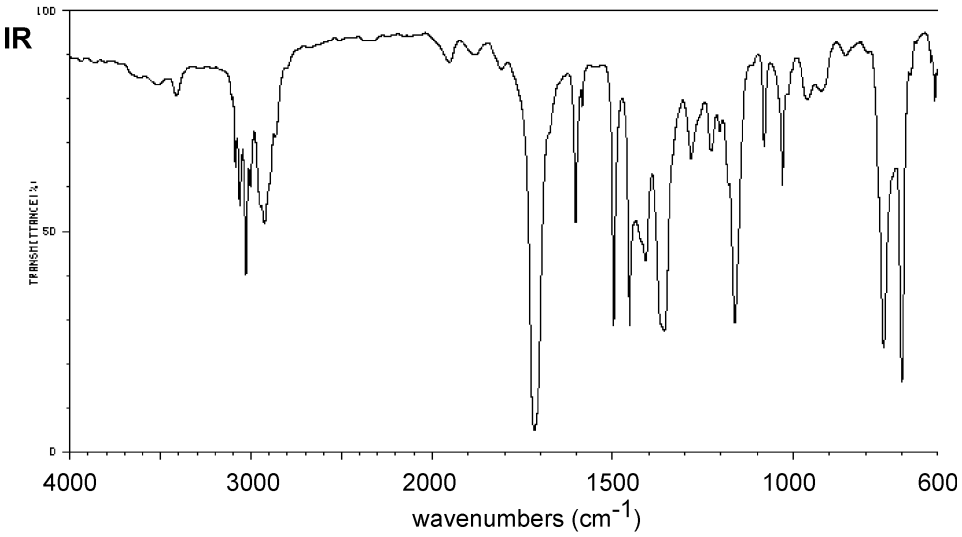
δ (ppm) = 6.97 (dq, *J* = 6.8 and 15.2 Hz, 1H),
5.83 (d, *J* = 15.2 Hz, 1H),
4.17 (q, *J* = 7.2 Hz, 2H),
1.87 (d, *J* = 6.8 Hz, 3H),
1.27 (t, *J* = 7.2 Hz, 3H).

^{13}C NMR

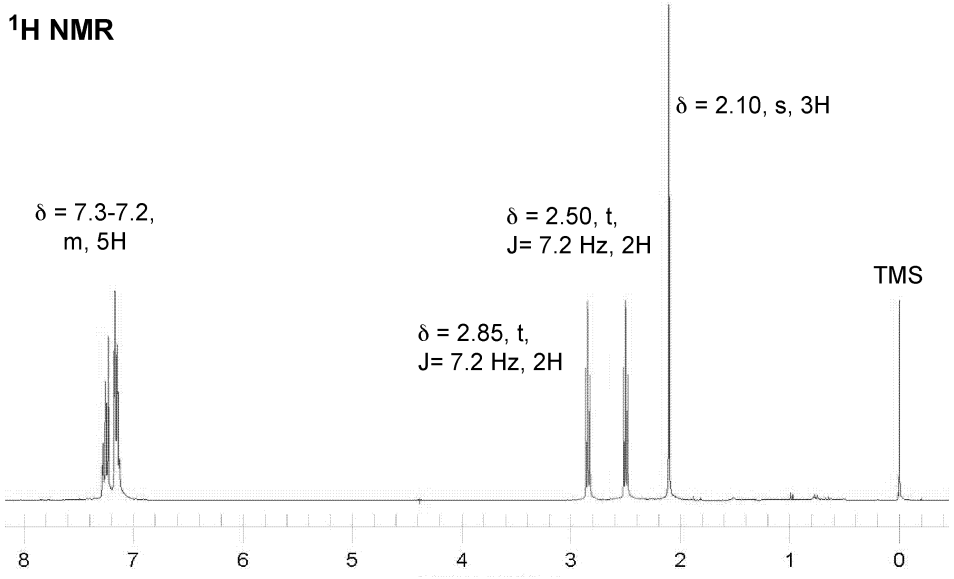
δ (ppm) = 170.0
144.6
123.0
60.3
18.1
14.5

molecular formula: $\mathbf{C_{10}H_{12}O}$

IR



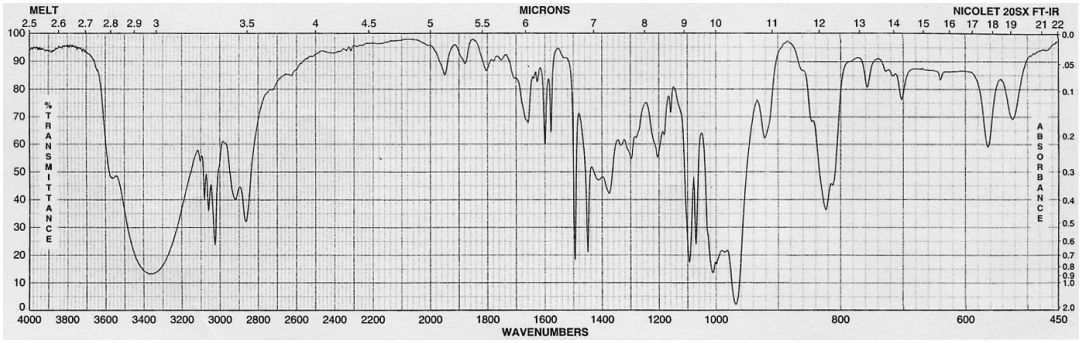
^{1}H NMR



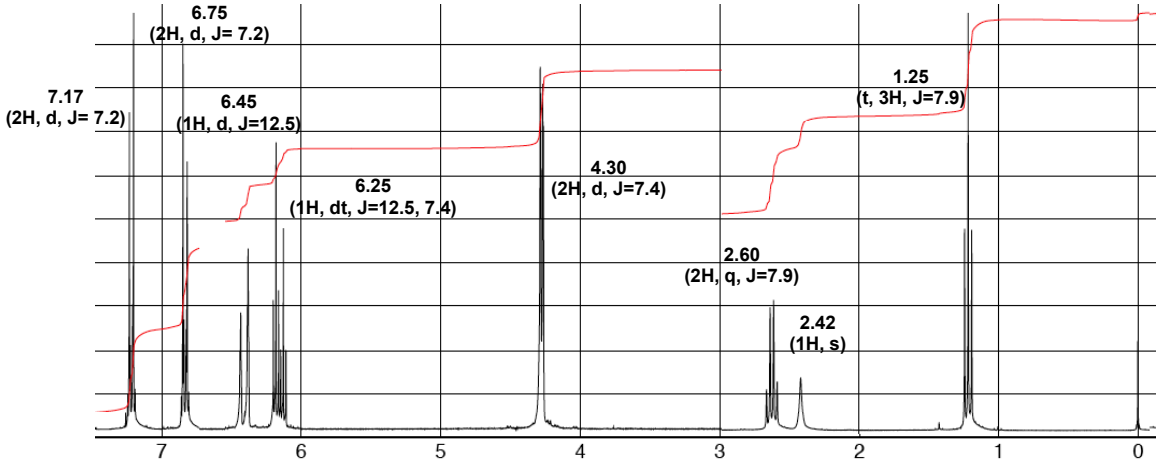
^{13}C NMR: δ **207, 141, 128, 126, 124, 45, 29, 27**

Formula: $C_{11}H_{14}O$

IR:



1H NMR:



^{13}C NMR: δ **140, 132, 128, 125, 122, 119, 65, 32, 14**

Formula: **C_8H_9OCl**

IR: broad absorption from 3600-3400 cm^{-1}

^{13}C NMR: δ 138, 131, 129, 127, 65, 39

^{1}H NMR: δ 7.50 d, J= 9.0, 2H
7.10 d, J= 9.0, 2H
3.70 t, J= 5.0, 2H
3.00 s, 1H
2.70 t, J= 5.0, 2H

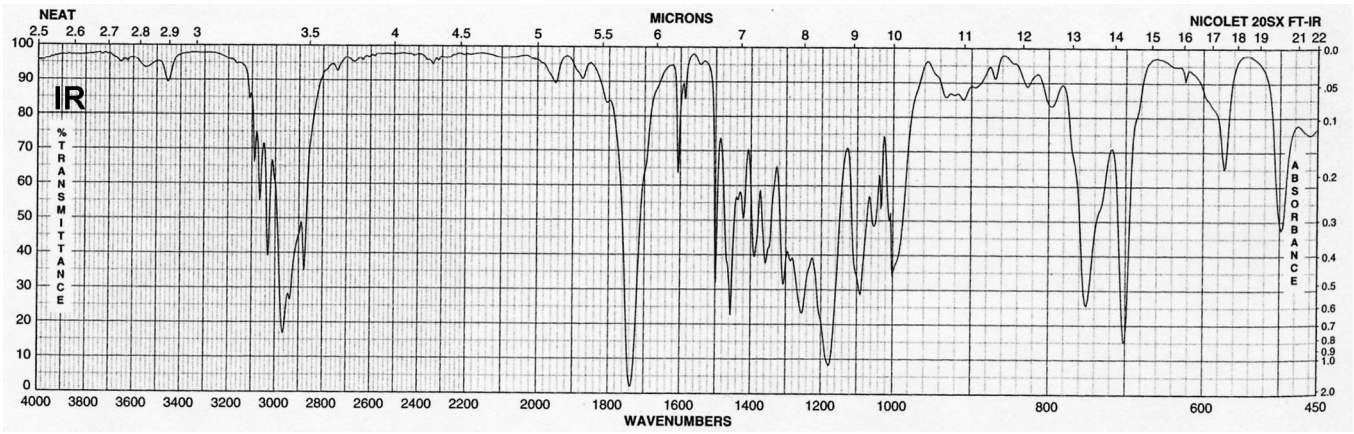
Formula: **$C_{10}H_{12}O_2$**

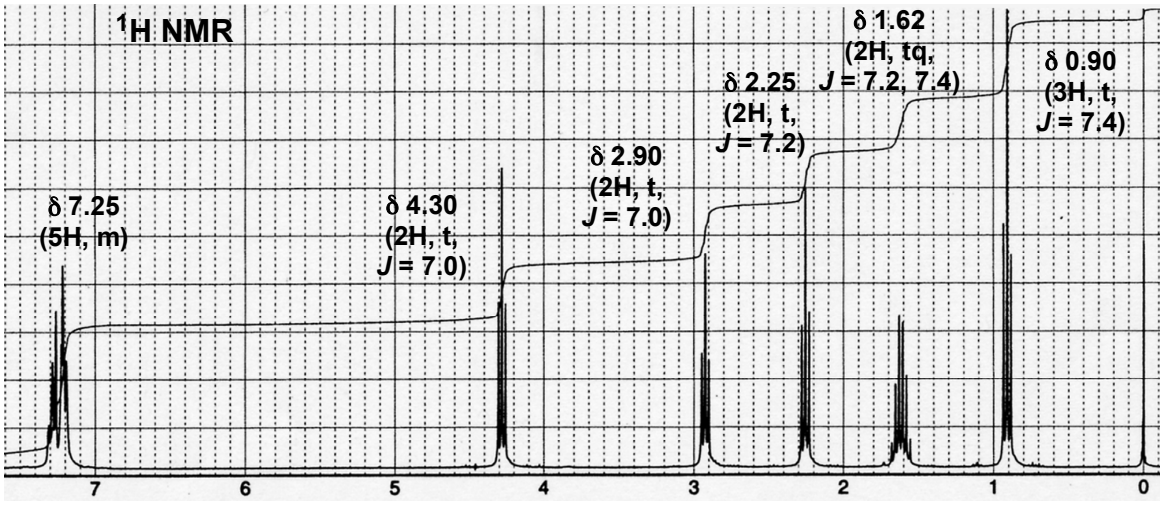
IR: 1690 cm^{-1}

^{13}C NMR: δ 200, 158, 130, 128, 114, 65, 32, 10

^{1}H NMR: δ 7.80 d, J= 9.0, 2H
7.10 d, J= 9.0, 2H
3.90 s, 3H
2.50 q, J= 6.0, 2H
1.20 t, J= 6.0, 3H

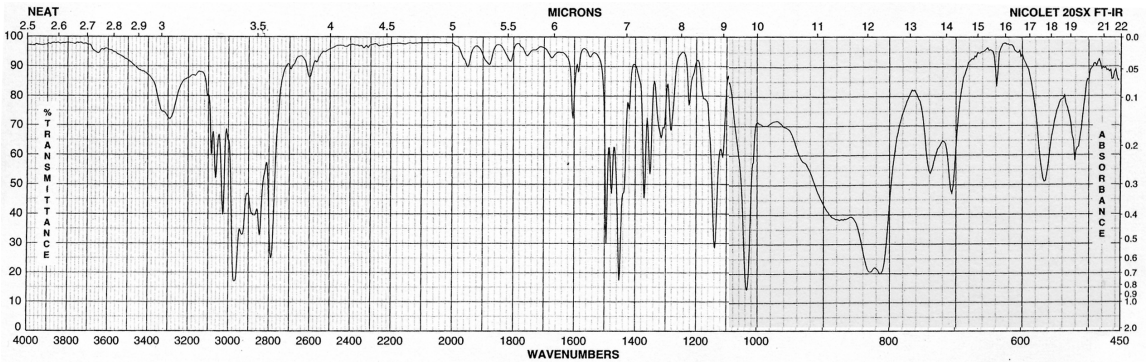
Formula: $C_{12}H_{16}O_2$

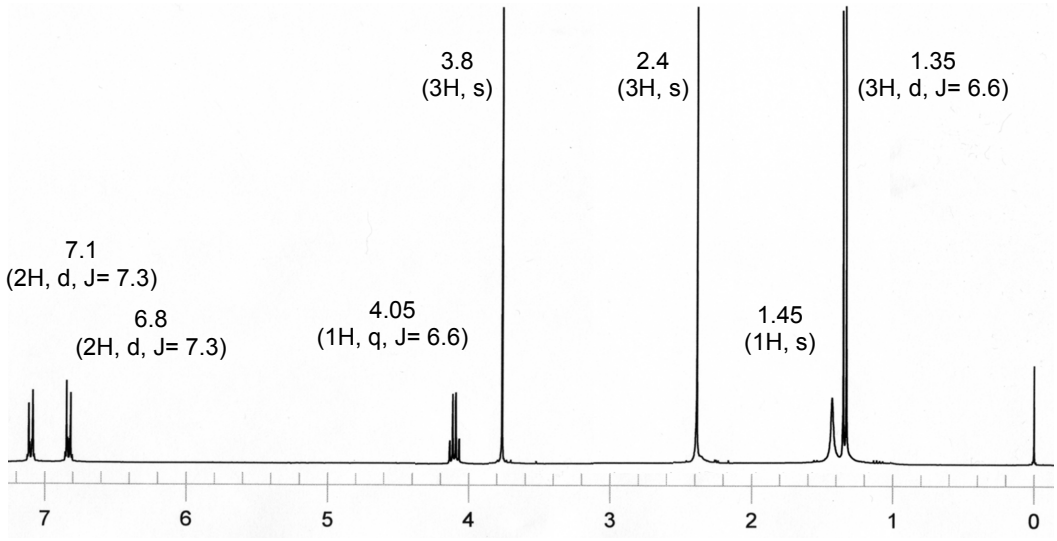




^{13}C NMR: δ **173.4, 137.9, 129.0, 128.4, 126.5, 64.6, 36.2, 35.2, 18.4, 13.6**

Formula: $C_{10}H_{15}NO$

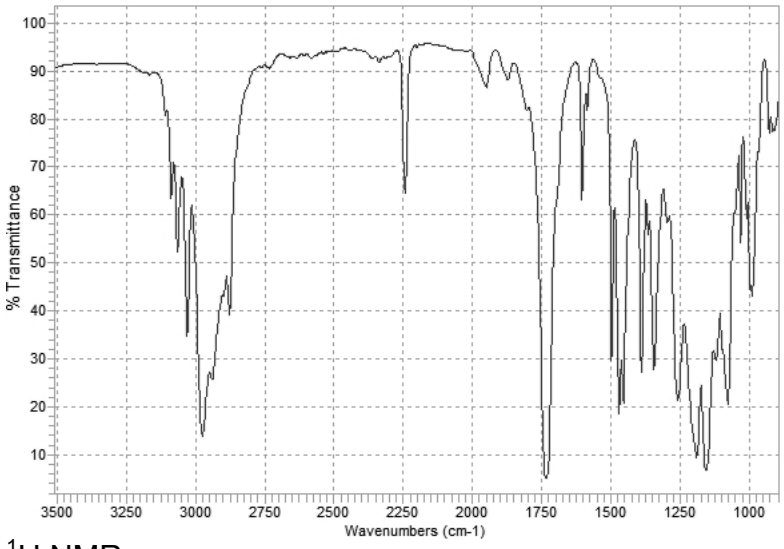




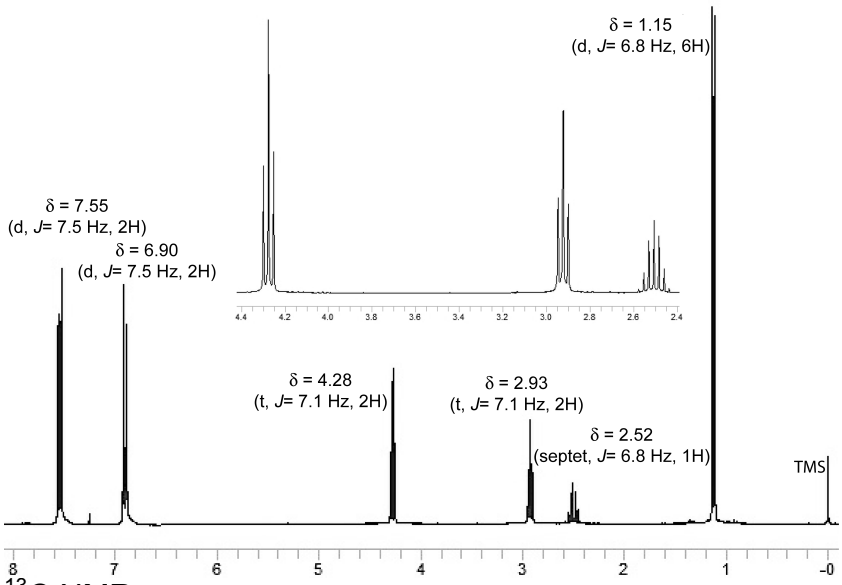
^{13}C NMR: δ **159.0, 131.0, 129.0, 114.0, 60.5, 56.0, 33.3, 21.8**

Formula: $\mathbf{C_{13}H_{15}NO_2}$

IR:



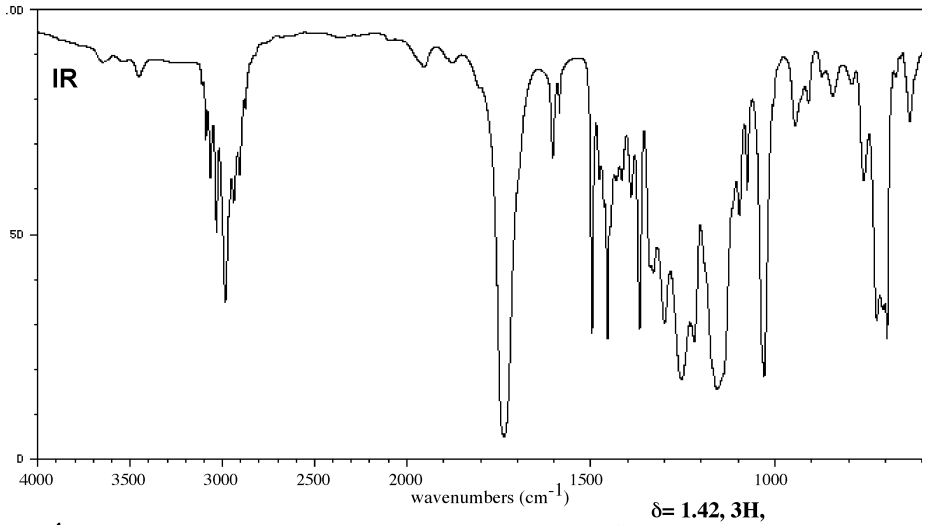
^{1}H NMR:

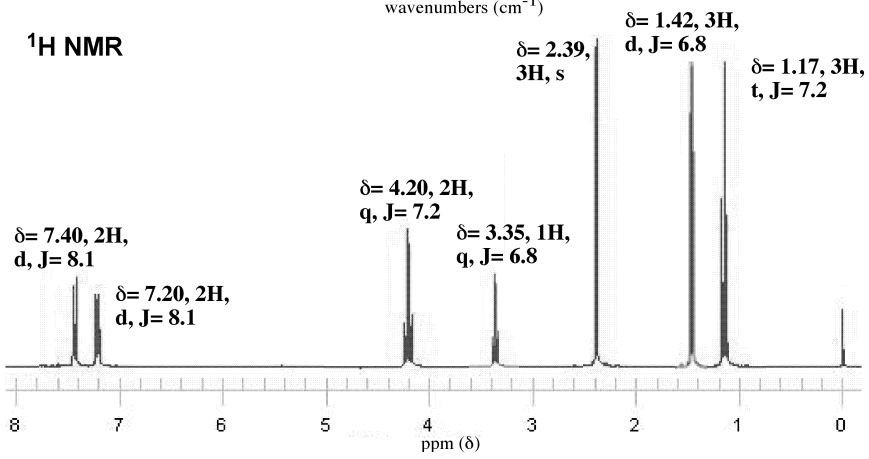


^{13}C NMR:

δ (ppm) = 177.0
143.5
131.8
129.0
119.0
115.8
64.7
35.2
40.0
64.0
18.9

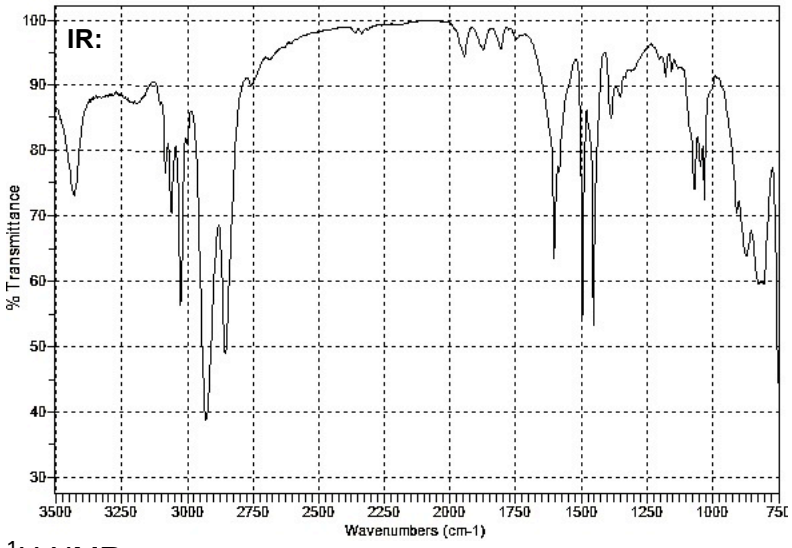
Formula: $C_{12}H_{16}O_2$



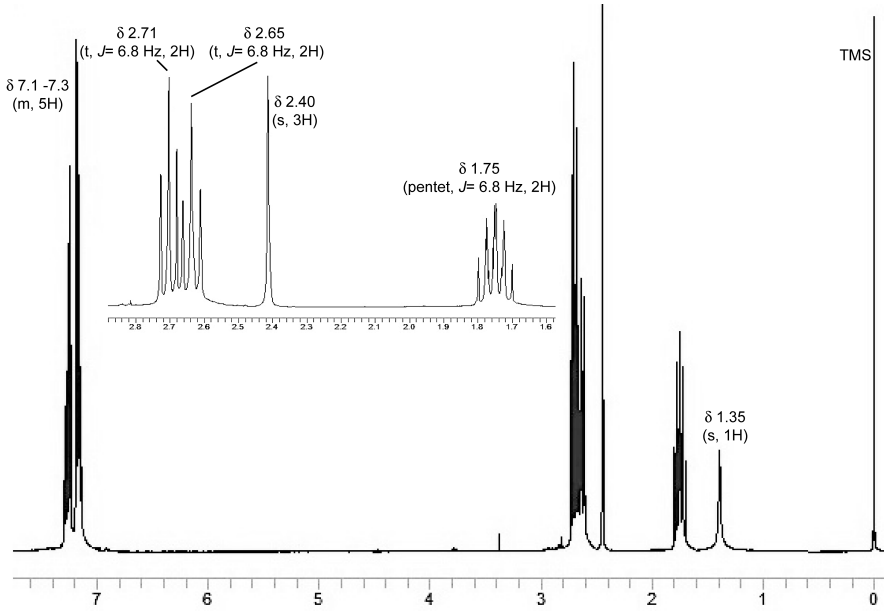


^{13}C NMR: δ **173.0, 137.2, 132.0, 129.7, 129.1, 61.7, 40.5, 25.5, 17.0, 14.1**

Formula: $\mathbf{C_{10}H_{15}N}$



^{1}H NMR:



^{13}C NMR: δ 142.1, 128.5, 127.3, 125.7, 54.2, 40.8, 35.4, 33.2