

Extra Problems for Workshop Chapter 13

Chemical Formula: $C_8H_{19}N$

	IR	1H NMR	^{13}C NMR
1.	3420 2992	5.11 ppm, s, 2H 2.57 ppm, s, 2H 1.69 ppm, q, 6H 0.90 ppm, t, 9H	47.4 41.6 34.5 7.6

Chemical Formula: $C_{10}H_{20}$

	IR	1H NMR	^{13}C NMR
2.	3062 2984 995 913	5.82 ppm, d of d of t, 1H 5.02 ppm, d of d, 1H 5.07 ppm, d of d, 1H 1.92 ppm, d of d, 2H 1.82 ppm, d of septet, 2H 1.49 ppm, t of t, 1H 0.91 ppm, d, 12H	115.7 137.6 48.8 33.8 27.7 21.4

Chemical Formula: $C_{13}H_{18}O_3$

	IR	1H NMR	^{13}C NMR
3.	3565 3068 2984 1710 1058	7.23 ppm, s, 2H 7.18 ppm, s, 1H 4.61 ppm, s, 4H 3.65 ppm, s, 2H 2.13 ppm, s, 3H 1.69 ppm, s, 6H	206.2 141.5 134.8 128.0 123.7 65.3 61.0 26.5 24.8