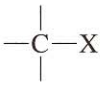
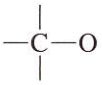
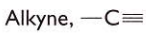
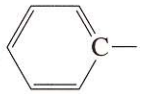
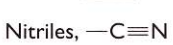
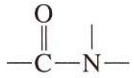
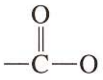
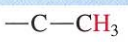
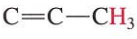
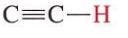
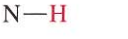
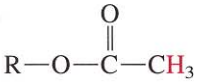
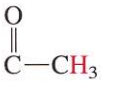
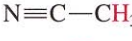
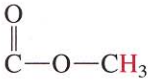
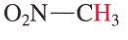
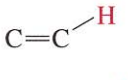
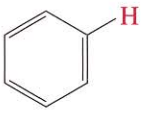
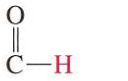
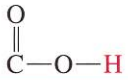
Approximate Chemical Shifts of Carbons in ^{13}C-NMR Spectra

Type of Carbon	Chemical Shift (δ)
1° Alkyl, RCH_3	0–40
2° Alkyl, RCH_2R	10–50
3° Alkyl, $RCHR_2$	15–50
Alkyl halide or amine,  (X = Cl, Br, or N—)	10–65
Alcohol or ether, 	50–90
Alkyne, 	60–90
Alkene, 	100–170
Aryl, 	100–170
Nitriles, 	120–130
Amides, 	150–180
Carboxylic acids, esters, 	160–185
Aldehydes, ketones, 	180–215

Approximate Chemical Shifts of Hydrogens in ^{1}H-NMR Spectra

Type of Hydrogen	Chemical Shift (δ)
	0.9
	1.6
	1.8
	1–3
	2–5
	2.0
	2.2
	2.2
	2.2
	2.2
	2.3
	2.7
	3.0
	3.3
	3.7
	4.1
	4.2
	5.5–6.5
	7–8
	10
	12

Note that these positions are only approximate. Furthermore, most of these positions are given for CH_3 groups. CH_2 groups appear farther downfield by about 0.3 ppm and CH groups by about 0.7 ppm.