IR Spectroscopy by Functional Group

Indentification of absorbance	Wavenumbers, cm^{-1}
Alkanes	
sp^3 C-H stretch	2960-2850 (<3000)
Alkenes	
sp^2 C-H stretch	3100-3020 cm^{-1} (>3000)
C=C stretch	1680-1620 cm^{-1} (often weak)
Alkynes	
sp C-H stretch	3333-3267 cm^{-1}
C-C triple bond stretch	2260-2100 cm^{-1} (often weak)
Nitriles	
C-N triple bond stretch	2260-2240 cm^{-1} (aliphatic) 2240-2222 cm^{-1} (conjugated)
Alcohols	
O-H stretch	3600-3200 cm^{-1} (strong and broad)
C-O stretch	1150-1050 cm^{-1}
Aromatic Compounds	
sp^2 C-H stretch	3100-3020 cm^{-1} (>3000)
C=C stretch	~ 1585 cm^{-1}
Aromatic overtones of ring bends	2000-1667 cm^{-1}
Aromatic out-of-plane ring bends	~ 900-700 cm^{-1} (see p. 519)
Amines	
N-H stretch	3500-3350 cm^{-1}
C-N stretch (often weak and hard to find)	1250-1020 cm^{-1} (aliphatic) 1342-1266 cm^{-1} (aromatic)
Aldehydes	
C-H stretch of -CHO	2830-2695 cm^{-1}
C=O stretch	1740-1720 cm^{-1}
Ketones	
C=O stretch	1750-1710 cm^{-1} (1715 is typical for aliphatic ketones) 1685-1665 cm^{-1} (conjugated)
Carboxylic acids	
O-H of $-CO_2H$	3600-2500 cm^{-1} (centered at ~ 3000)
C=O stretch	1720-1710 cm^{-1} (aliphatic), 1700-1680 cm^{-1} (conjugated)
Esters	
C=O stretch	1750-1735 cm^{-1} (aliphatic), 1720-1715 cm^{-1} (conjugated)
C-O stretch	1300-1000 cm^{-1}