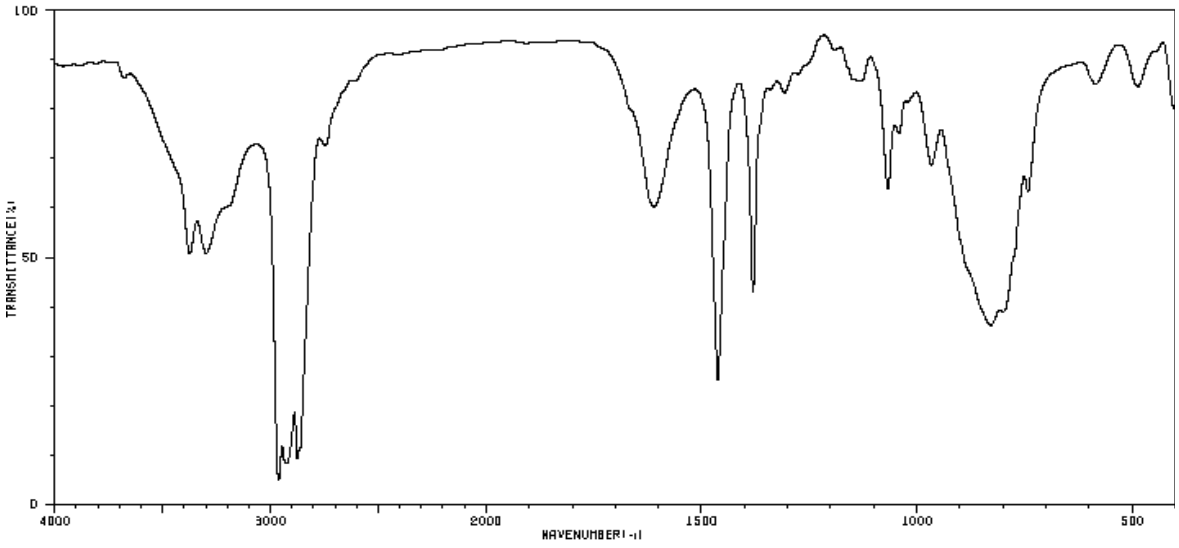
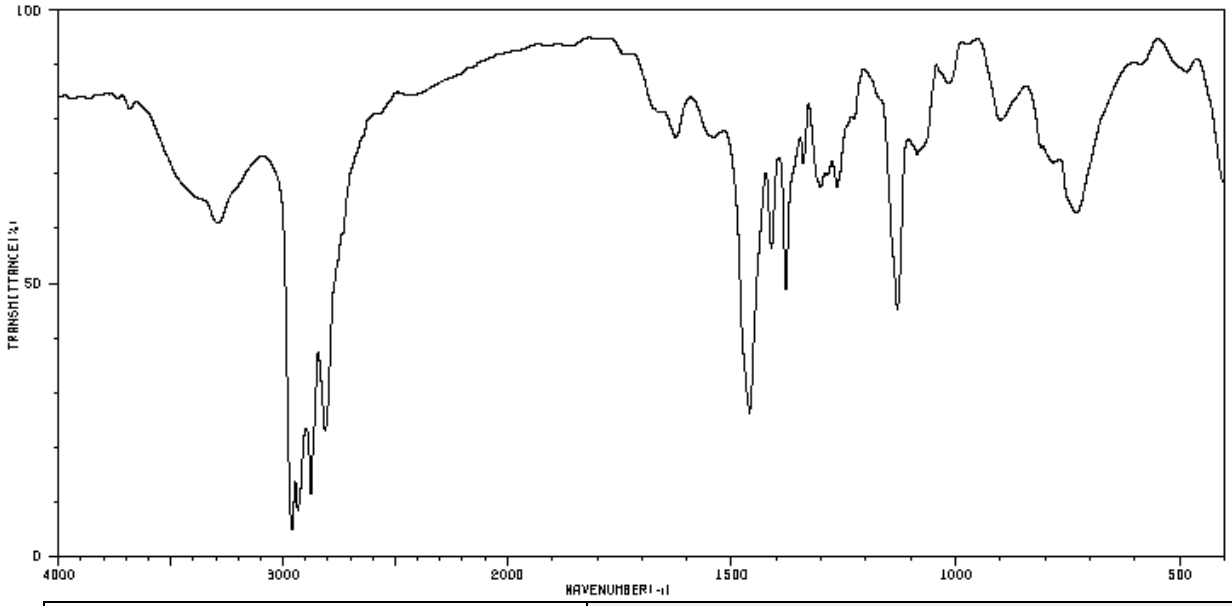
KEY

1. $C_6H_{15}N$



Degrees of unsaturation	none
Possible functional groups consistent with molecular formula	amine
Diagnostic signal(s)	3300, 3400 cm^{-1} (two N-H stretches)
Functional group consistent with spectrum	1° amine [hexylamine]

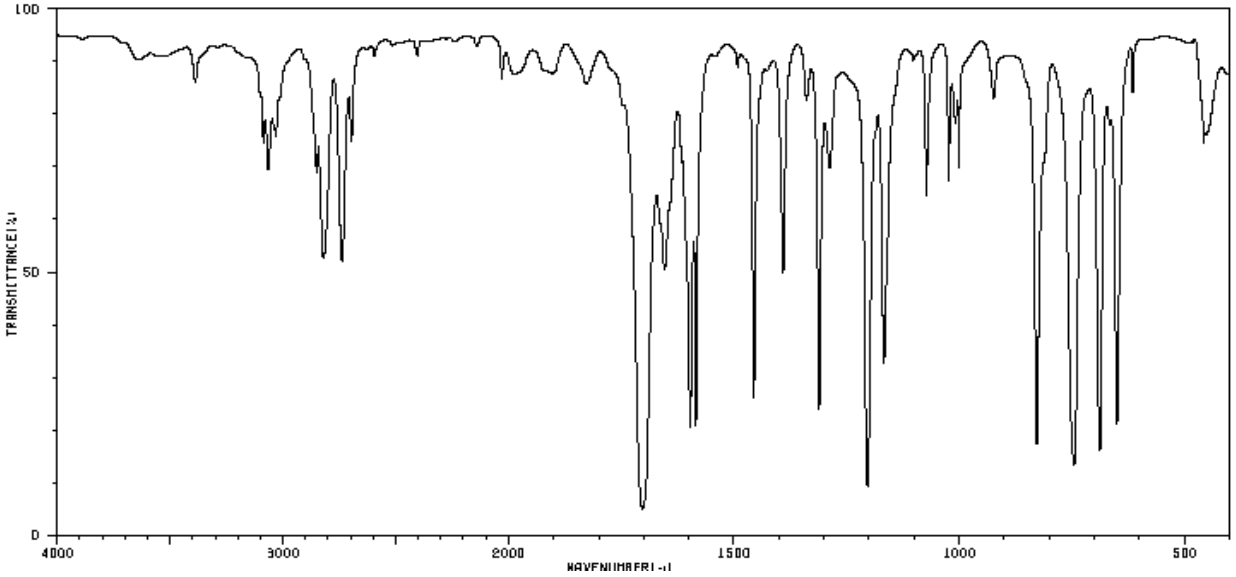
2. $C_6H_{15}N$



Degrees of unsaturation	none
Possible functional groups consistent with molecular formula	amine
Diagnostic signal(s)	3290 cm^{-1} (one N-H stretch)
Functional group consistent with spectrum	2° amine [dipropylamine]

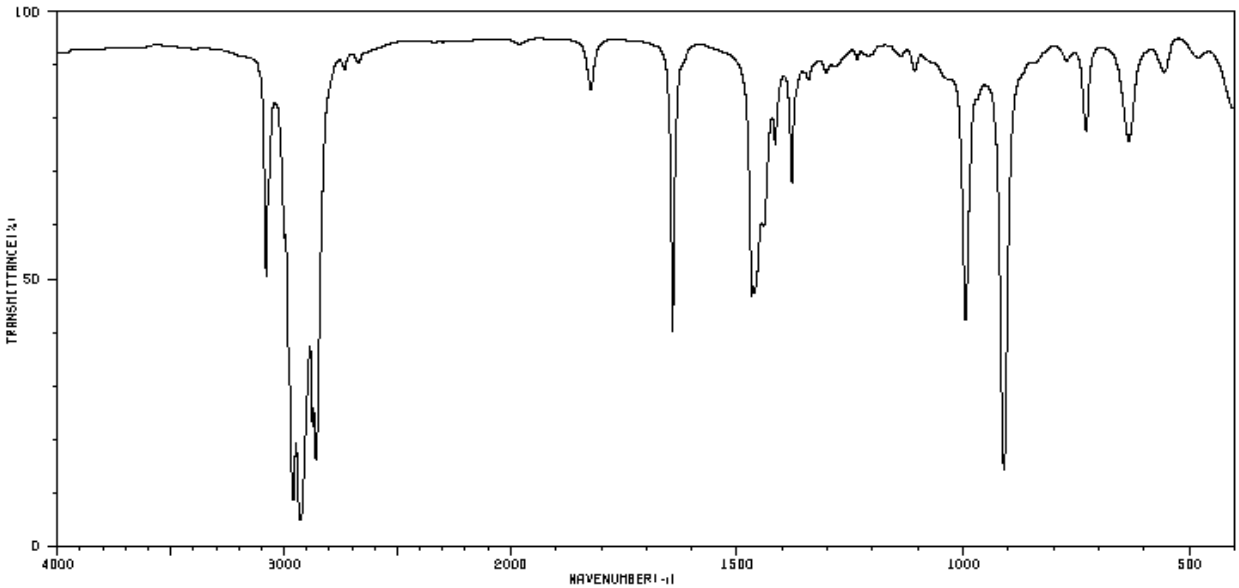
KEY

3. C_7H_6O



Degrees of unsaturation	Five (most likely contains aromatic ring)
Possible functional groups consistent with molecular formula	Ether, alcohol, aldehyde or ketone
Diagnostic signal(s)	2740, 2850 cm^{-1} (carbonyl C-H stretch)
Functional group consistent with spectrum	aldehyde [benzaldehyde]

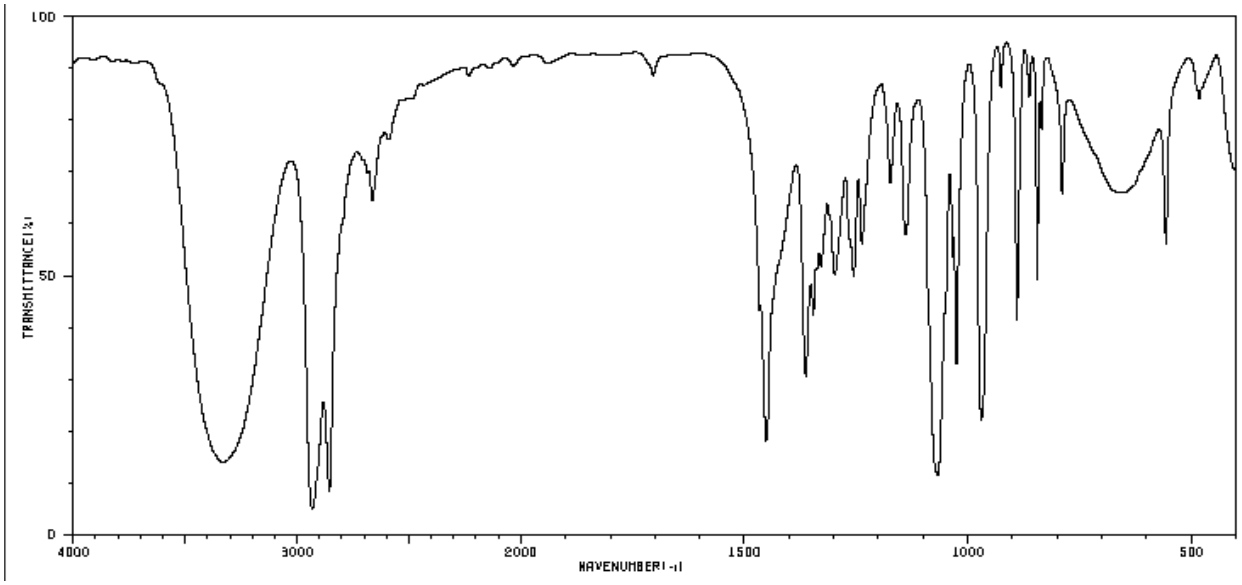
4. C_7H_{14}



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	alkene
Diagnostic signal(s)	3080 cm^{-1} (sp2 C-H stretch) 1640 cm-1 C=C stretch
Functional group consistent with spectrum	alkene [1-heptene]

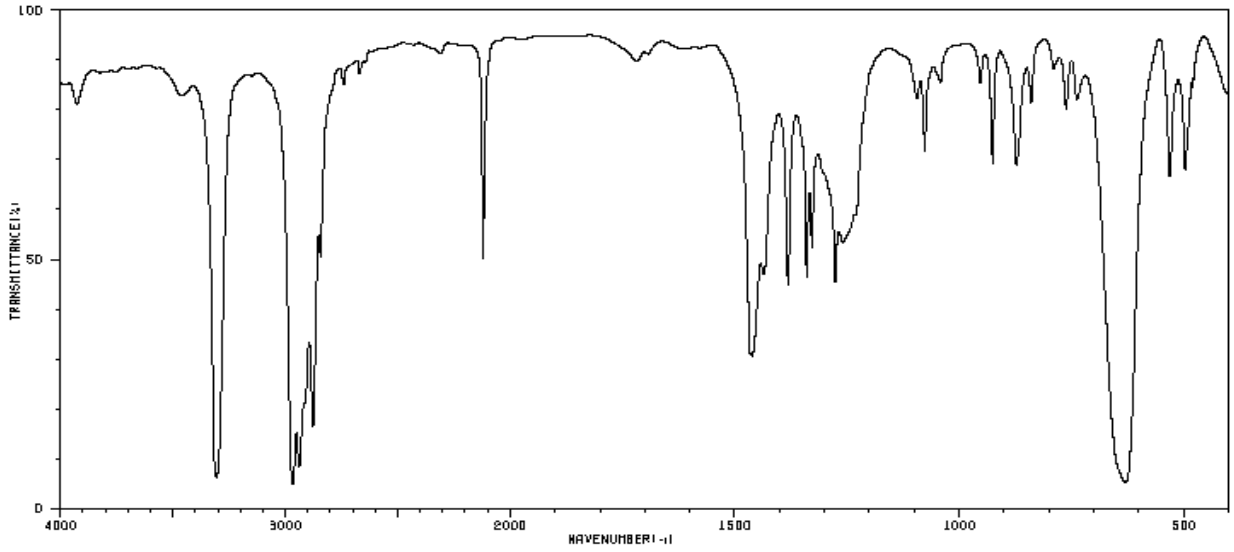
KEY

5. $C_6H_{12}O$



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	alcohol (cyclic, no C=C signal)
Diagnostic signal(s)	3330 cm^{-1} (O-H stretch)
Functional group consistent with spectrum	alcohol [cyclohexanol]

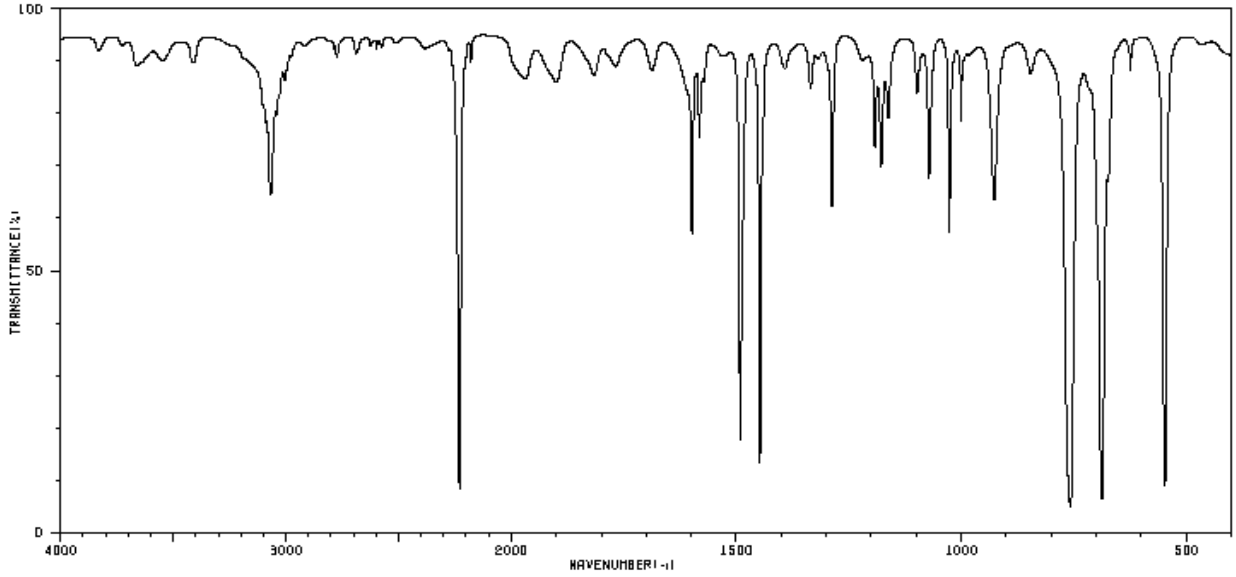
6. C_5H_8



Degrees of unsaturation	two
Possible functional groups consistent with molecular formula	diene, monocyclic alkene, alkyne
Diagnostic signal(s)	3300 cm^{-1} (terminal alkyne C-H stretch) 2120 cm^{-1} (triple bond stretch)
Functional group consistent with spectrum	alkyne [1-pentyne]

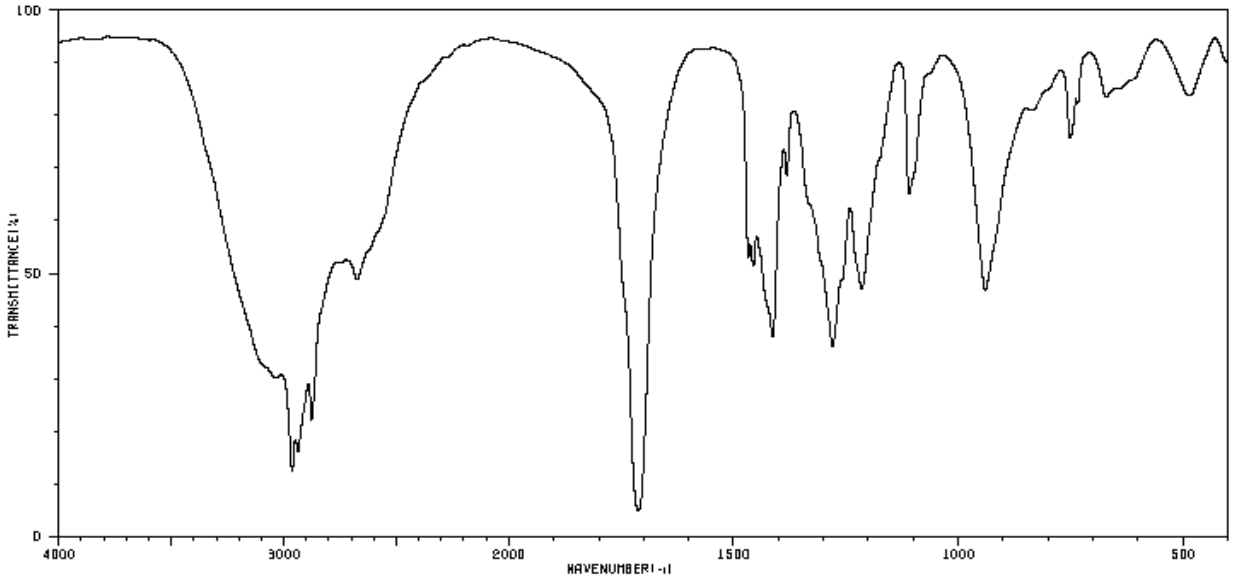
KEY

7. C_7H_5N



Degrees of unsaturation	six
Possible functional groups consistent with molecular formula	benzene ring, cyano group
Diagnostic signal(s)	3060 cm^{-1} (aromatic C=C-H stretch) 2230 cm^{-1} (triple bond stretch)
Functional group consistent with spectrum	nitrile (aromatic) [benzonitrile]

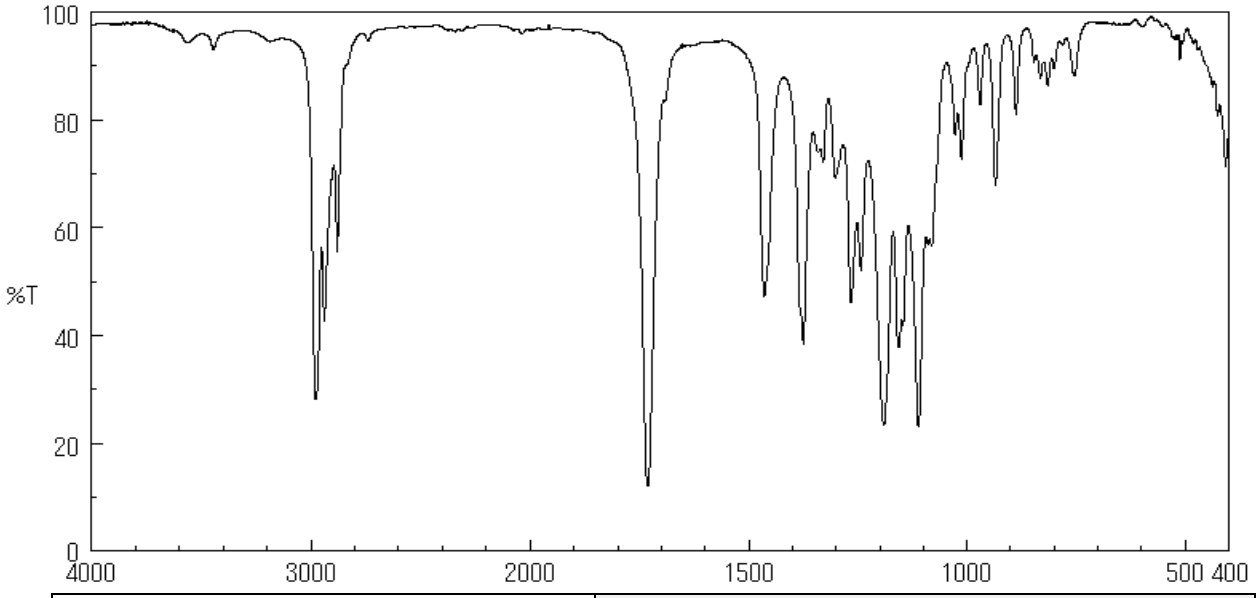
8. $C_5H_{10}O_2$



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	acid, ester, diol, ether
Diagnostic signal(s)	3100 cm^{-1} (O-H stretch) 1710 cm^{-1} (C=O stretch)
Functional group consistent with spectrum	carboxylic acid [pentanoic acid]

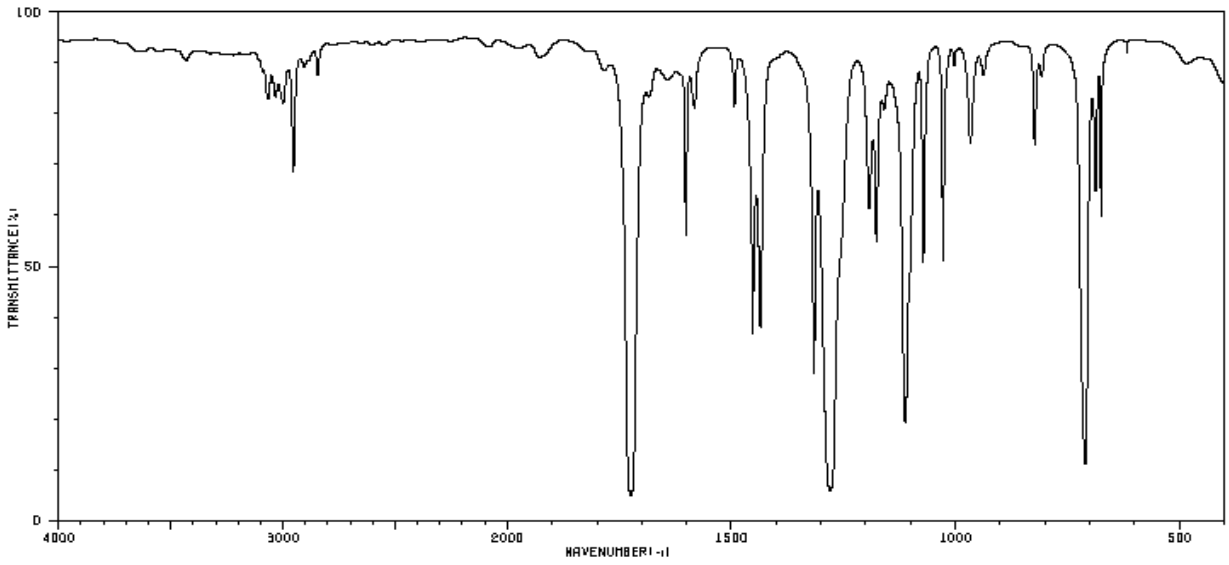
KEY

9. $C_8H_{16}O_2$



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	acid, ester, diol, ether
Diagnostic signal(s)	1730 cm^{-1} (C=O stretch) 1100, 1190 cm^{-1} (alkoxy C-O stretch)
Functional group consistent with spectrum	ester [isopropyl 2-methylbutyrate]

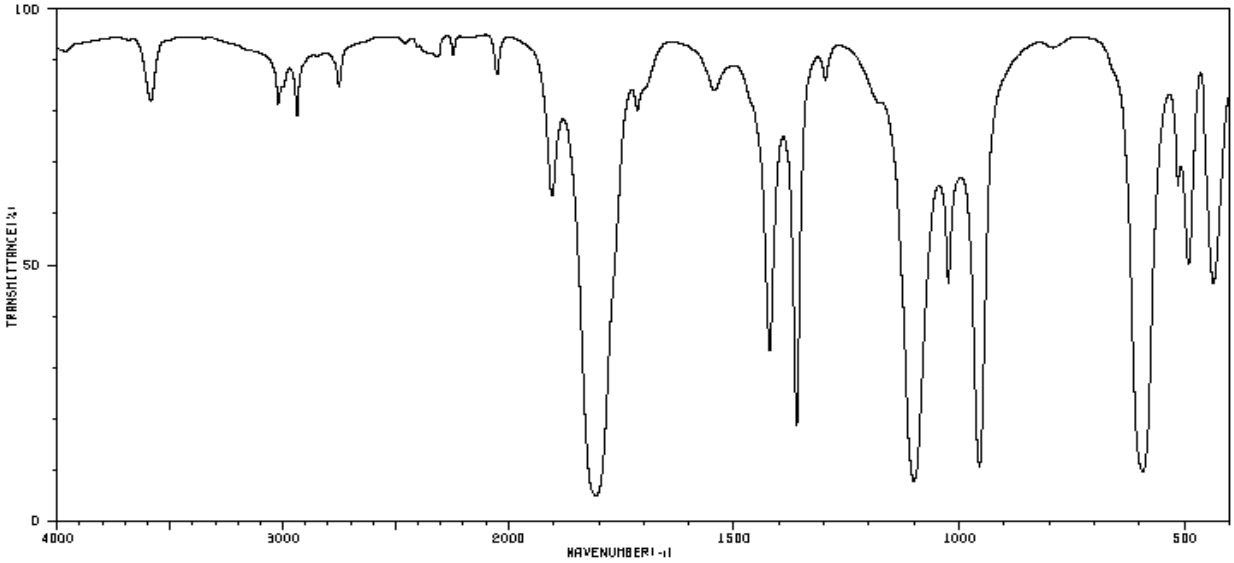
10. $C_8H_8O_2$



Degrees of unsaturation	five
Possible functional groups consistent with molecular formula	benzene ring, acid, ester, diol, ether
Diagnostic signal(s)	3060, 3030 cm^{-1} sp2 C-H stretch 1725 cm^{-1} (C=O stretch) 1280 cm^{-1} (alkoxy C-O stretch)
Functional group consistent with spectrum	ester [methyl benzoate]

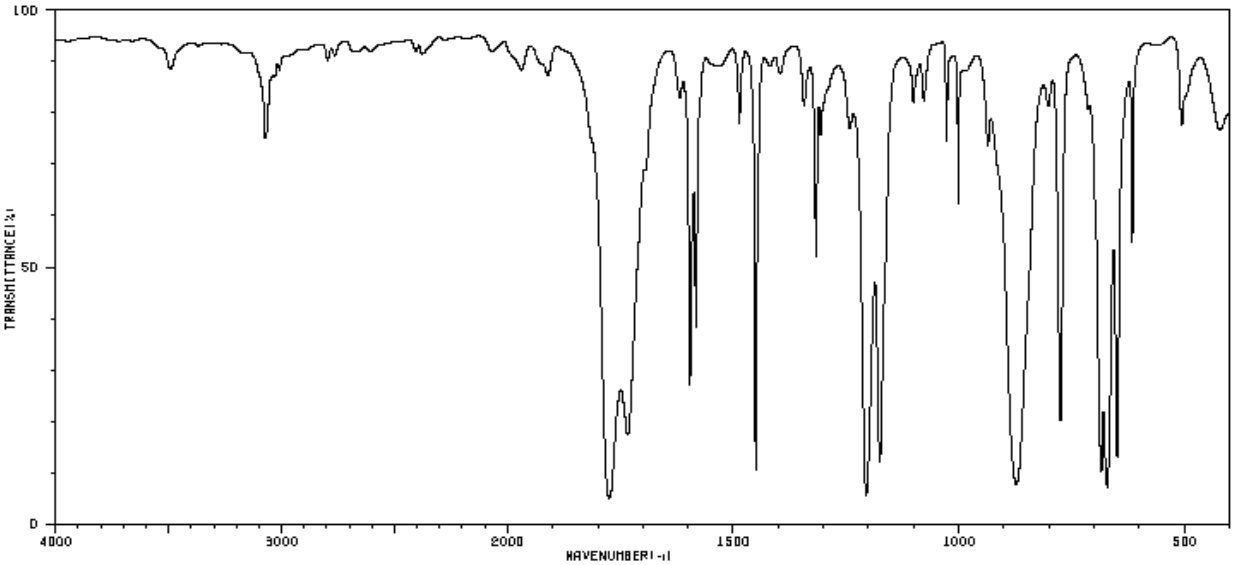
KEY

11. C_2H_3OCl



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	acid chloride, chlorovinyl alcohol (unlikely)
Diagnostic signal(s)	1805 cm^{-1} (C=O stretch)
Functional group consistent with spectrum	acid chloride [acetyl chloride]

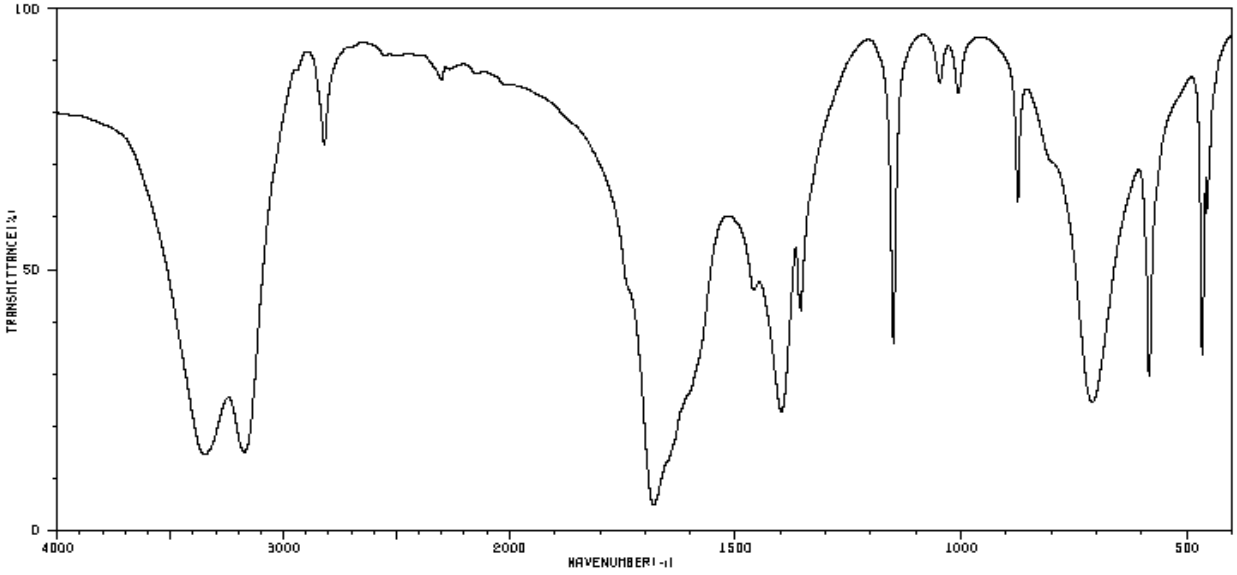
12. C_7H_5OCl



Degrees of unsaturation	five
Possible functional groups consistent with molecular formula	acid chloride, benzene ring
Diagnostic signal(s)	3070 cm^{-1} aromatic C-H stretch 1775 cm^{-1} (C=O stretch) 1620, 1590 cm^{-1} (sp2 C=C stretch)
Functional group consistent with spectrum	acid chloride [benzoyl chloride]

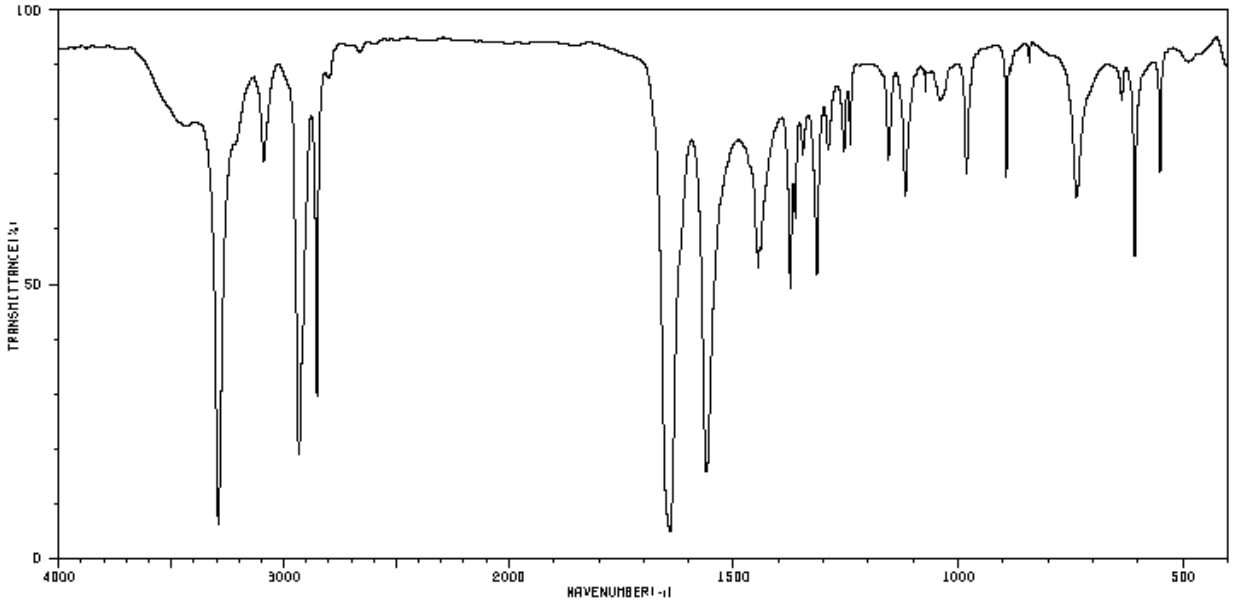
KEY

13. C_2H_5NO



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	amide, vinyl amine
Diagnostic signal(s)	3350, 3170 cm^{-1} (two N-H stretches) 1680 cm^{-1} (C=O stretch)
Functional group consistent with spectrum	primary amide [acetamide]

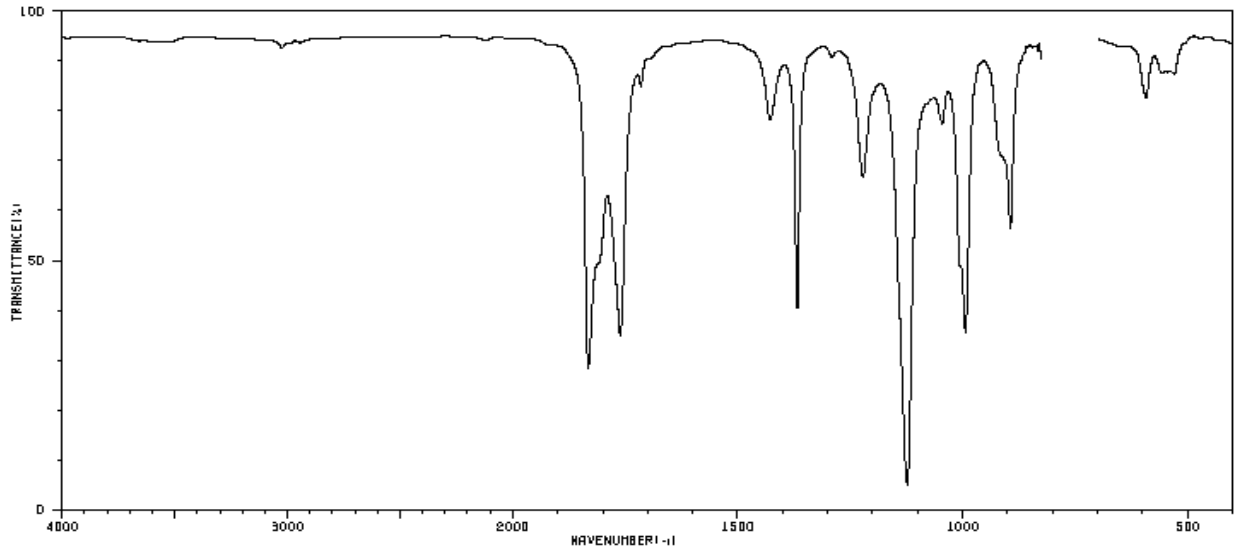
14. $C_8H_{15}NO$



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	amide, vinyl amine
Diagnostic signal(s)	3290 cm^{-1} (N-H stretch, secondary amide) 1640 cm^{-1} (C=O stretch)
Functional group consistent with spectrum	secondary amide [N-cyclohexyl acetamide]

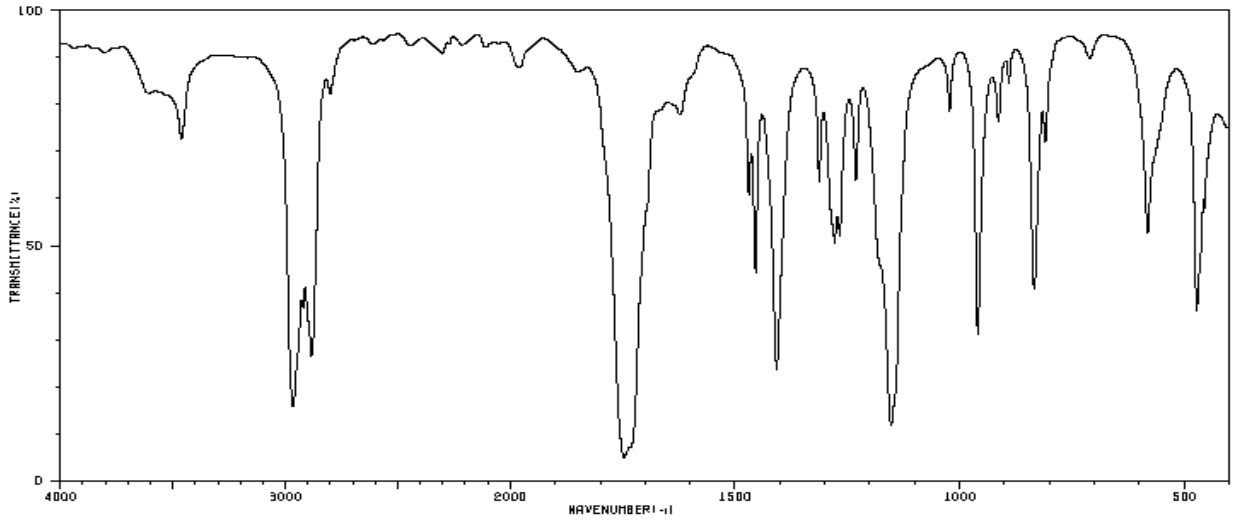
KEY

15. $C_4H_6O_3$



Degrees of unsaturation	two
Possible functional groups consistent with molecular formula	anhydride
Diagnostic signal(s)	1830, 1760 cm^{-1} (C=O symmetric and asymmetric stretches) 1125 cm^{-1} (C-O stretch)
Functional group consistent with spectrum	anhydride [acetic anhydride]

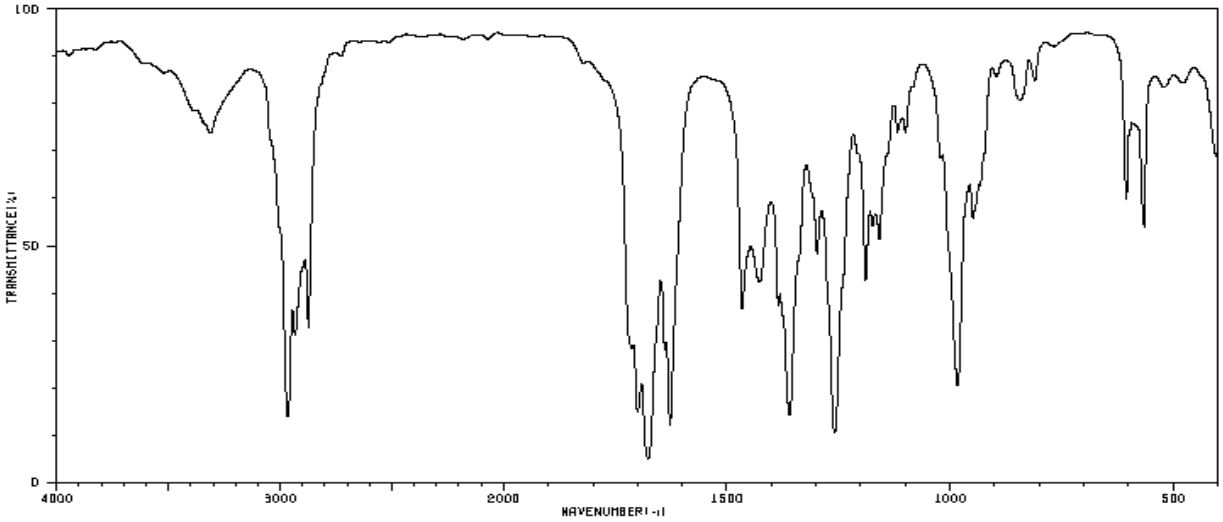
16. C_5H_8O



Degrees of unsaturation	two
Possible functional groups consistent with molecular formula	aldehyde, ketone, alcohol, ether
Diagnostic signal(s)	1745 cm^{-1} (C=O stretch) (no O-H or aldehyde sp2 C-H signals)
Functional group consistent with spectrum	ketone [cyclopentanone]

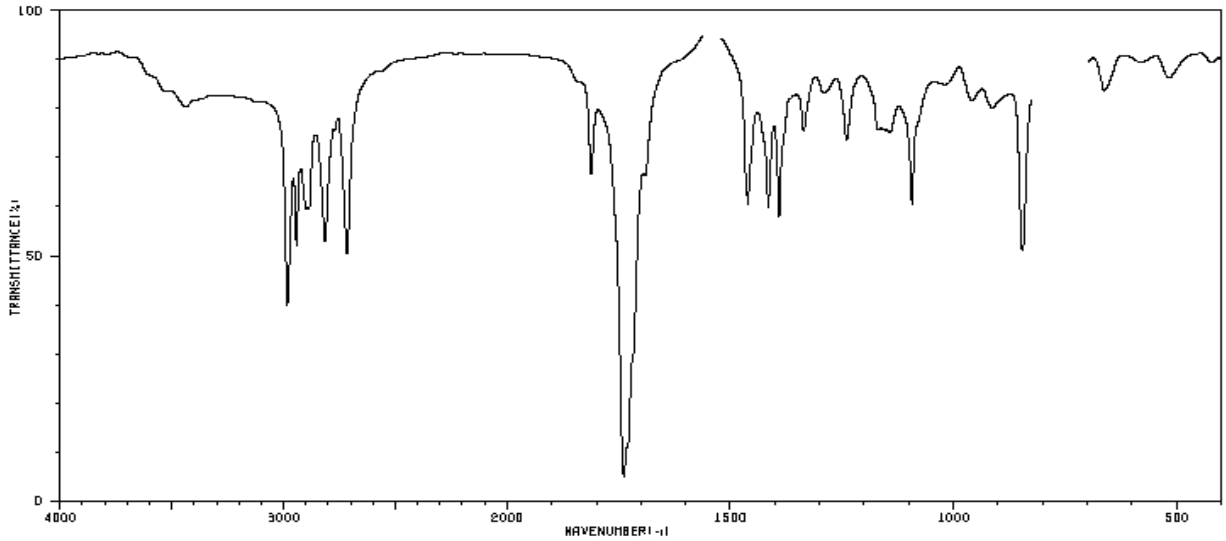
KEY

17. $C_7H_{12}O$



Degrees of unsaturation	two
Possible functional groups consistent with molecular formula	aldehyde, ketone, alcohol, ether
Diagnostic signal(s)	3310 cm^{-1} (sp2 C-H stretch) 1690 cm^{-1} (C=O stretch) (no O-H or aldehyde sp2 C-H signals)
Functional group consistent with spectrum	conjugated enone [5-methyl-3-hexen-2-one]

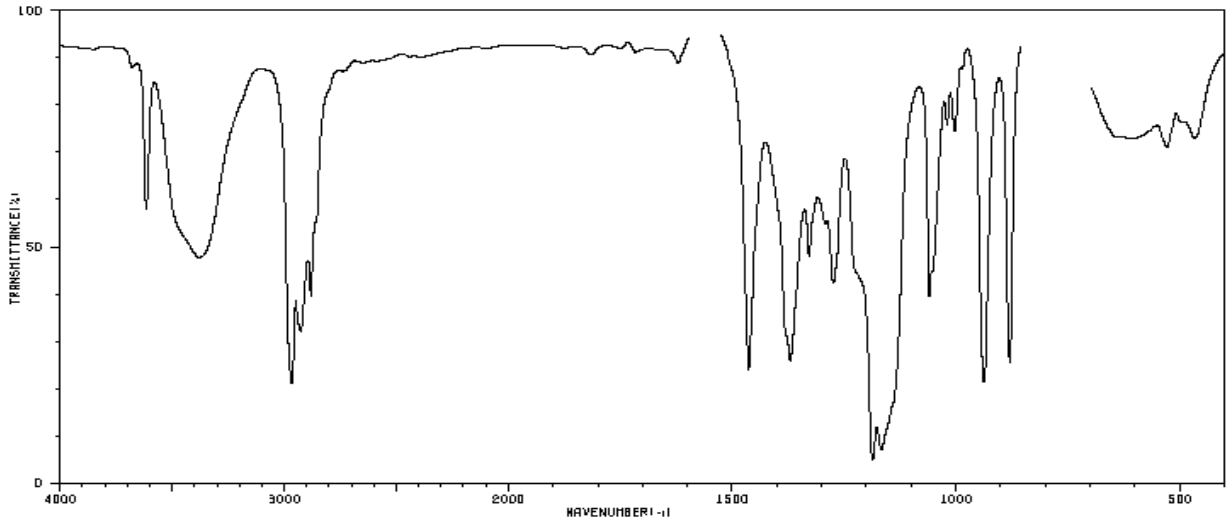
18. C_3H_6O



Degrees of unsaturation	one
Possible functional groups consistent with molecular formula	aldehyde, ketone, alcohol, ether
Diagnostic signal(s)	2815, 2715 cm^{-1} (sp2 C-H stretch) 1740 cm^{-1} (C=O stretch) (no O-H signal)
Functional group consistent with spectrum	aldehyde [propionaldehyde]

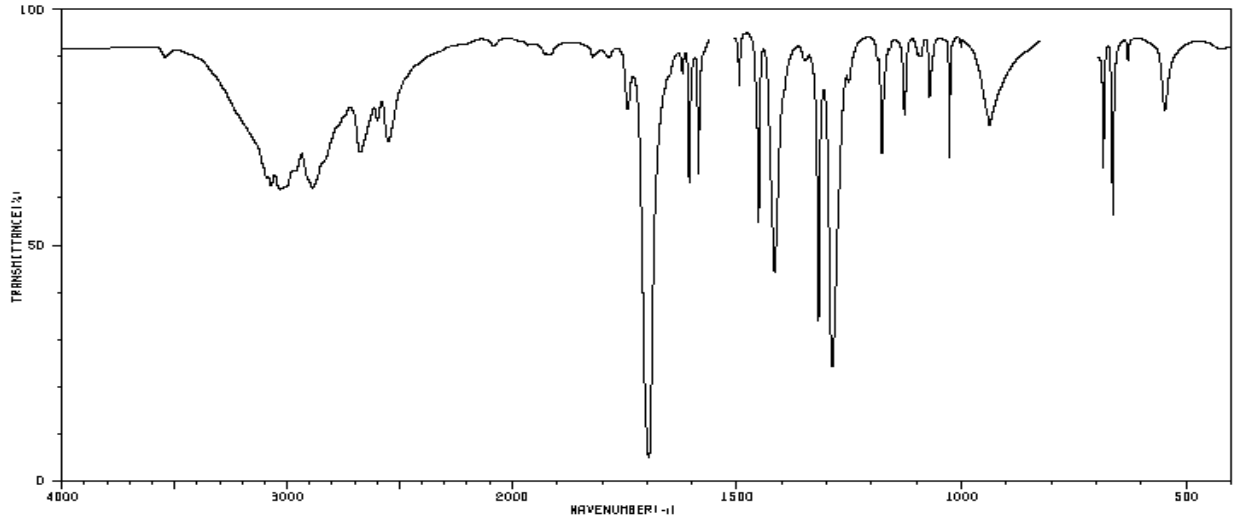
KEY

19. $C_5H_{12}O$



Degrees of unsaturation	none
Possible functional groups consistent with molecular formula	alcohol, ether
Diagnostic signal(s)	3375 cm^{-1} (O-H stretch) 1190cm^{-1} (C-O stretch)
Functional group consistent with spectrum	alcohol [2-methyl-2-butanol]

20. $C_7H_6O_2$



Degrees of unsaturation	five
Possible functional groups consistent with molecular formula	benzene ring, acid, ester
Diagnostic signal(s)	3070 cm^{-1} (O-H stretch) 1700 cm^{-1} (C=O stretch) 1250 cm^{-1} (C-O stretch)
Functional group consistent with spectrum	acid [benzoic acid]