Vibrational spectroscopies: infrared and Raman

From theory to pharmaceutical and biomedical applications

1.2

- **Practical work**

Pr. Ali TFAYLI, PhD-HDR

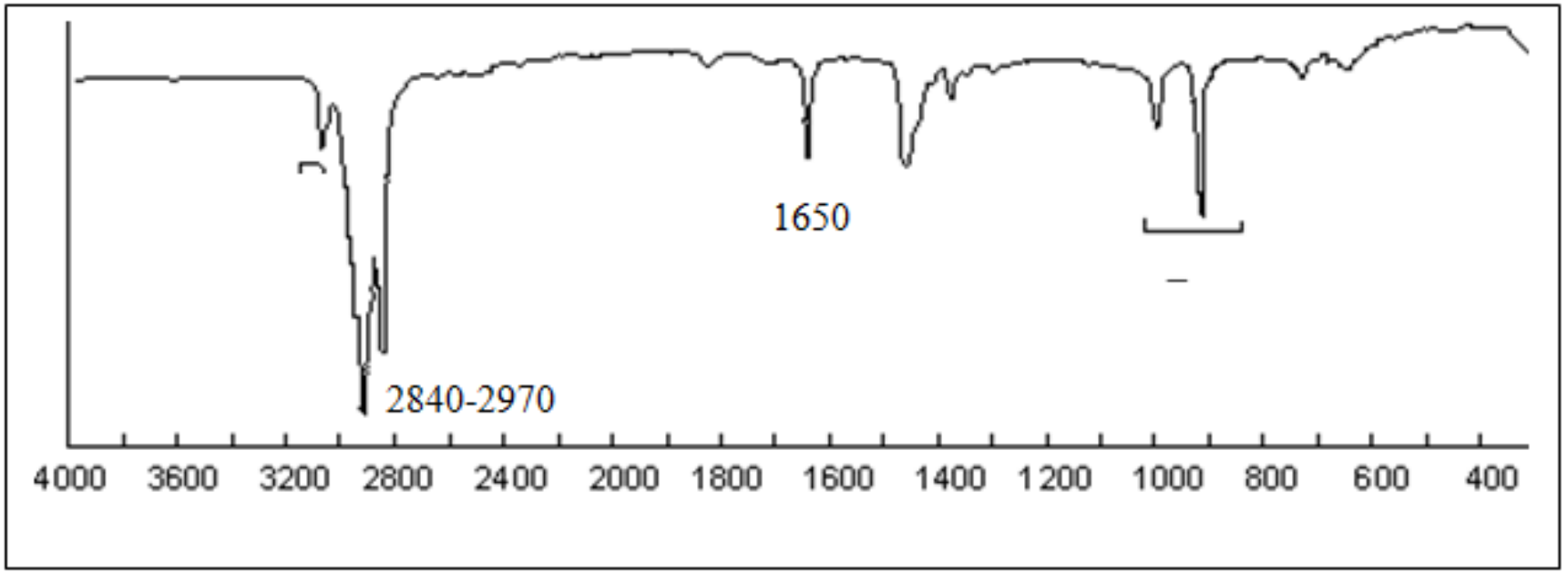
Dr. Sana TFAILI, PhD, Associate Professor

Lipides: systèmes analytiques et biologiques

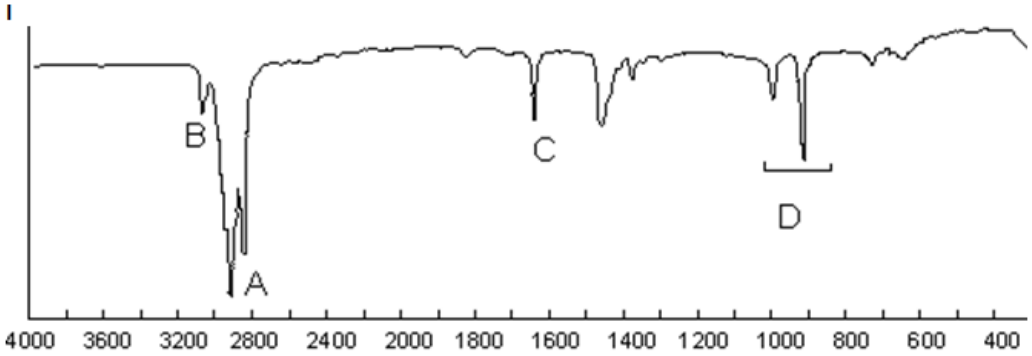
Lip(Sys)²-EA7357

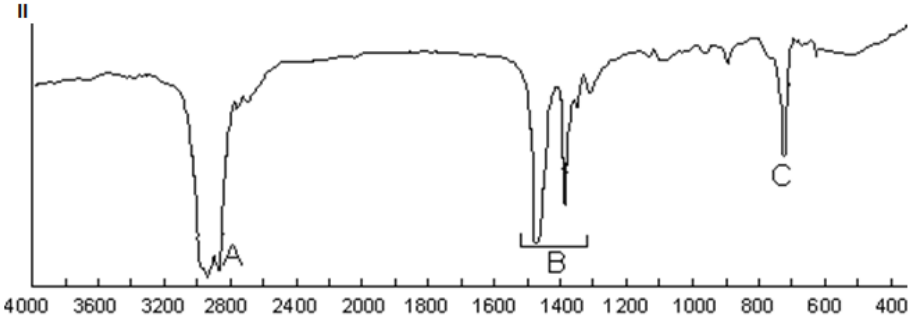
Based on the vibrational bands, determine the nature of the molecule:

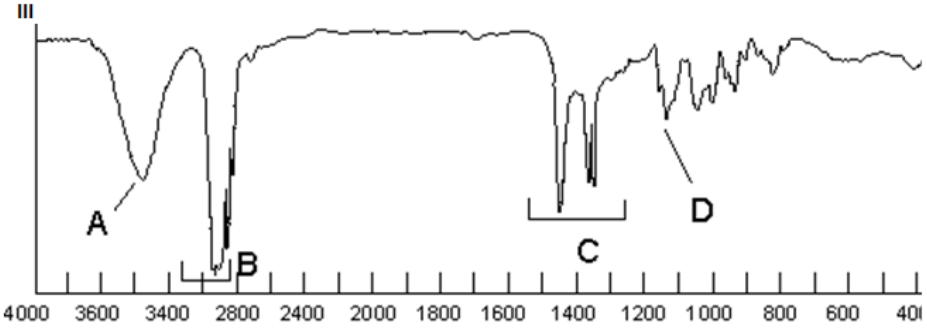
Alkane, Alkene, Alkyne, primary Alcohol



Which is the spectrum of alkane, alkene, alcohol ?
Note and assign the characteristic bands







Which is the right spectrum ?
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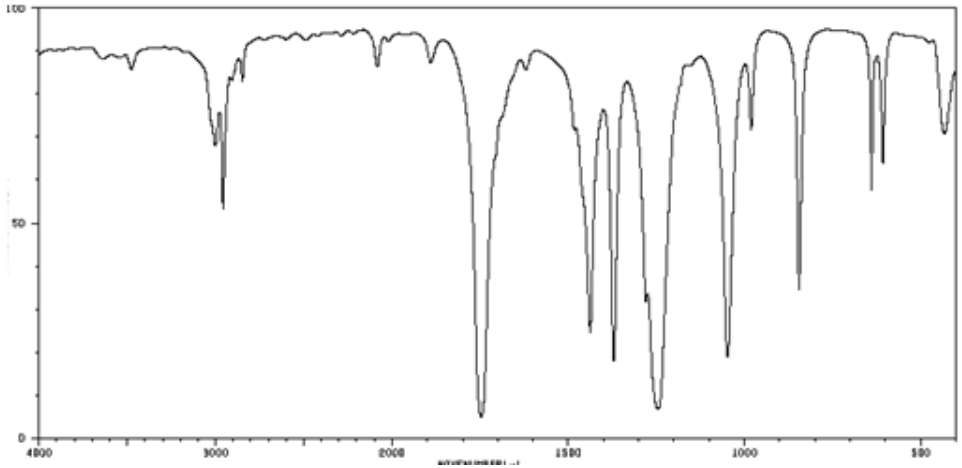

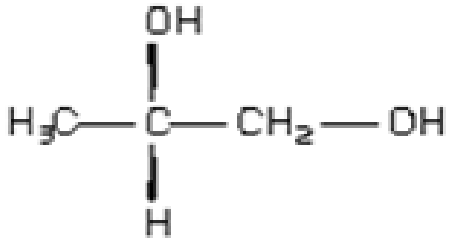

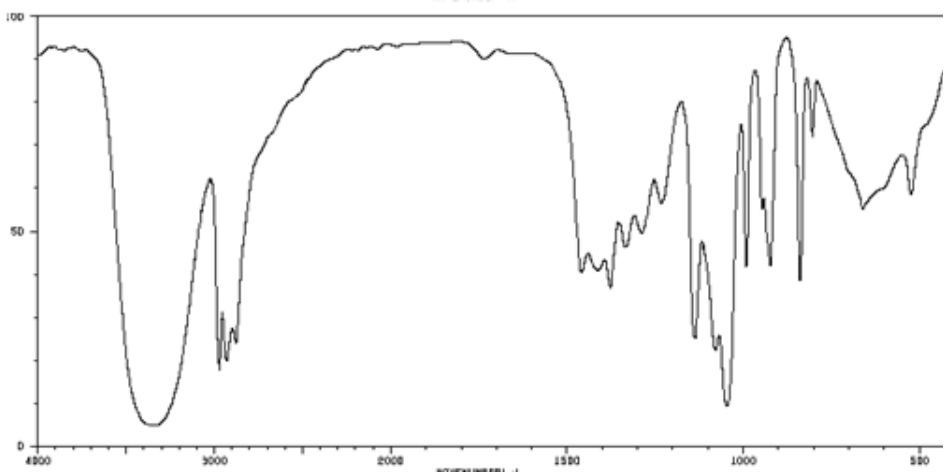

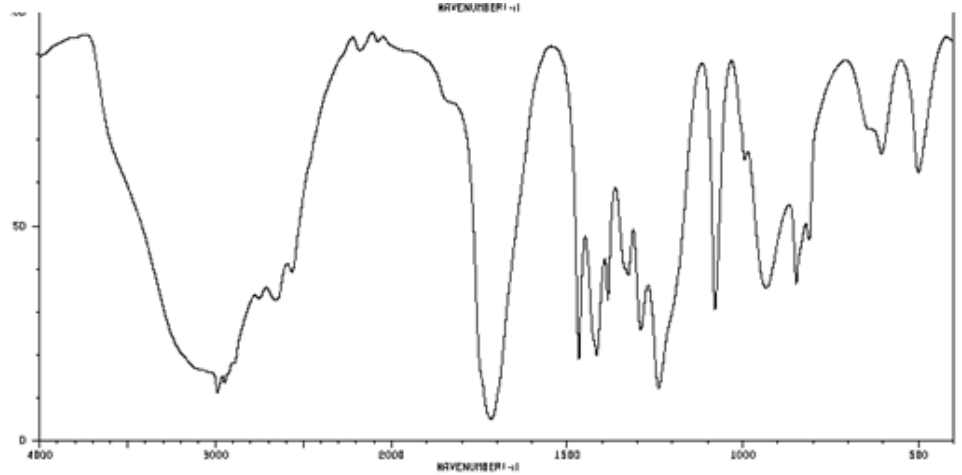

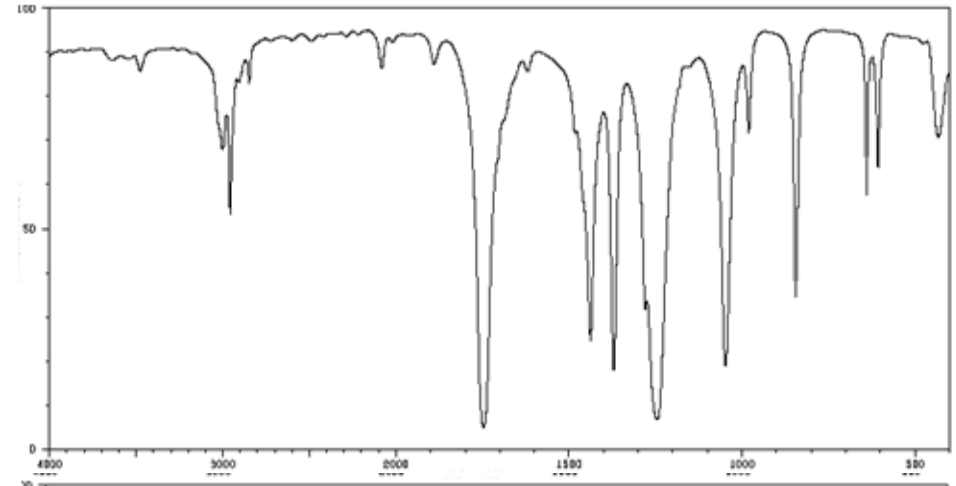

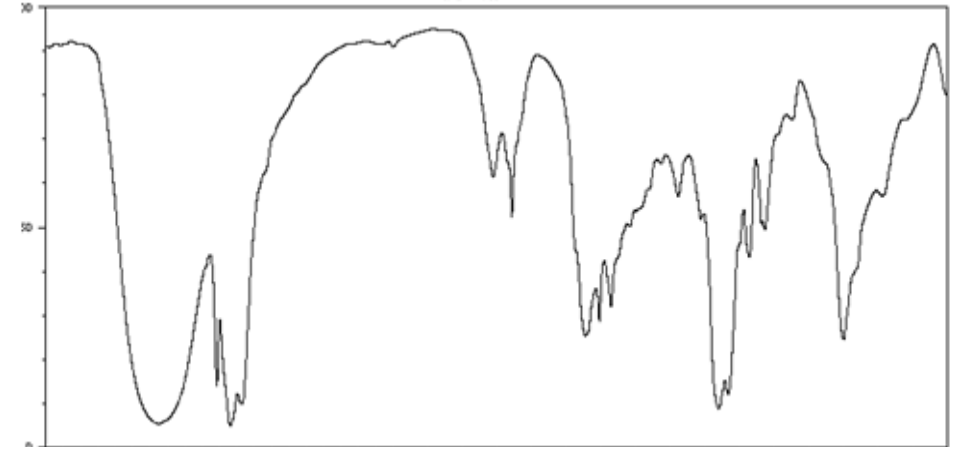

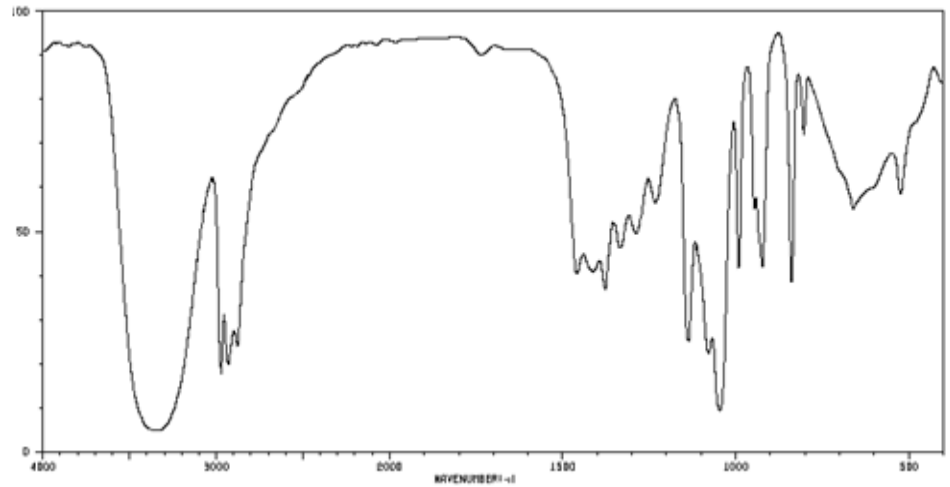

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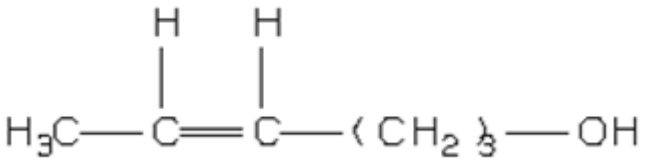
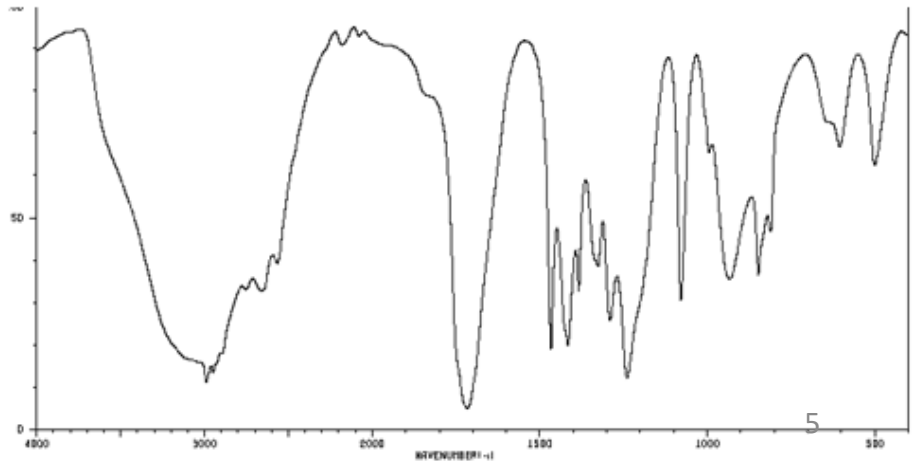
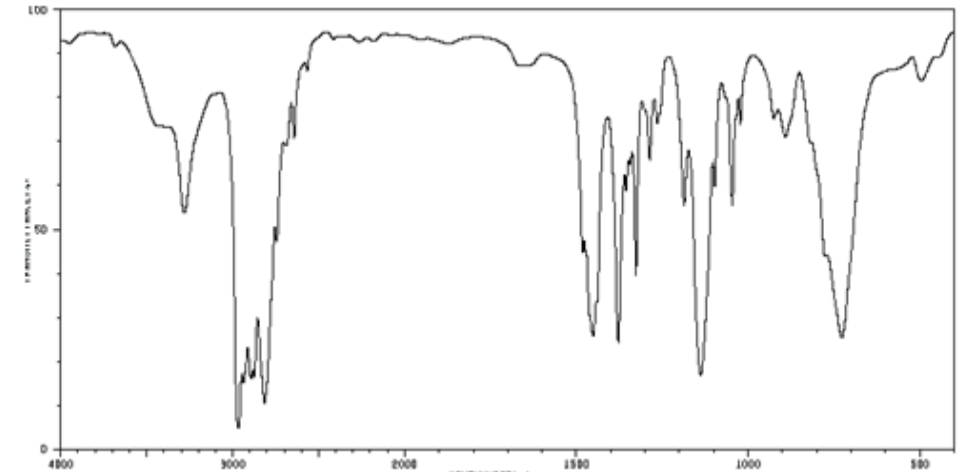
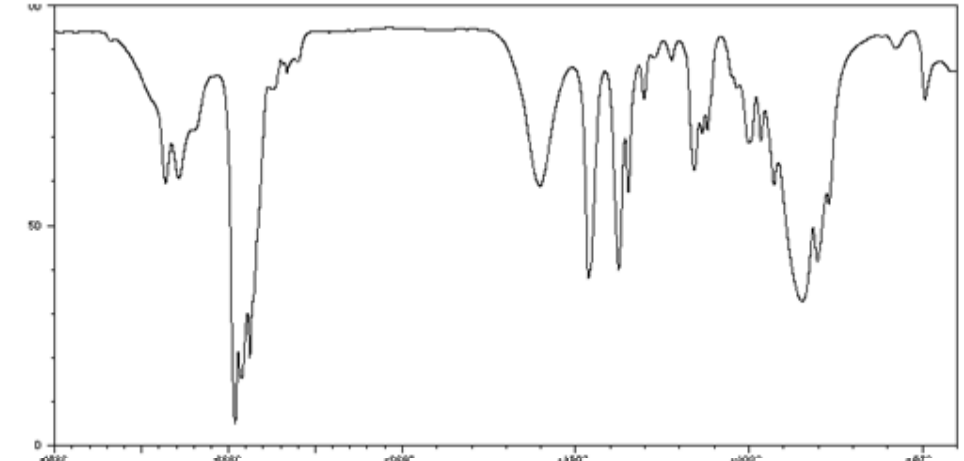
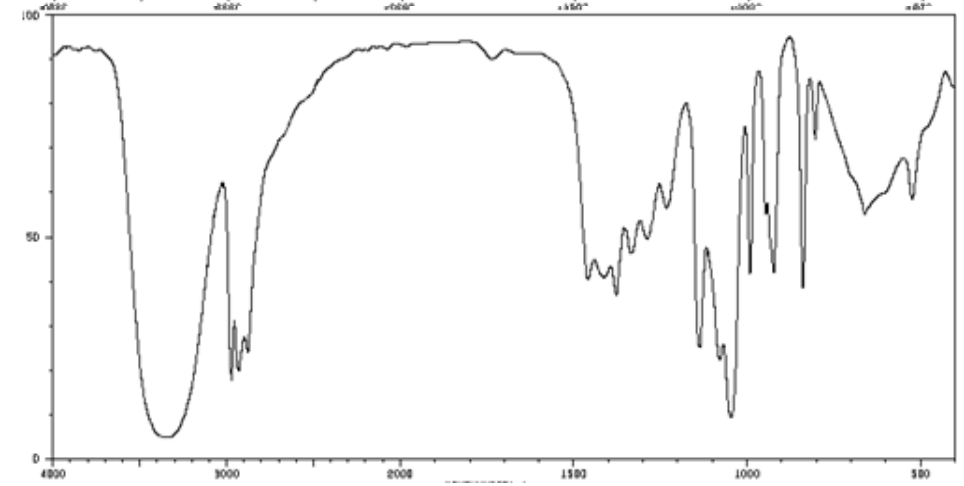
Note and assign the characteristic bands











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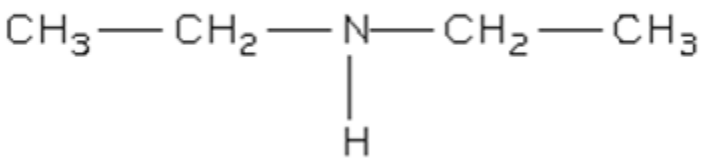
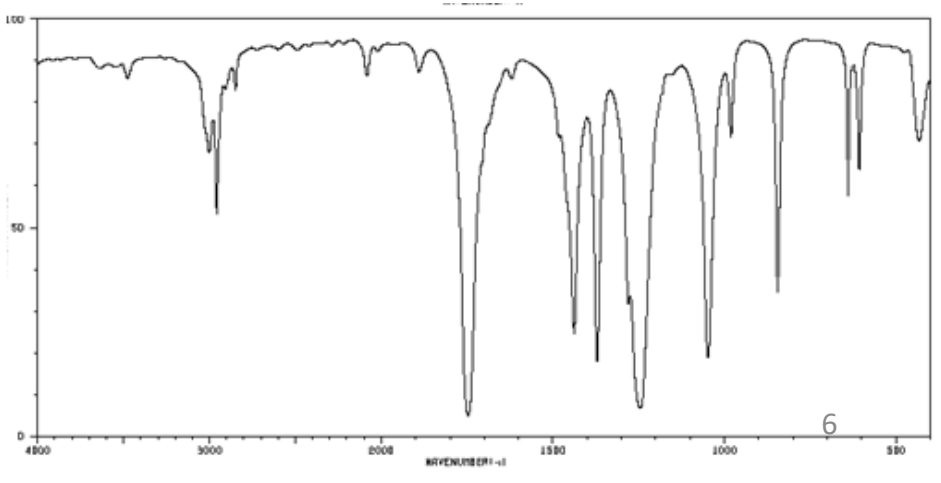
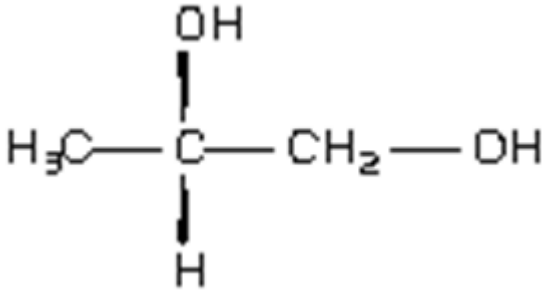
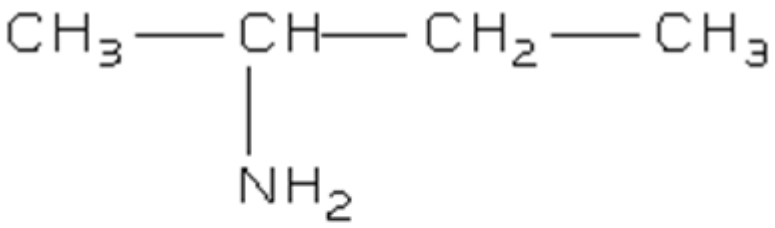


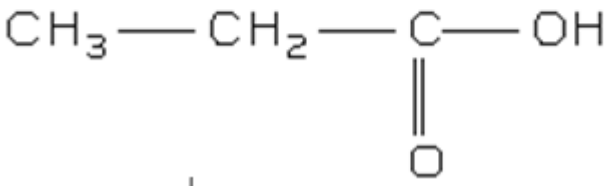


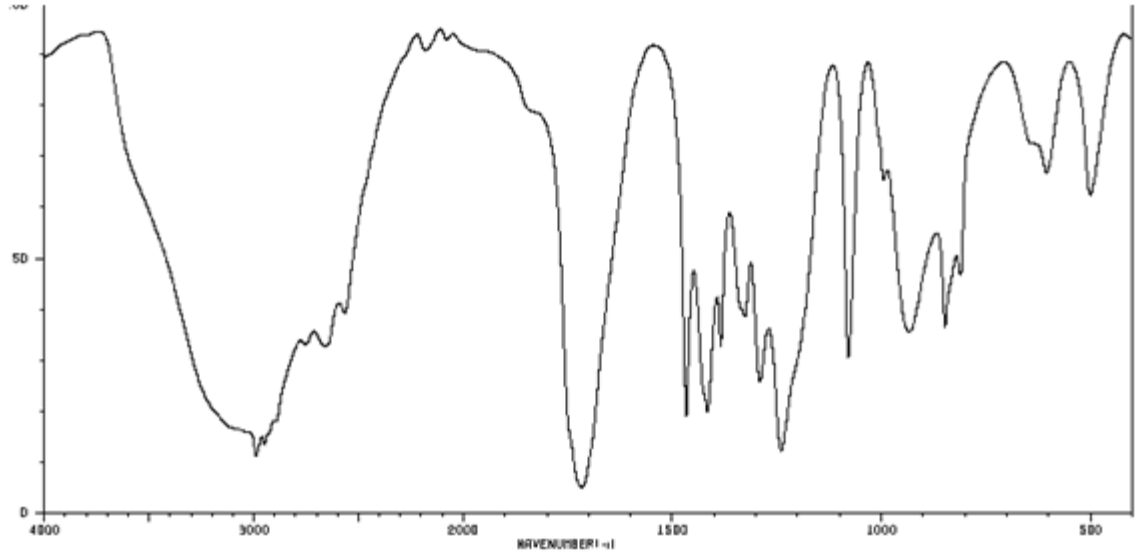
Which is the right formula ?

Note and assign the characteristic bands on the spectrum









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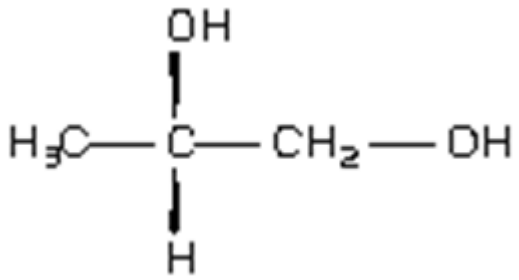

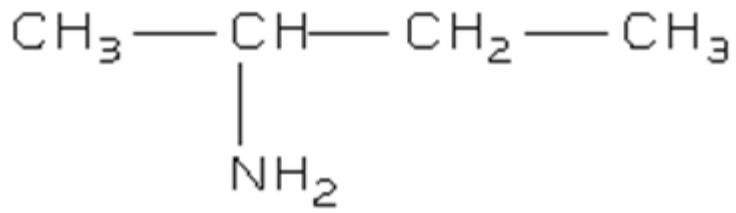

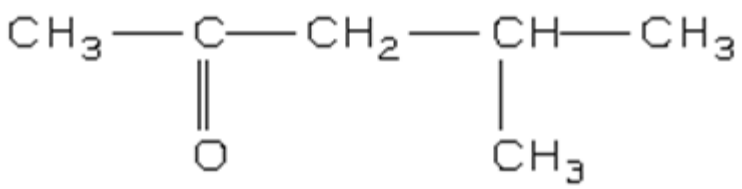

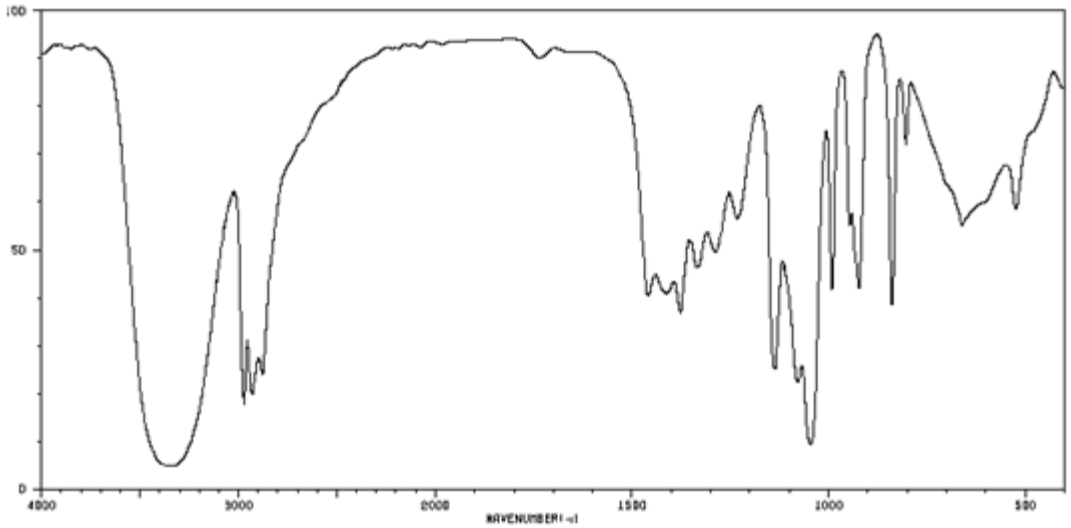

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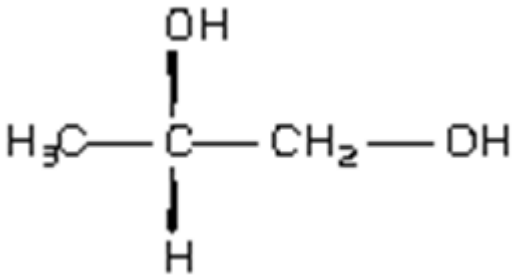
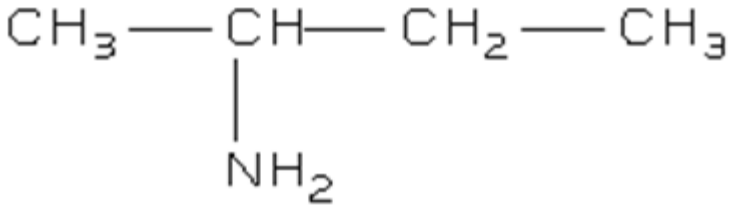
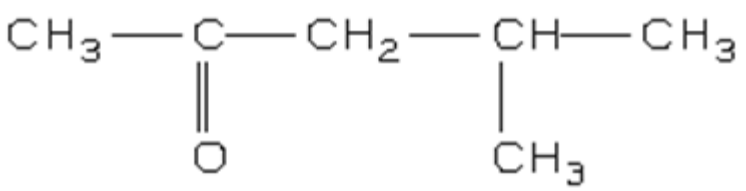
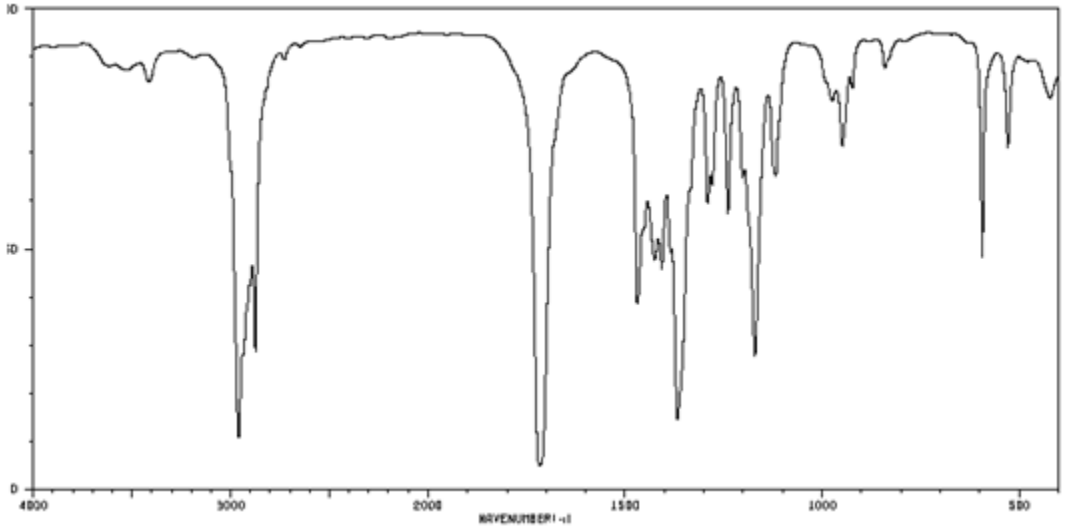
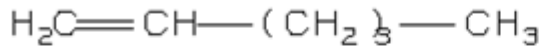
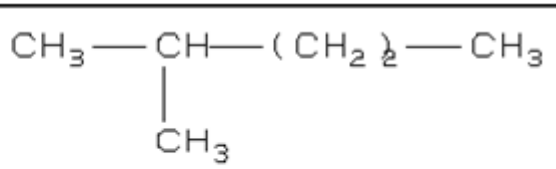




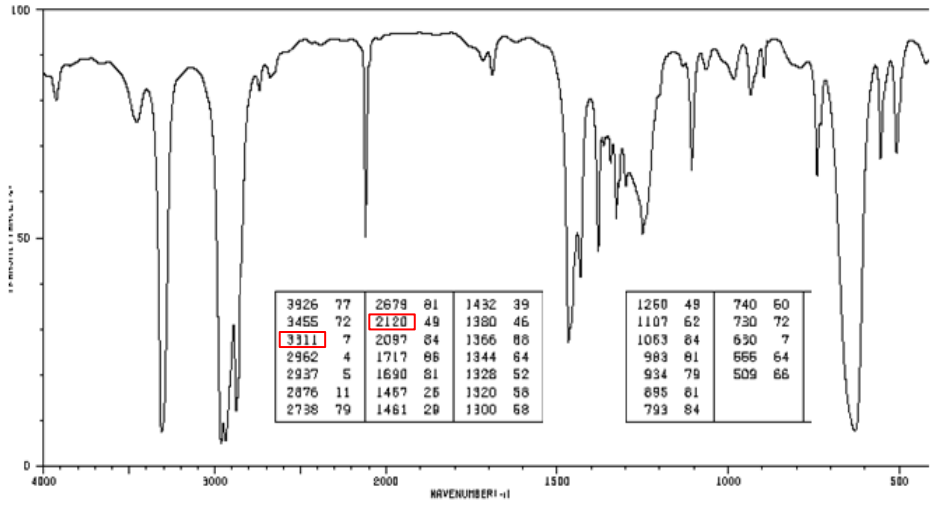




Link the right formula to the right spectrum
Note and assign the characteristic bands

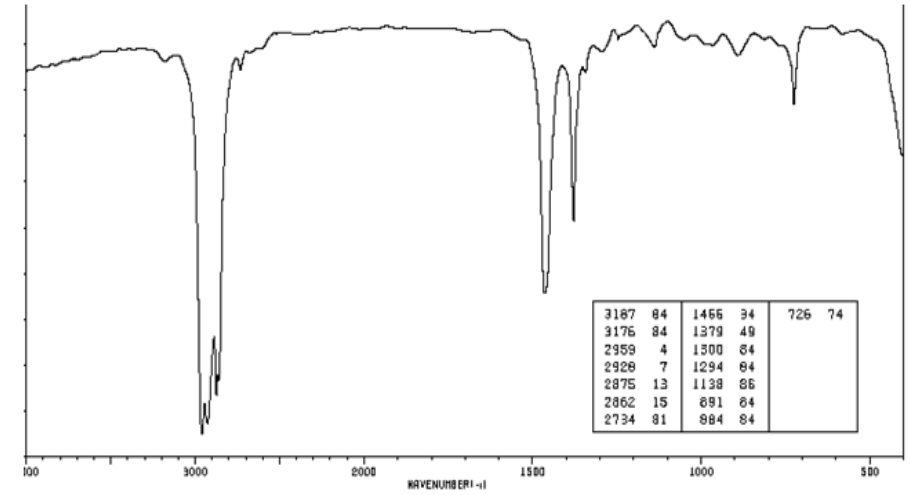
1 	**2** 
3 CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-CH_3	**4** 

A



3926	77	2679	81	1432	39	1260	48	740	60
3455	72	2120	49	1380	46	1107	62	730	72
3311	7	2097	84	1366	88	1063	84	630	7
2962	4	1717	86	1344	64	983	81	666	64
2937	5	1690	81	1328	52	934	79	509	66
2876	11	1467	25	1320	58	895	81		
2738	79	1461	29	1300	68	793	84		

B



3187	84	1466	34	726	74
3176	84	1379	49		
2959	4	1300	84		
2928	7	1294	84		
2875	13	1138	86		
2862	15	691	84		
2734	81	884	84		

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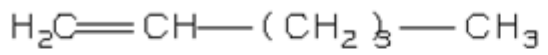
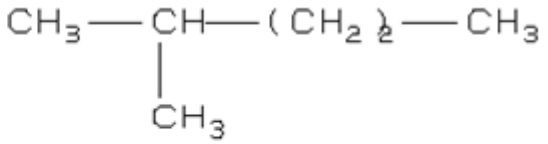
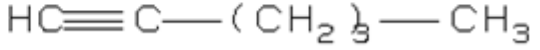
2885-2860cm^{-1}
2940-2915cm^{-1}
2870-2845cm^{-1}

2: 1470-1435cm^{-1}
2': 1480-1440cm^{-1}
2'': 1385-1370cm^{-1}

1 	**2** 
3 CH_3-CH_2-CH_2-CH_2-CH_2-CH_2-CH_3	**4** 

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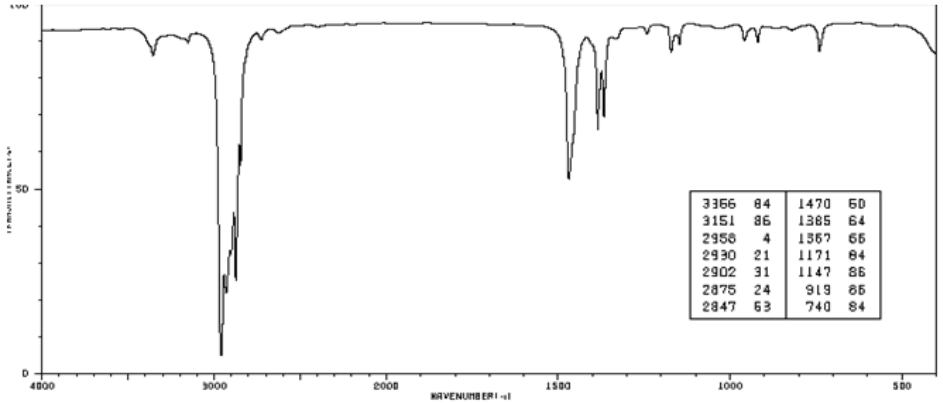

3366	84	1470	60
3151	86	1385	64
2958	4	1367	66
2930	21	1171	84
2902	31	1147	86
2875	24	919	86
2847	63	740	84

1: 2975-2950cm^{-1}
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2940-2915cm^{-1}
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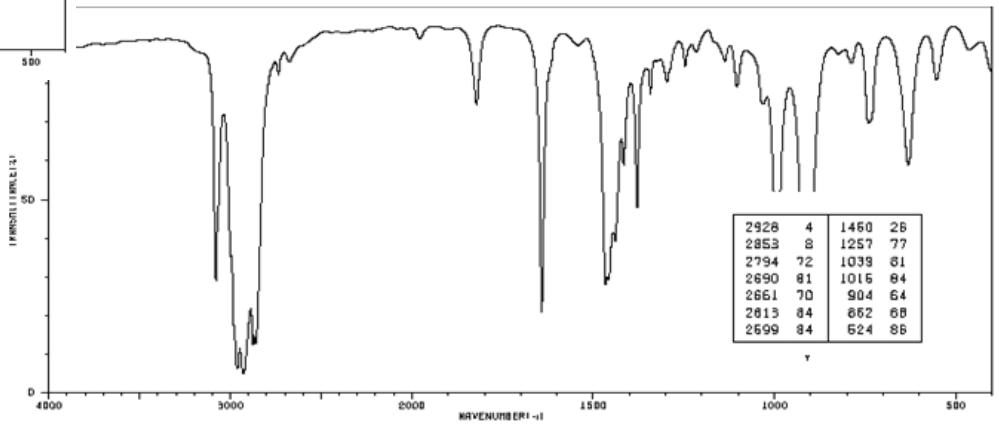
2: 1470-1435cm^{-1}

2': 1385-1380cm^{-1}
1370-1365cm^{-1}

2'': 1480-1440cm^{-}



2928	4	1460	28
2853	8	1257	77
2794	72	1039	81
2690	81	1016	84
2661	70	904	64
2615	84	852	68
2599	84	624	86

3080	27	2853	84	1416	67
2962	5	1821	72	1379	46
2929	4	1642	20	1345	74
2875	12	1642	86	1297	77
2861	12	1467	26	1247	81
2735	79	1459	28	1216	84
2676	81	1439	37	1137	81

1103	77	631	67
1031	72	554	77
993	20	462	66
910	7		
824	84		
787	81		
741	68		

Link the right formula to the right spectrum
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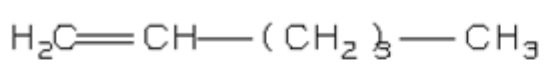
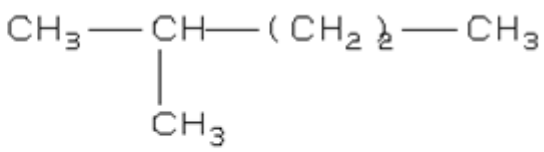
1 	**2** 
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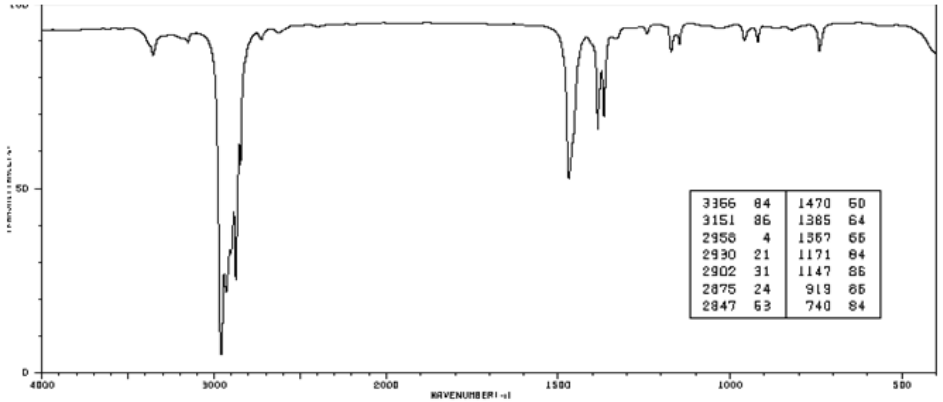

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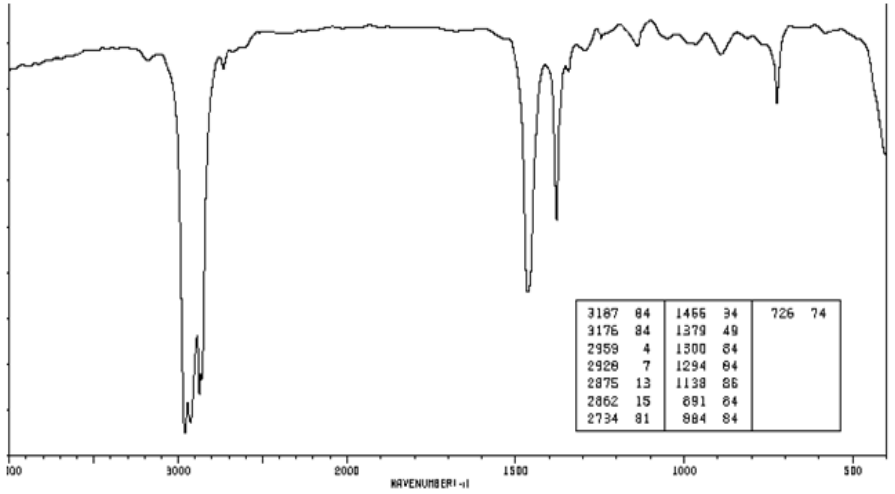
B



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