Lista de Exercícios 2 – Espectroscopia IV

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1. Relacione os espectros abaixo com as seguintes moléculas:

(a) *n*-butil acetato

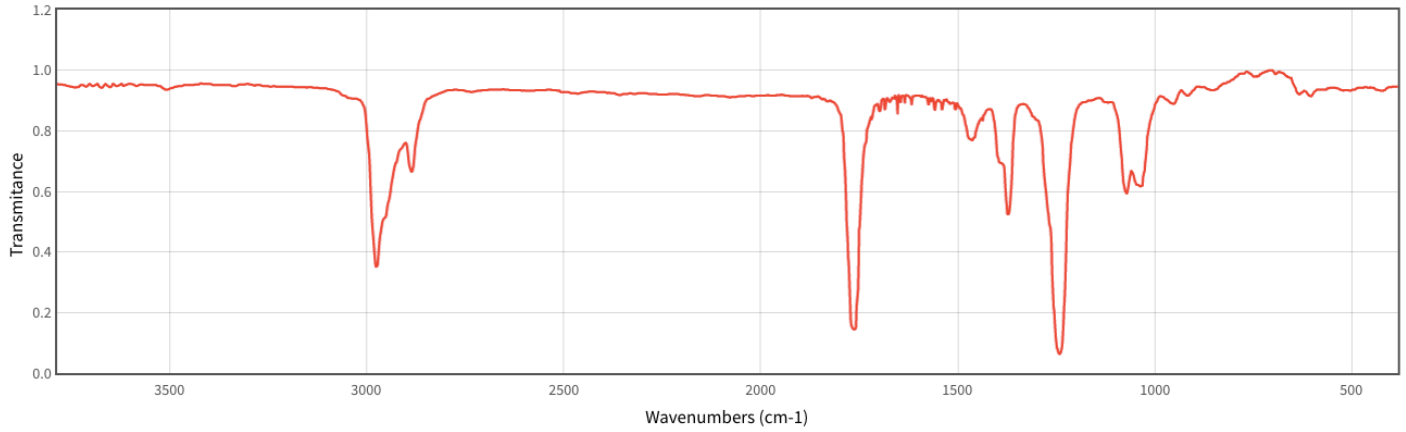
(b) Butilamida

(c) Isobutilamina

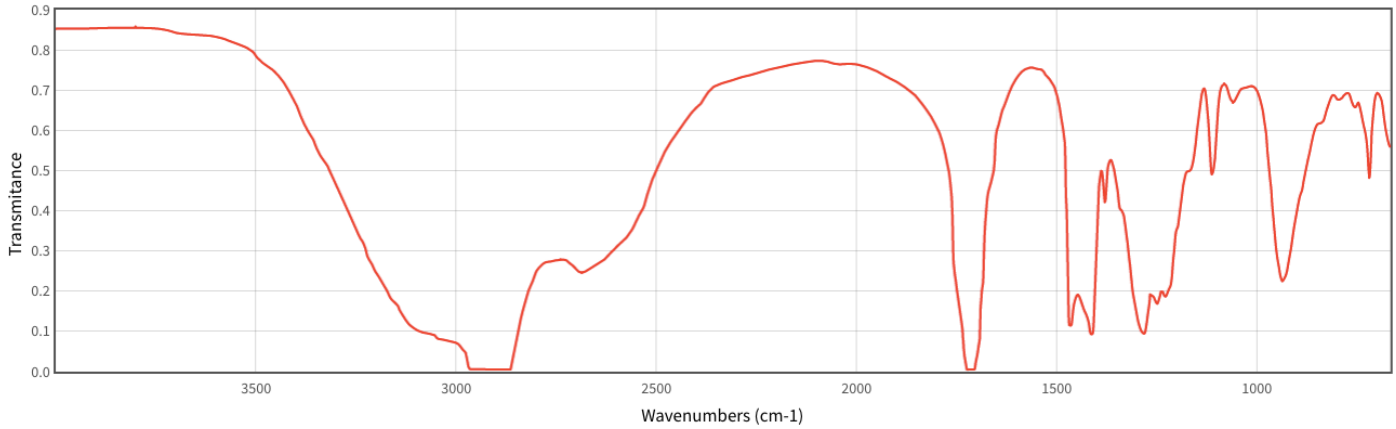
(d) Ácido decanóico

(e) Proprionato de sódio

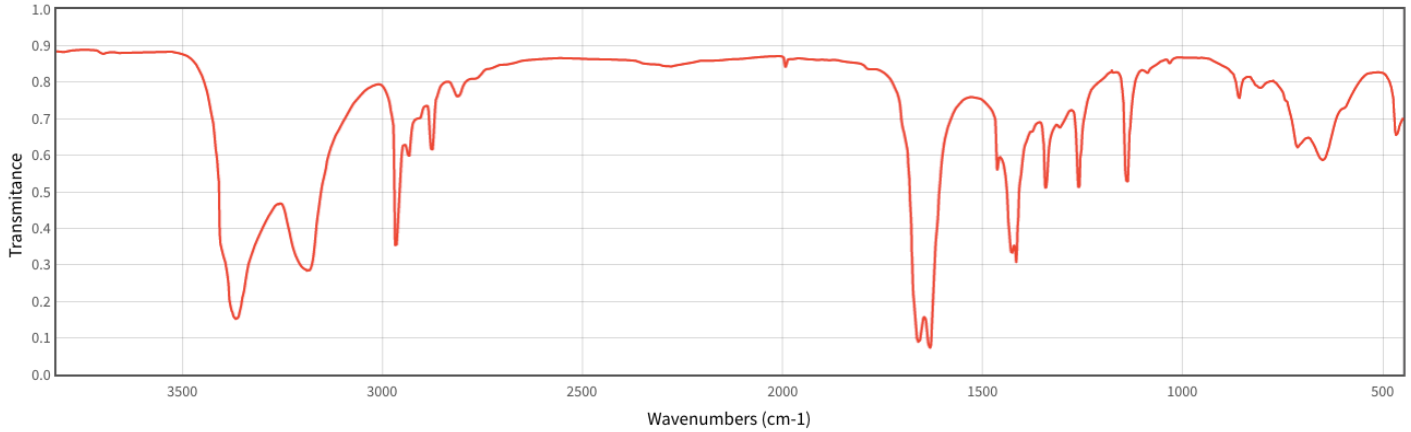
(I)


Transmitance
1.2
1.0
0.8
0.6
0.4
0.2
0.0
3500
3000
2500
2000
1500
1000
500
Wavenumbers (cm-1)

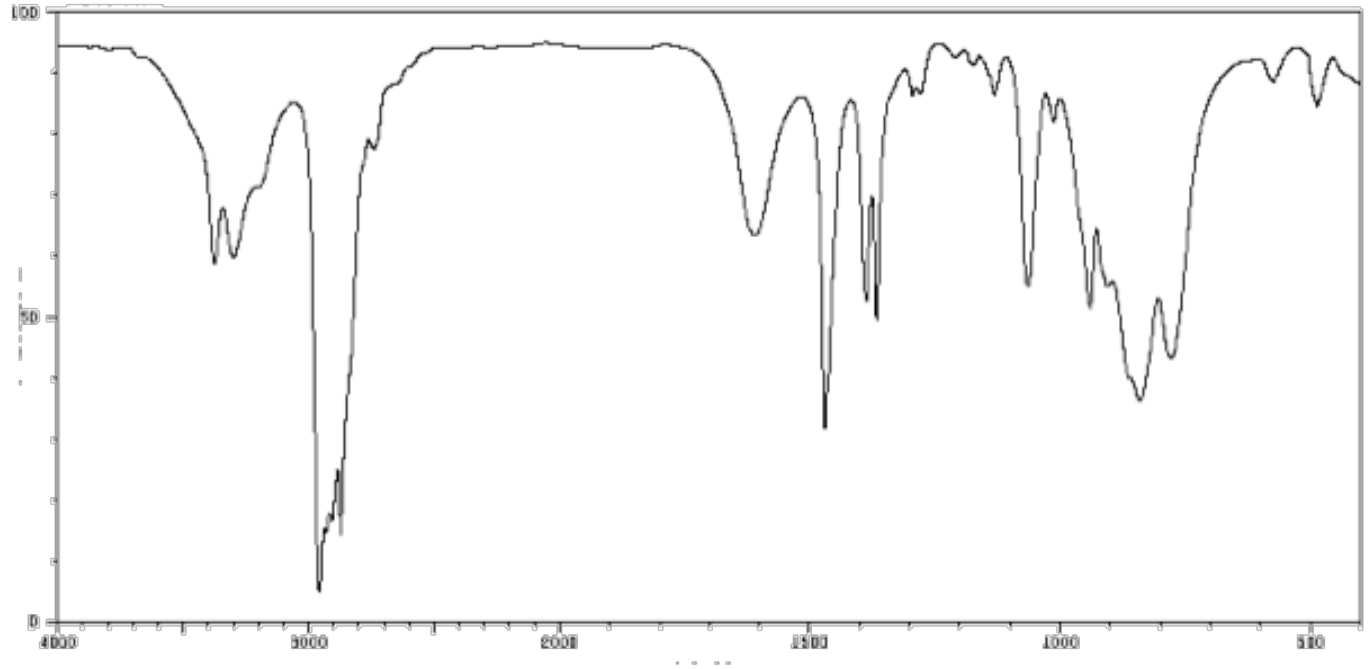
(II)


Transmitance
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
3500
3000
2500
2000
1500
1000
Wavenumbers (cm-1)

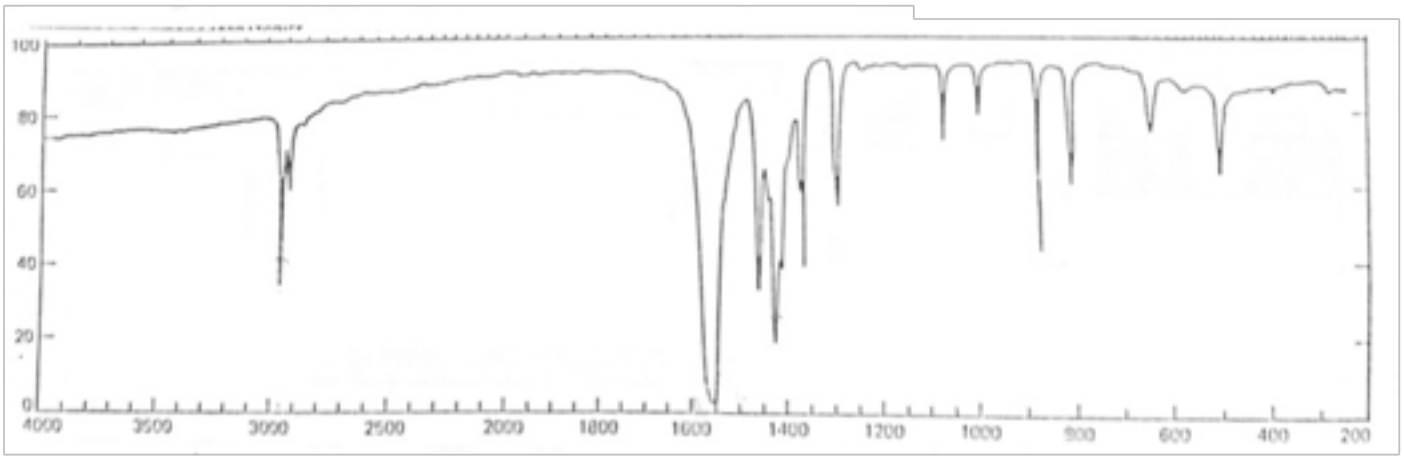
(III)


Transmitance
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
3500
3000
2500
2000
1500
1000
500
Wavenumbers (cm-1)

(IV)


100
50
0
4000
3000
2000
1500
1000
500

(V)


100
80
60
40
20
0
4000
3500
3000
2500
2000
1800
1600
1400
1200
1000
800
600
400
200

2. Relacione os espectros abaixo com as seguintes moléculas:

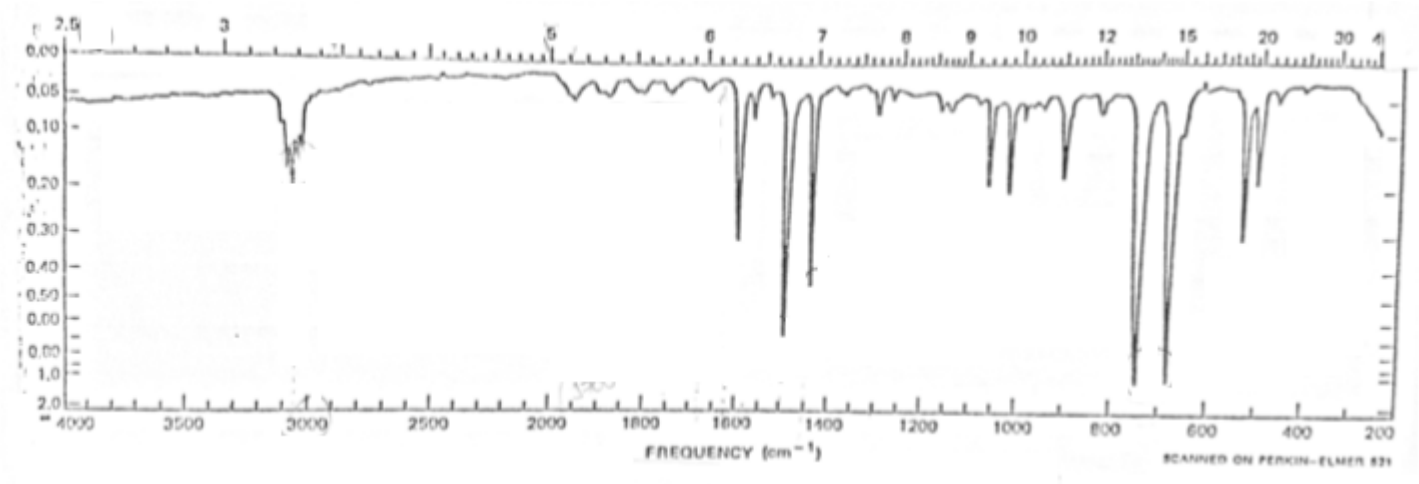
(a) 1,3-ciclohexadieno

(b) Difenilacetileno

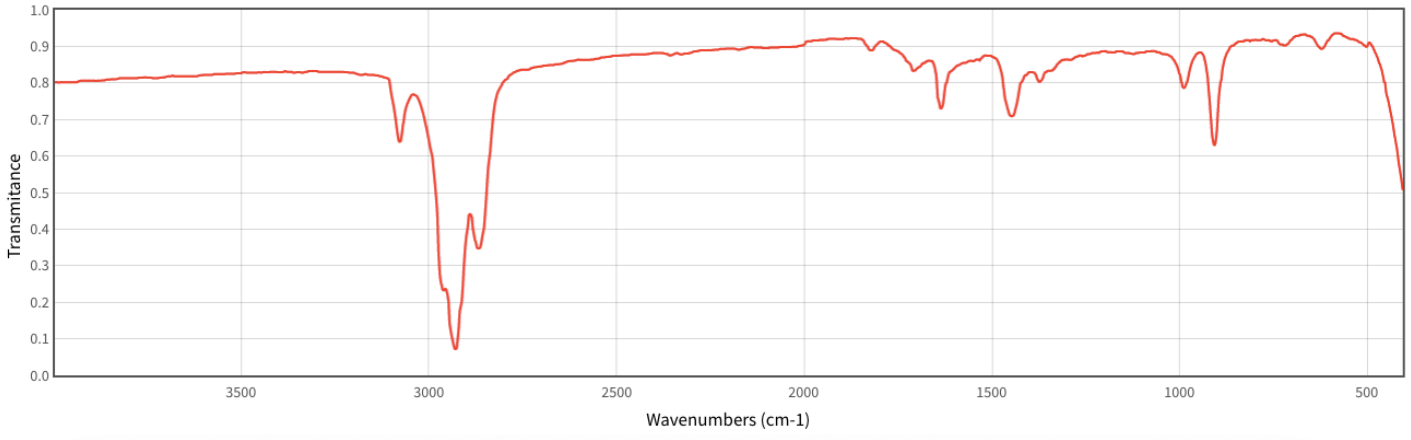
(c) 1-Octeno

(d) *Trans*-2-Penteno

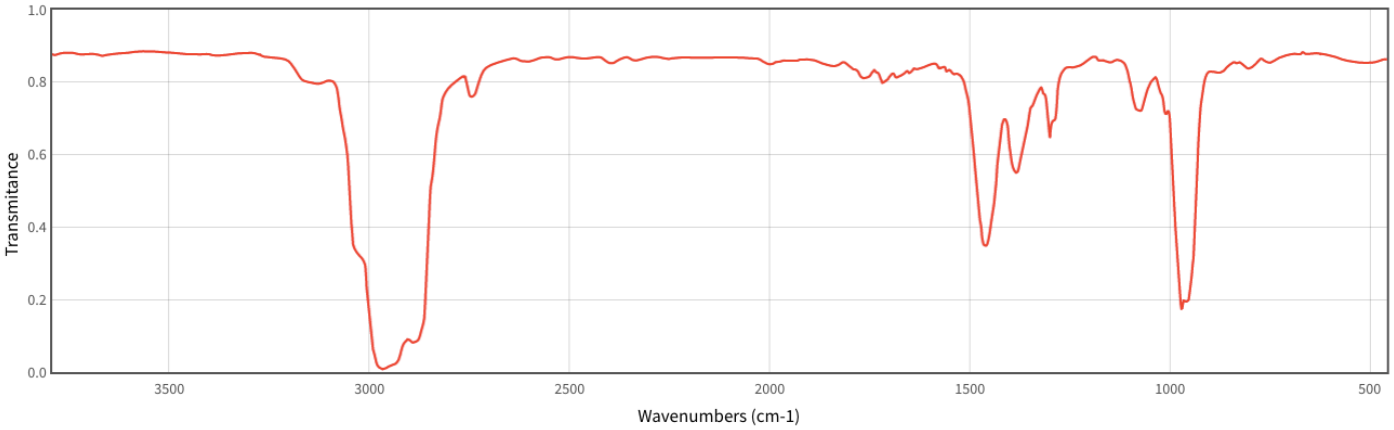
(I)



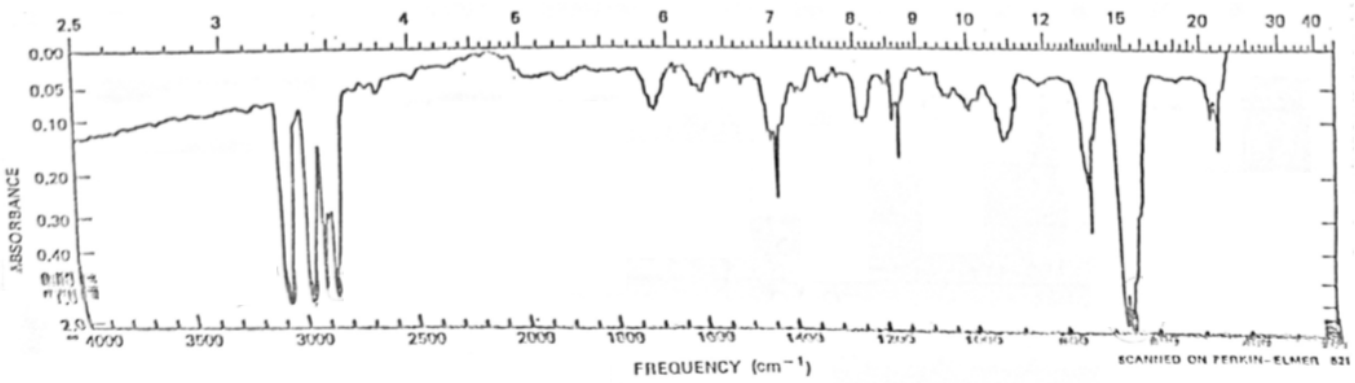
(II)



(III)

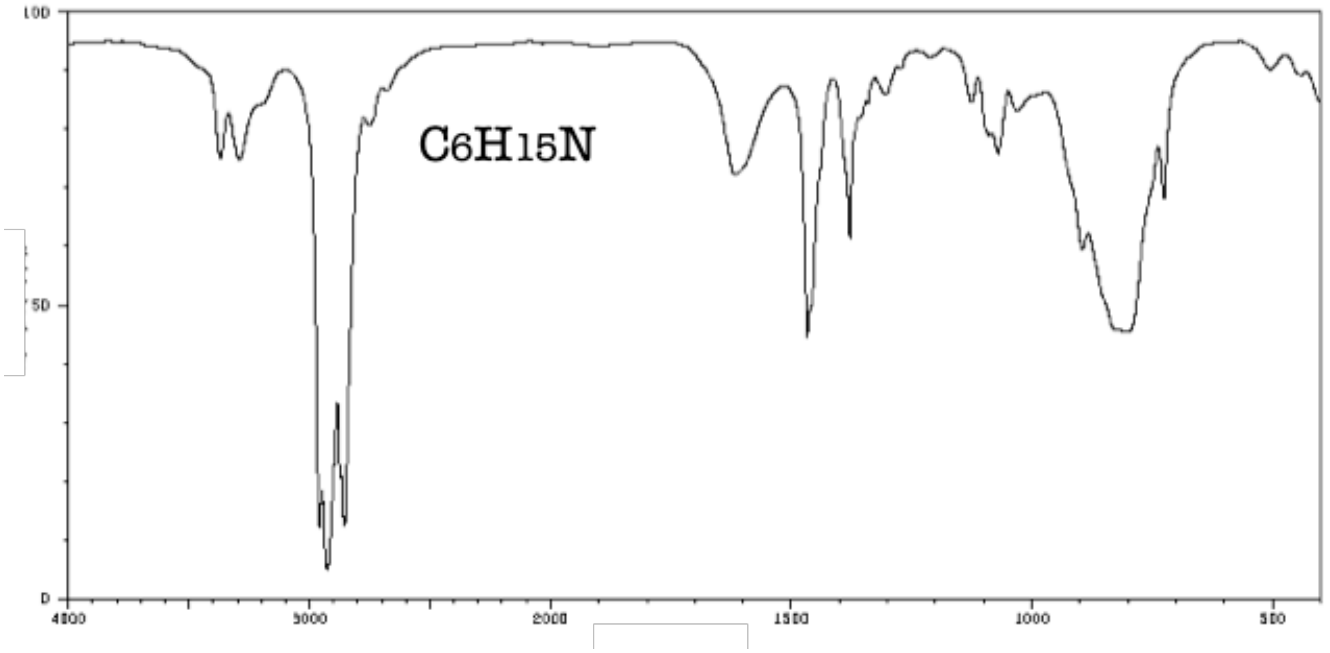

Transmitance
1.0
0.8
0.6
0.4
0.2
0.0
3500
3000
2500
2000
1500
1000
500
Wavenumbers (cm-1)

(IV)

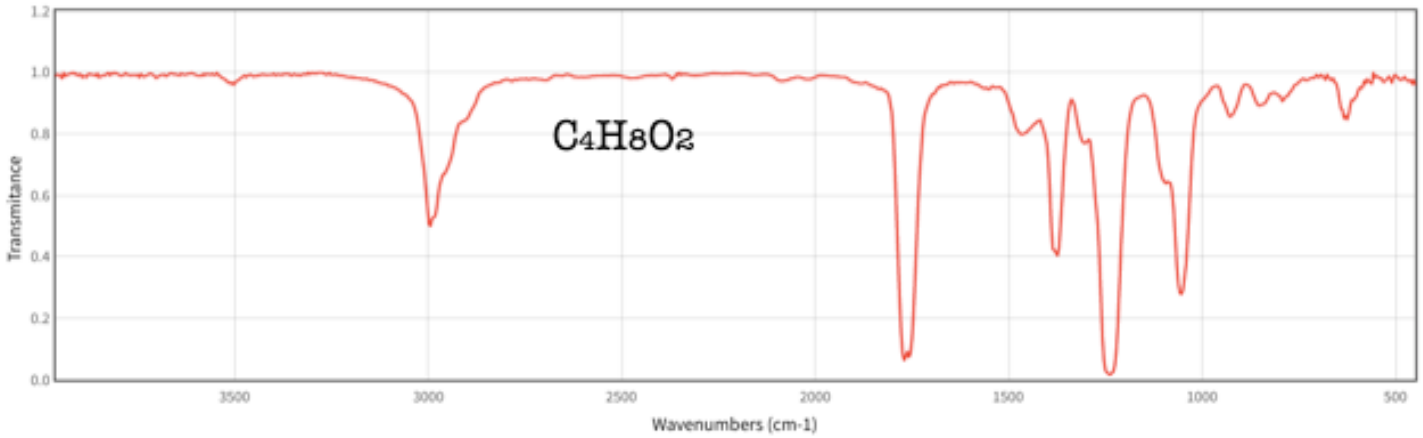

2.5
3
4
5
6
7
8
9
10
12
15
20
30
40
ABSORBANCE
0.00
0.05
0.10
0.20
0.30
0.40
4000
3500
3000
2500
2000
1500
1000
FREQUENCY (cm⁻¹)
SCANNED ON PERKIN-ELMER

3. Justificar as principais bandas de IV, sugerir a estrutura provável e o grupo funcional.

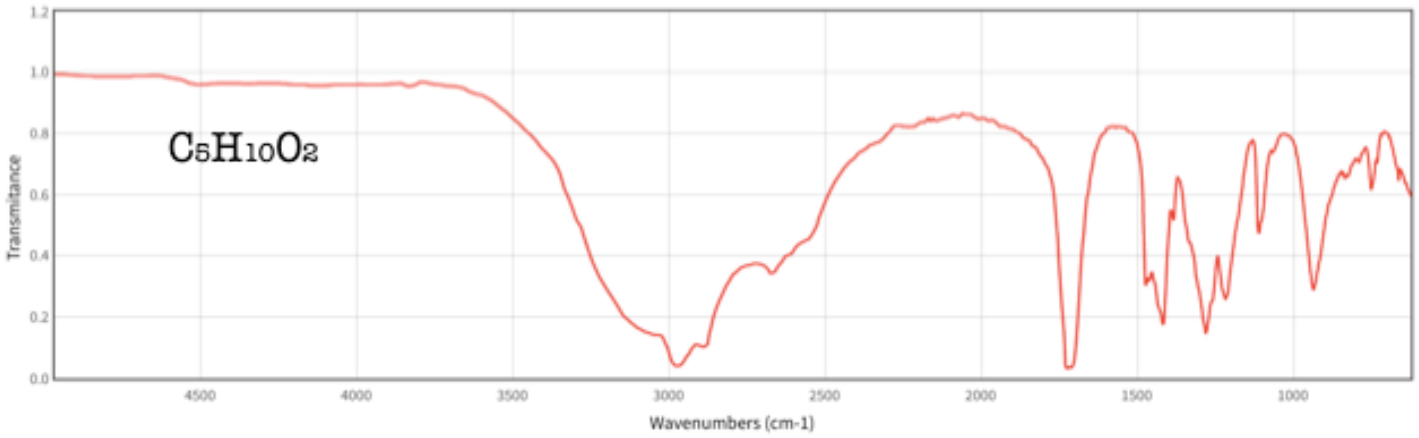
(a)



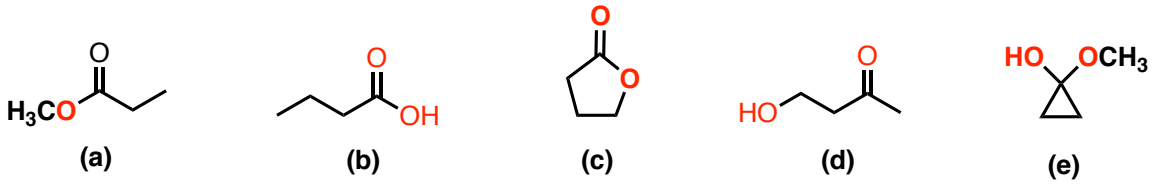
(b)



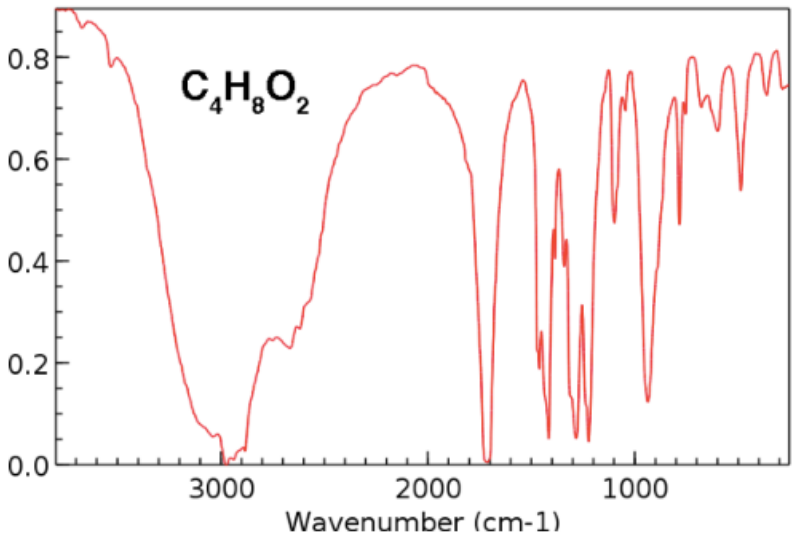
(c)



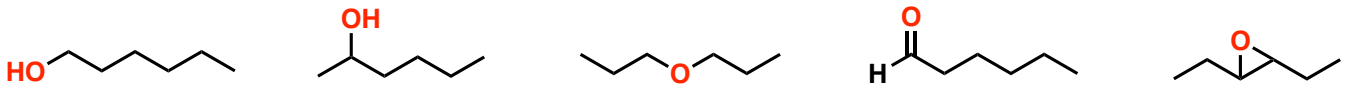
4. Relacione o espectro abaixo a uma das moléculas listadas e justifique.



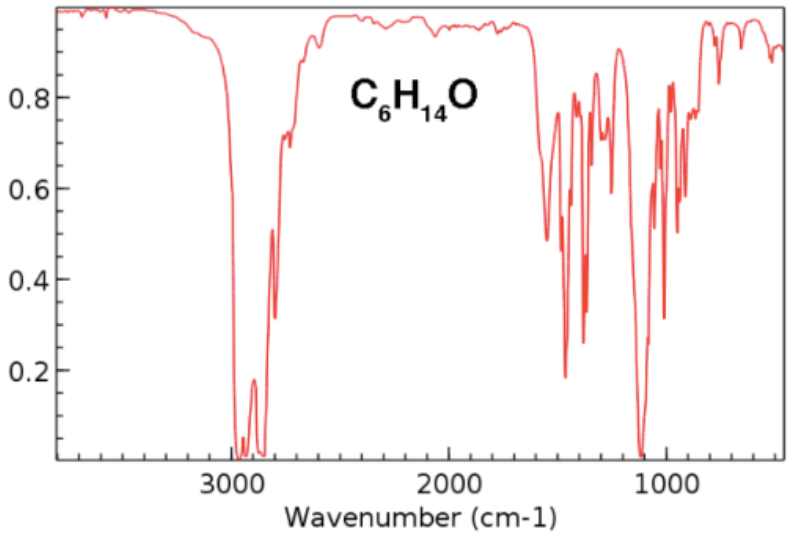
(a) (b) (c) (d) (e)



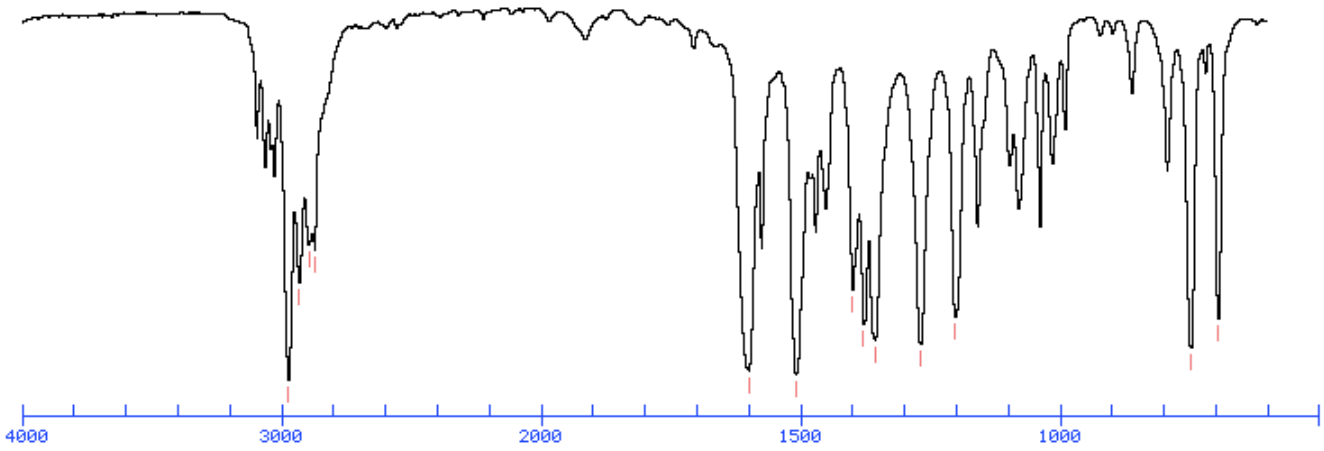
5. Qual das moléculas abaixo é descrita pelo espectro mostrado?



(a) (b) (c) (d) (e)



6. Qual a estrutura provável do composto cujo espectro de IV encontra-se abaixo? A fórmula molecular é $C_{10}H_{15}N$.



7. Sabendo que a fórmula molecular é $C_6H_{10}O$, qual a estrutura provável do composto cuja espectro de IV está abaixo?