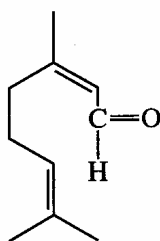
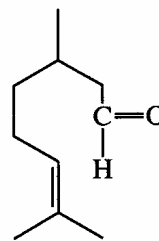


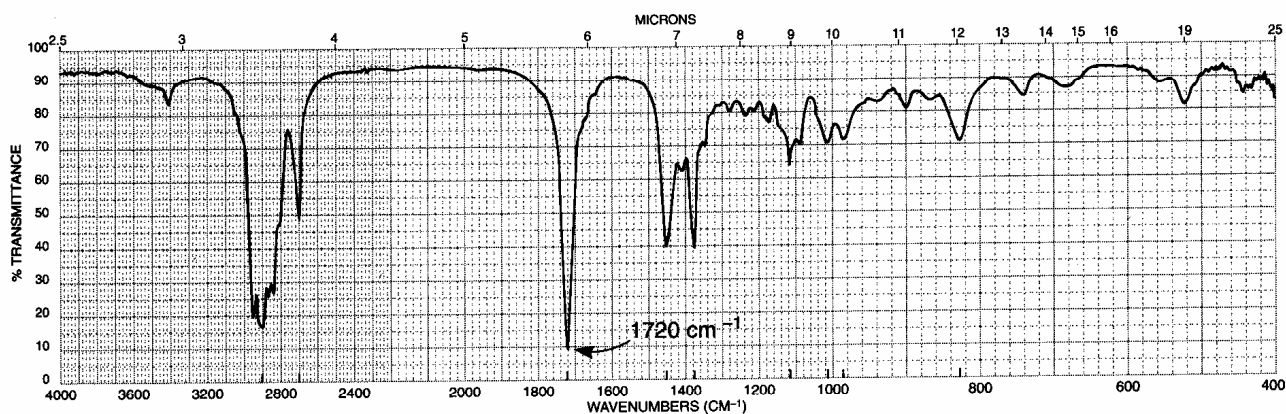
- *2. Ants emit tiny amounts of chemicals called alarm pheromones to warn other ants (of the same species) of the presence of an enemy. Several of the components of the pheromone in one species have been identified, and two of their structures follow. Which compound has the infrared spectrum shown?



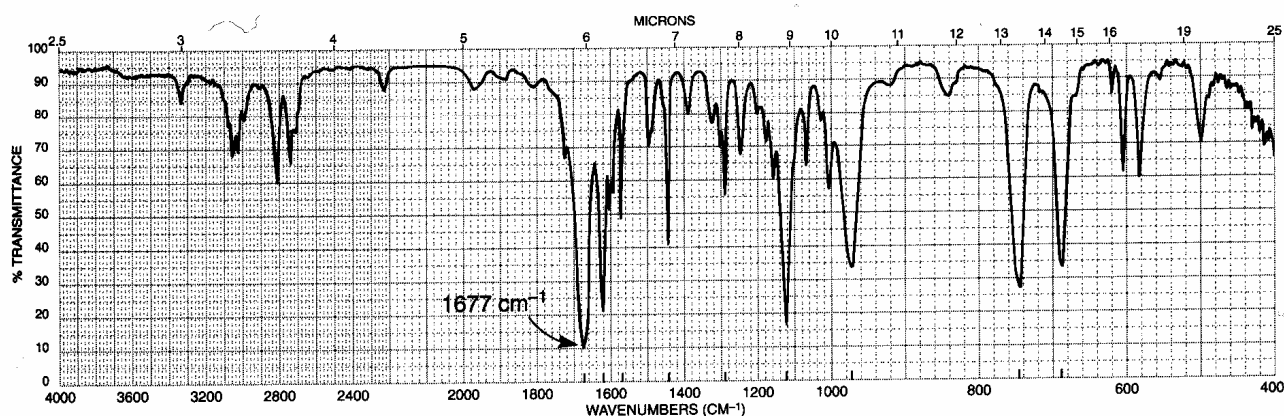
Citral



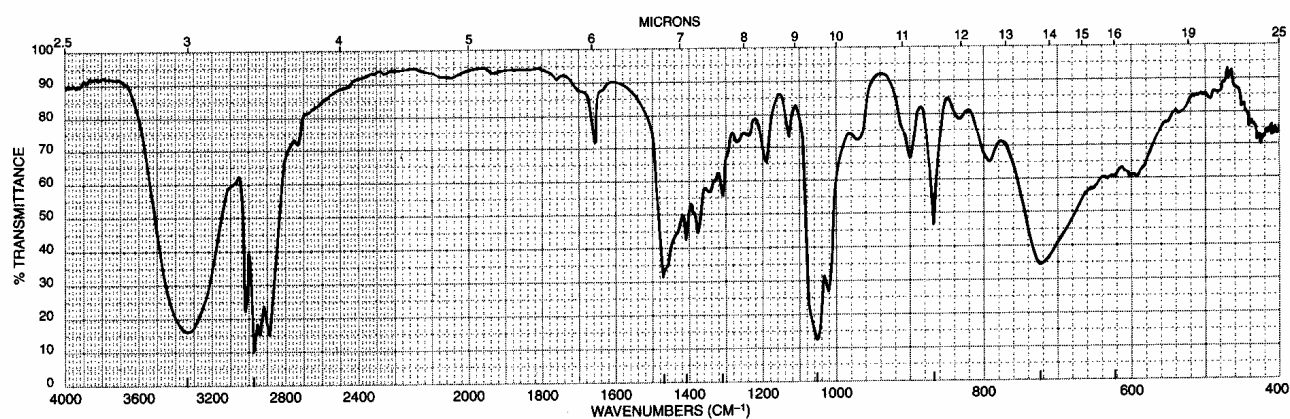
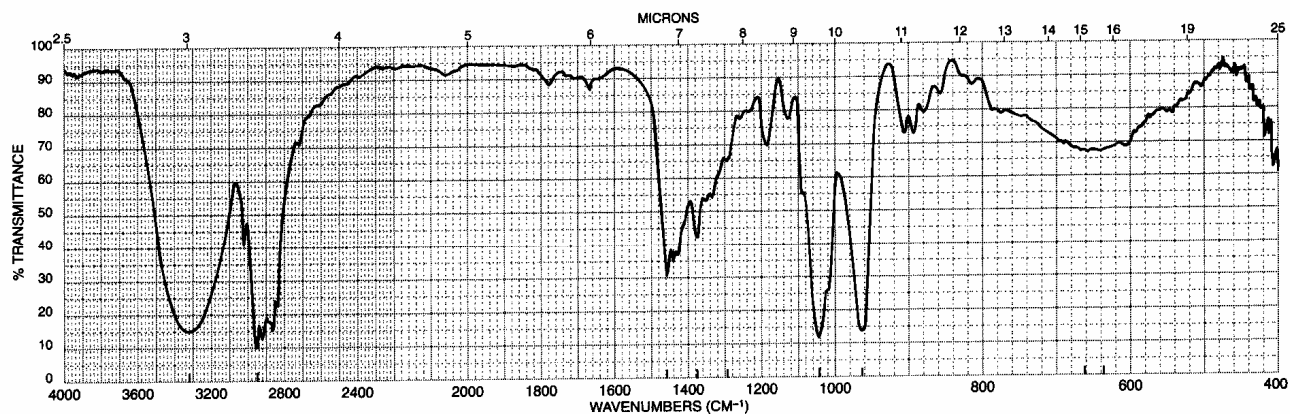
Citronellal



- *3. The main constituent of cinnamon oil has the formula C_9H_8O . From the following infrared spectrum, deduce the structure of this component.

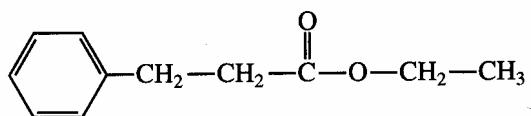


*4. The infrared spectra of *cis*- and *trans*-3-hexen-1-ol follow. Assign a structure to each.

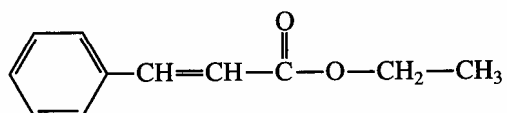


5. In each part, choose the structure that best fits the infrared spectrum shown.

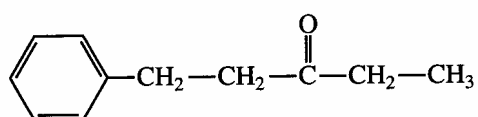
*(a)



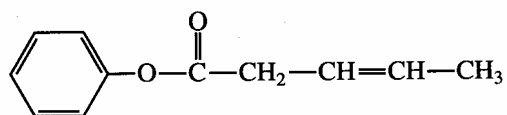
A



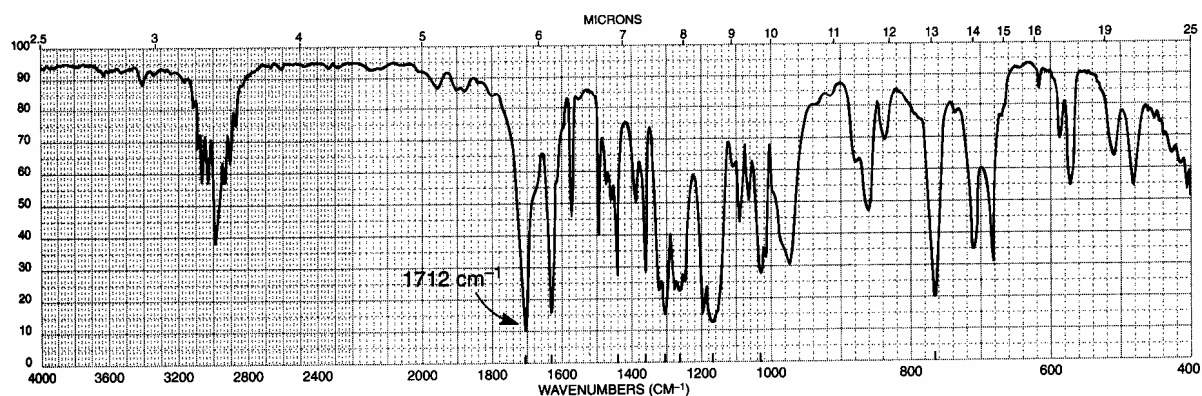
B

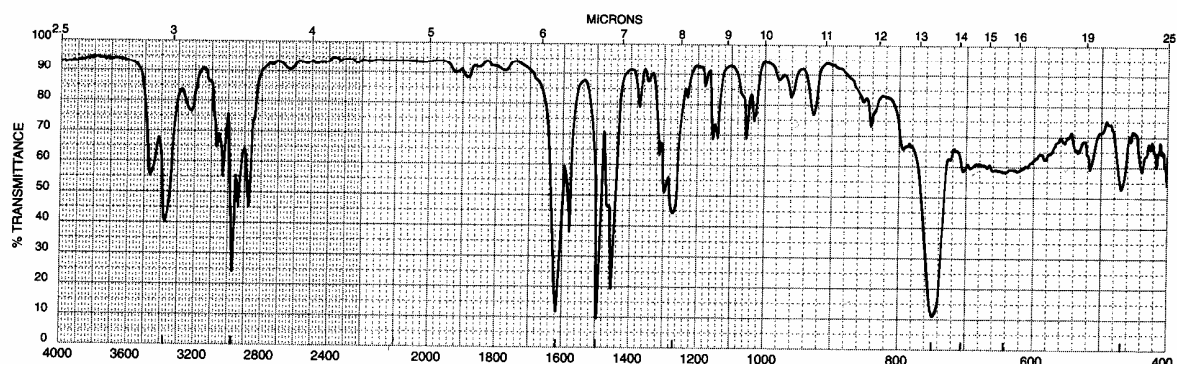
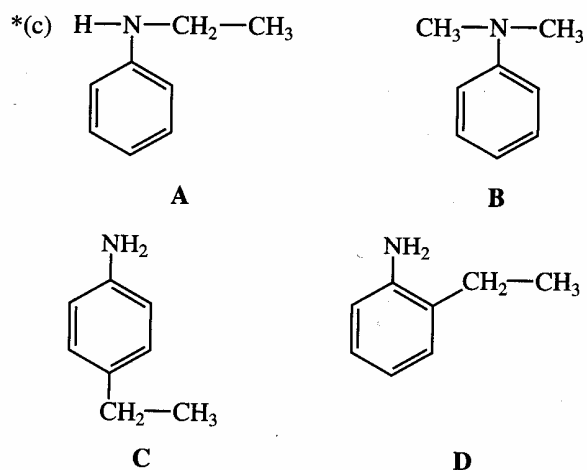
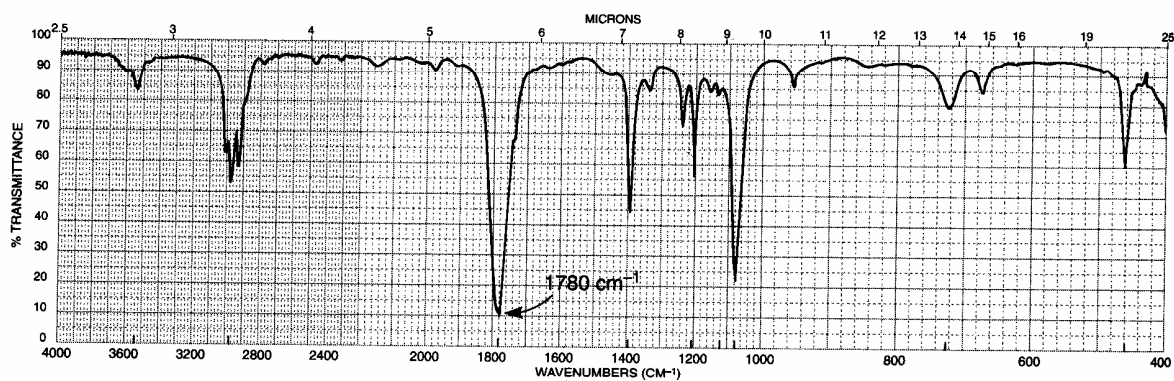
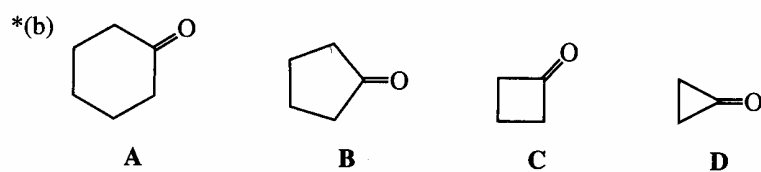


C

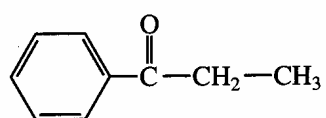


D

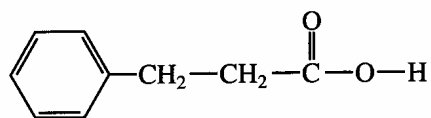




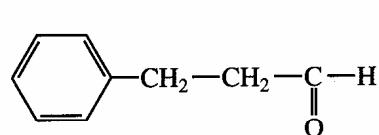
*(d)



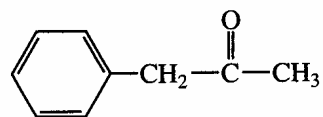
A



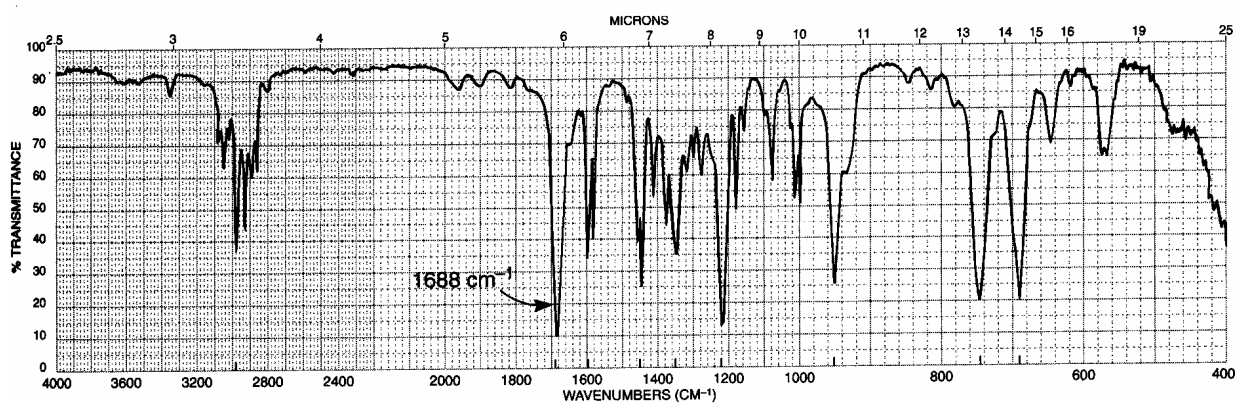
B



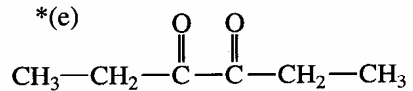
C



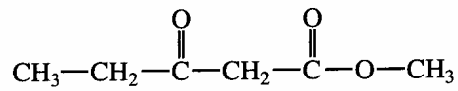
D



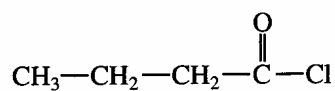
*(e)



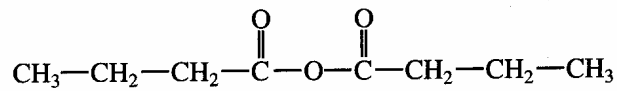
A



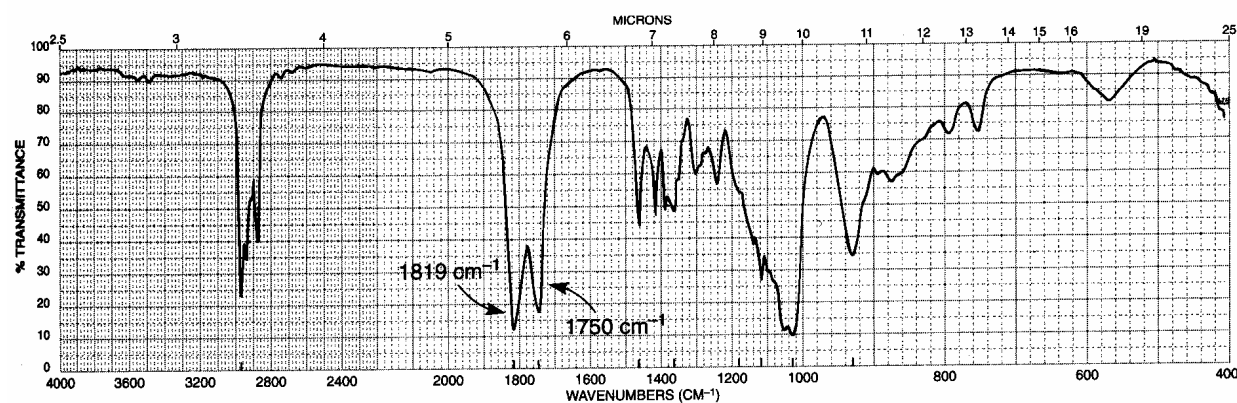
B

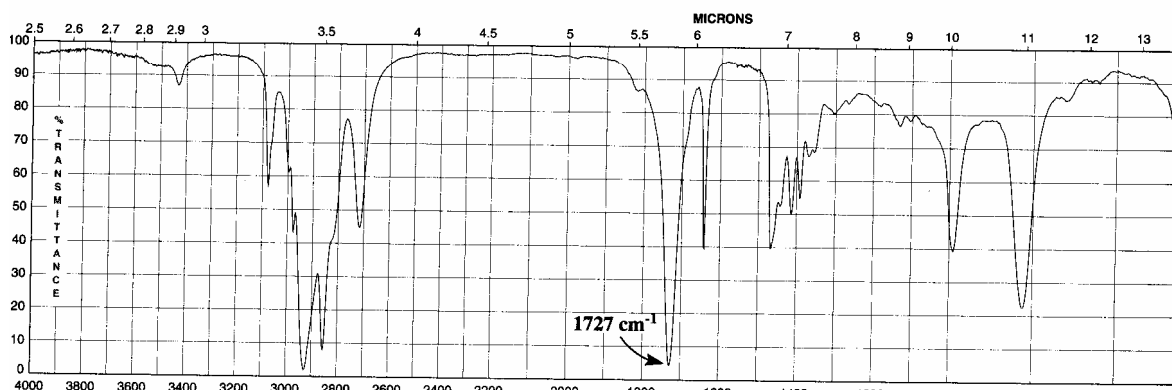
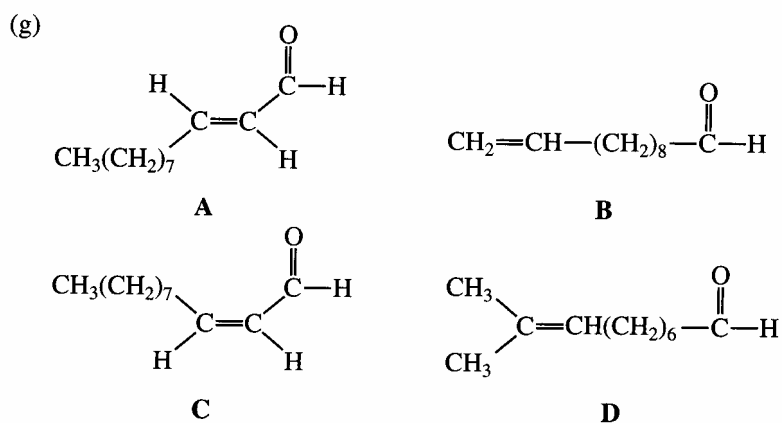
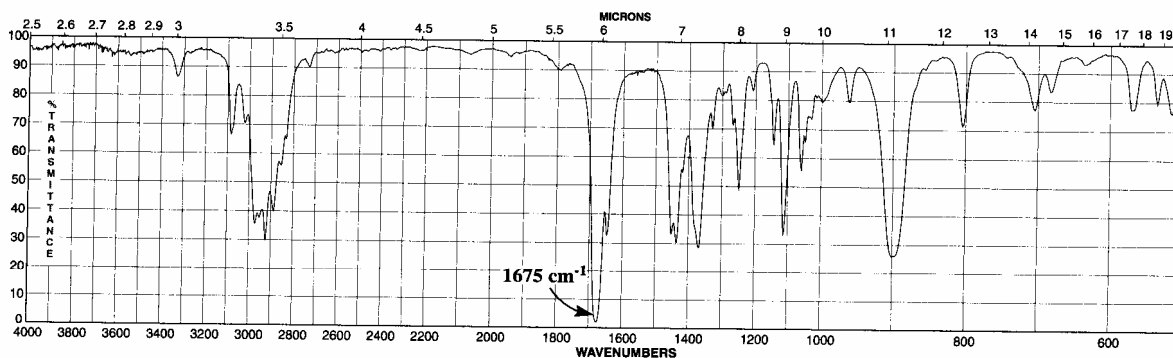
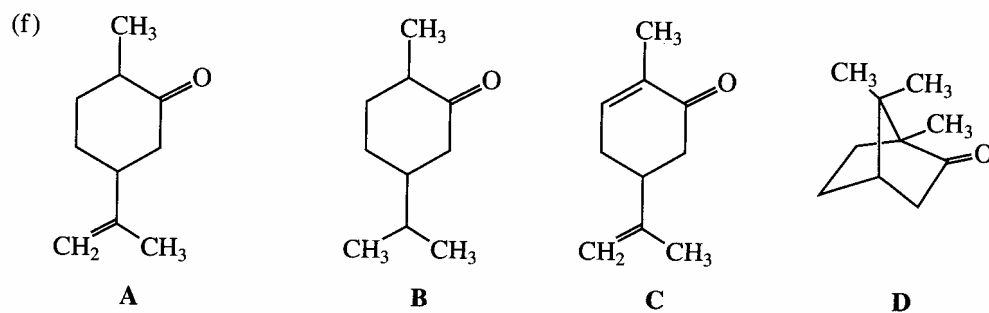


C



D





(h)

$$\text{CH}_3(\text{CH}_2)_4-\underset{\text{O}}{\underset{\parallel}{\text{C}}}-\text{H}$$

A

$$\text{CH}_3-\overset{\text{O}}{\overset{\parallel}{\text{C}}}-(\text{CH}_2)_3-\text{CH}_3$$

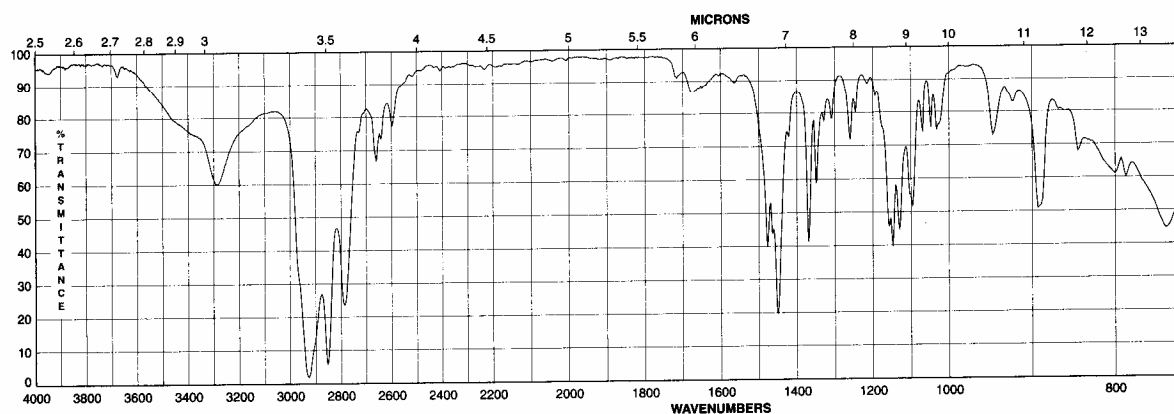
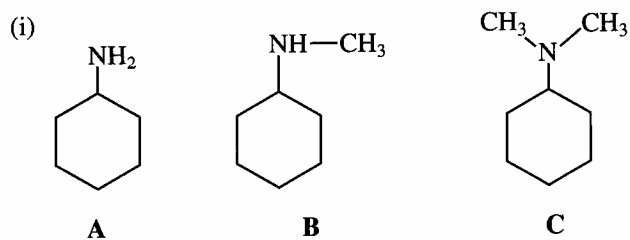
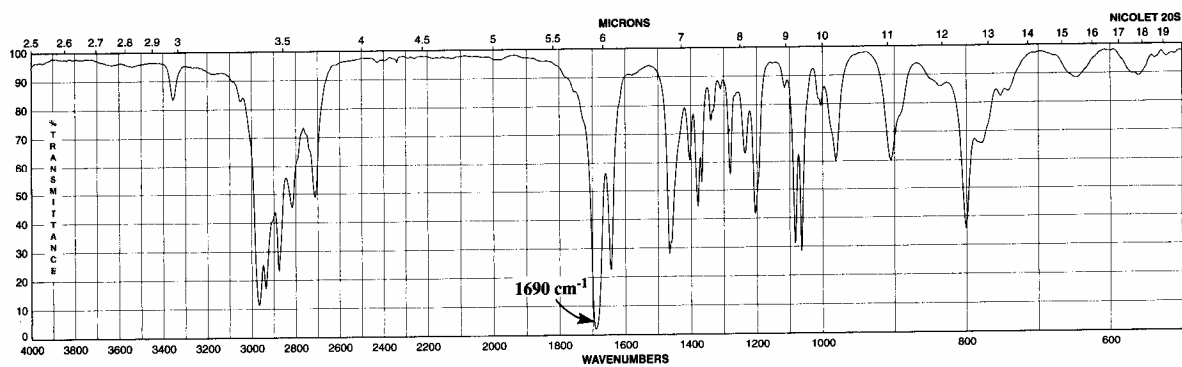
B

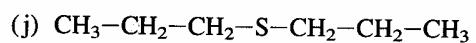
$$\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{CH}_2 \\ \quad \quad \quad \diagdown \quad \diagup \\ \quad \quad \quad \text{C}=\text{C} \\ \quad \quad \quad \diagup \quad \diagdown \\ \text{H} \quad \quad \quad \text{C}-\text{H} \\ \quad \quad \quad \parallel \\ \quad \quad \quad \text{O} \end{array}$$

C

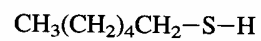
$$\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{CH}_2 \\ \quad \quad \quad \diagdown \quad \diagup \\ \quad \quad \quad \text{C}=\text{C} \\ \quad \quad \quad \diagup \quad \diagdown \\ \text{H} \quad \quad \quad \text{C}-\text{CH}_3 \\ \quad \quad \quad \parallel \\ \quad \quad \quad \text{O} \end{array}$$

D

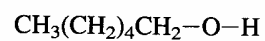




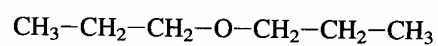
A



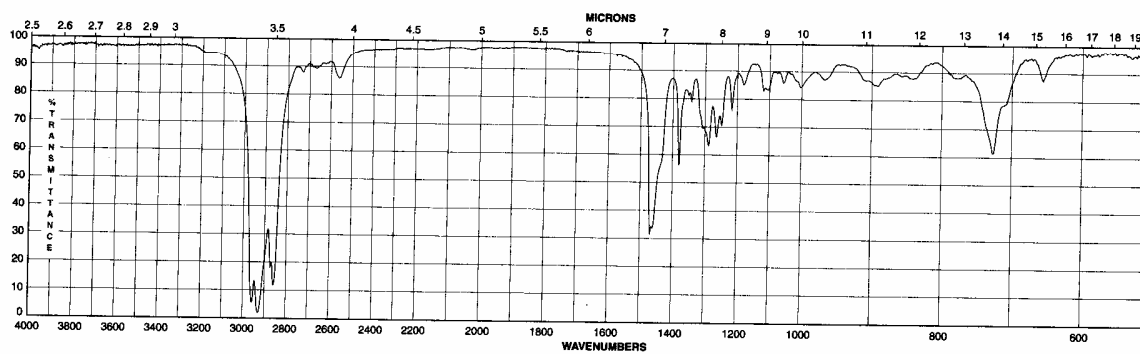
B



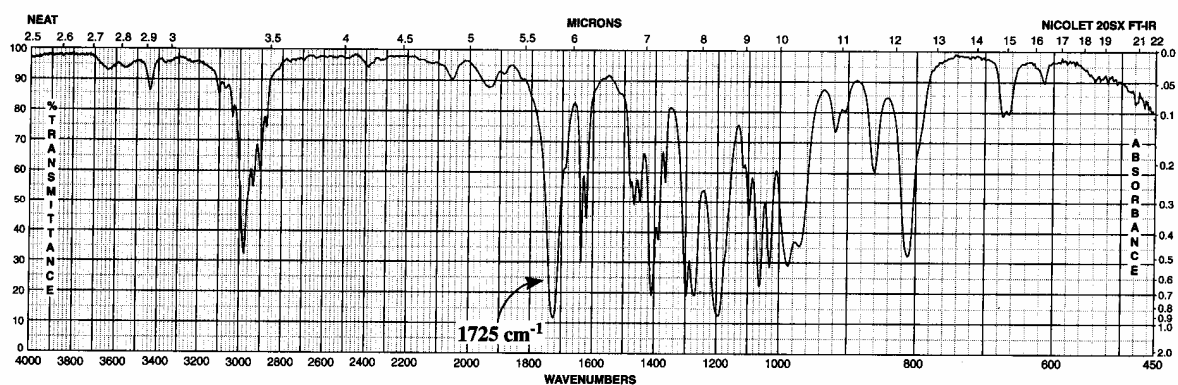
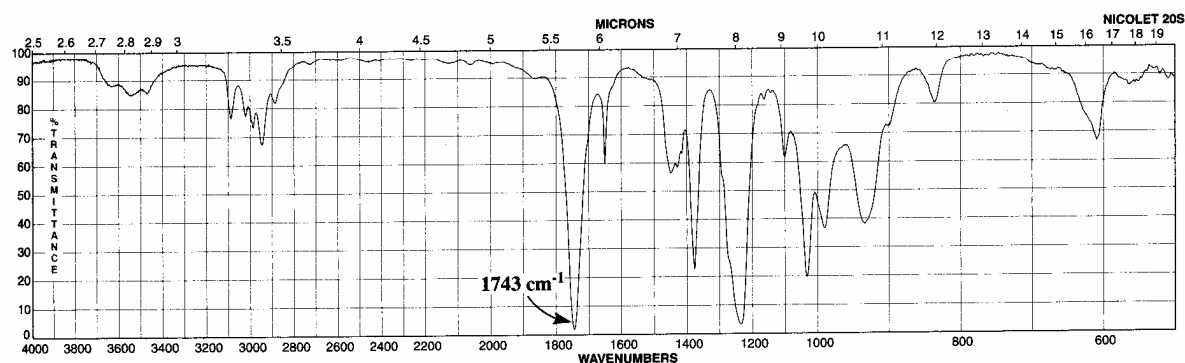
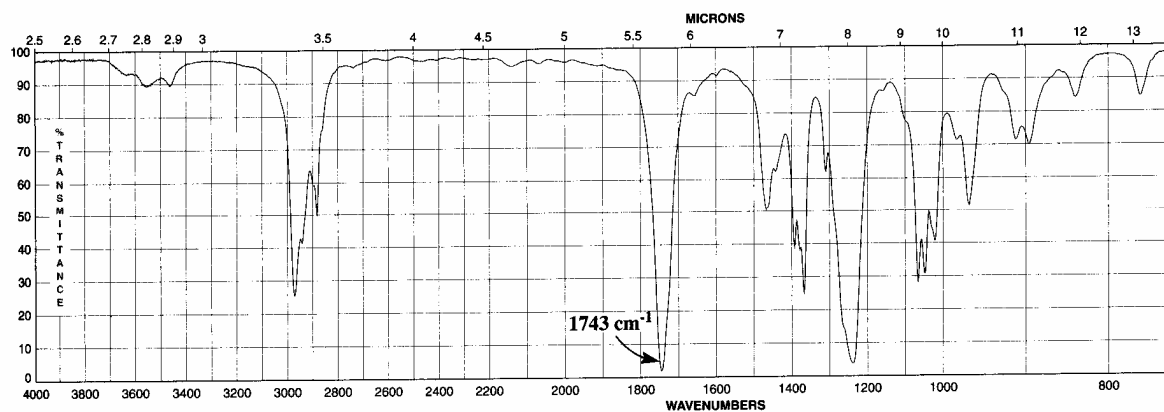
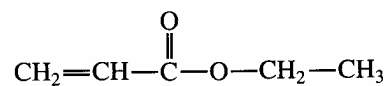
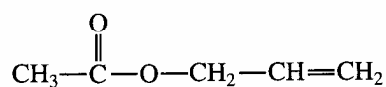
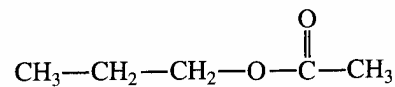
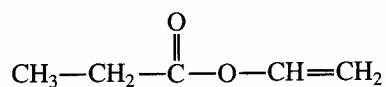
C



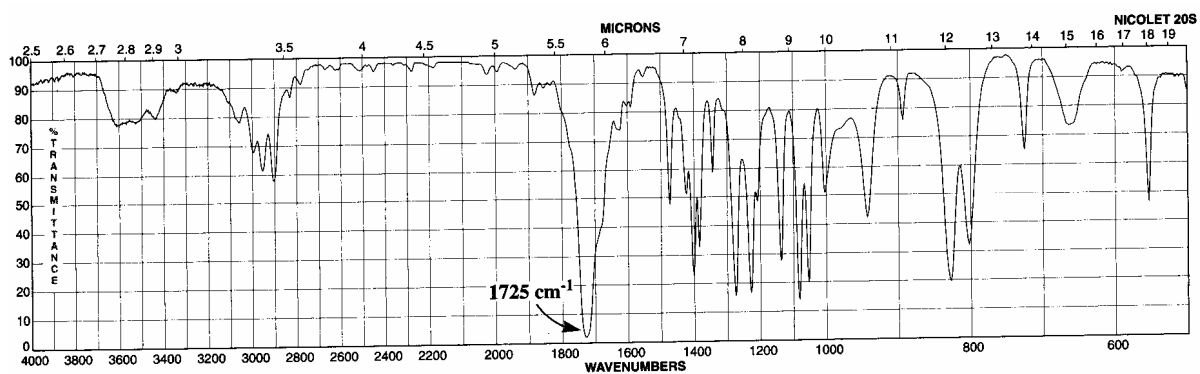
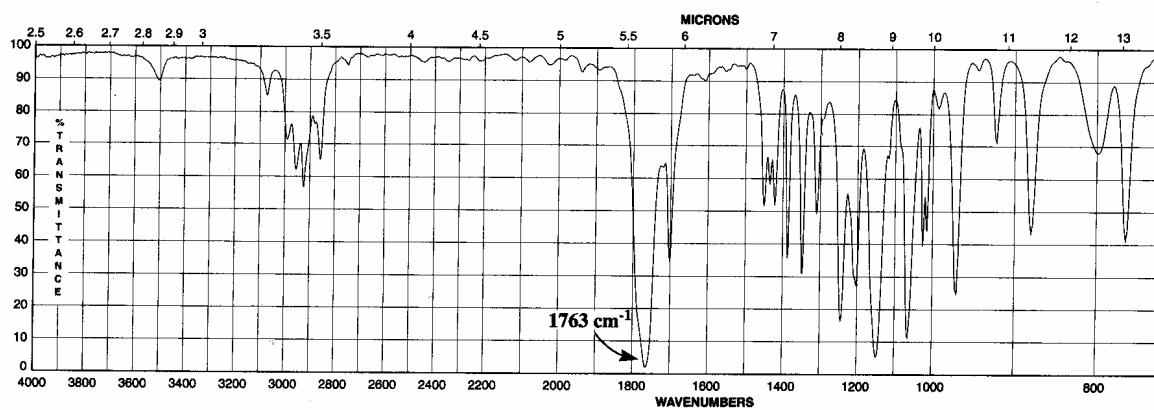
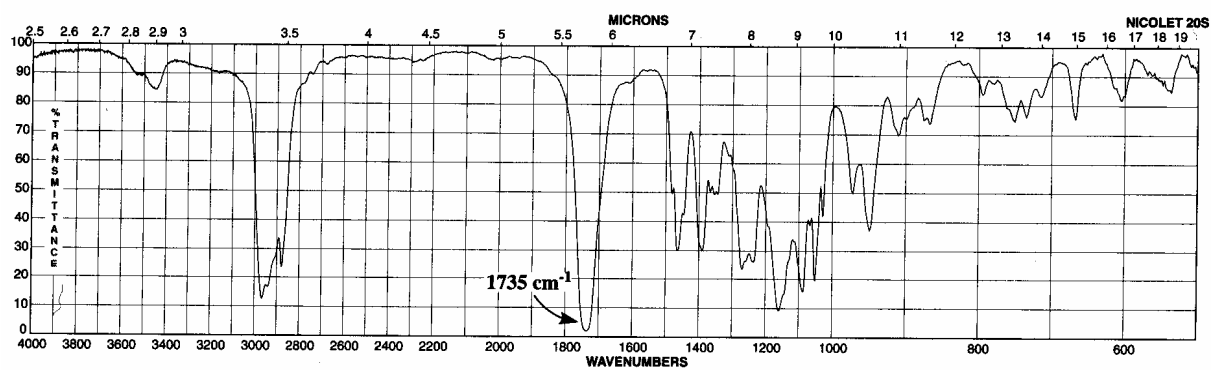
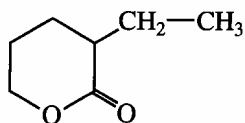
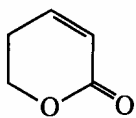
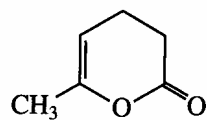
D



7. Assign a structure to each of the spectra shown. Choose from among the following 5-carbon esters.



8. Assign a structure to each of the following three spectra. The structures are shown here.



9. Assign a structure to each of the following three spectra. The structures are shown here.

