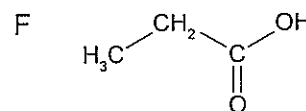
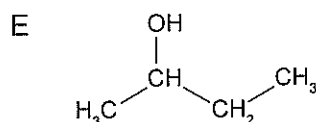
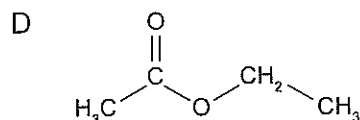
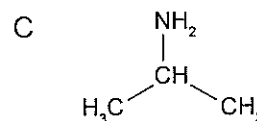
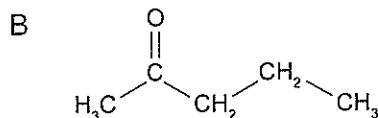
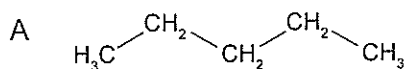




## IR Problems

1. Consider the following structures:



a. Which structure(s) would you expect to have a broad absorption around  $3000\text{--}3500\text{ cm}^{-1}$ ?

C, E, F

b. What functional group(s) would be responsible for the absorption?

$\text{NH}_2$ , OH

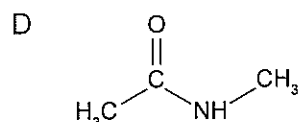
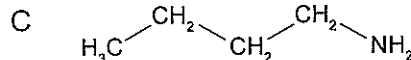
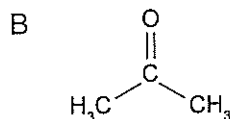
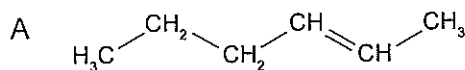
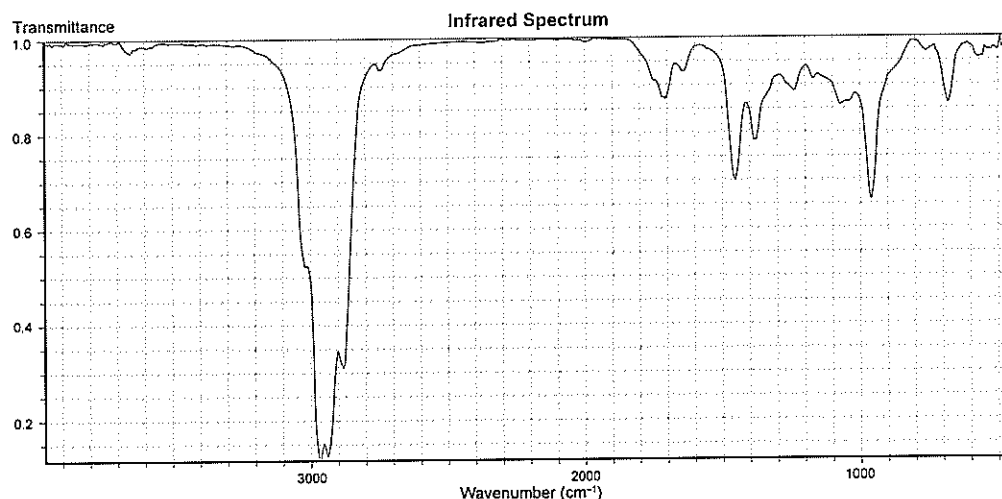
c. Which structure(s) would you expect to have an intense absorption around  $1600\text{--}1800\text{ cm}^{-1}$ ?

B, D, F

d. What functional group(s) is responsible for this absorption?

$\text{C}=\text{O}$

2. Consider the following structures and IR spectrum:



Select the structure that belongs to the spectrum and explain your choice.

A as it does not have an OH, NH or  $\text{C}=\text{O}$  and therefore will not have a broad absorption at around  $3000\text{--}3500\text{ cm}^{-1}$  or an absorption around  $1600\text{--}1800\text{ cm}^{-1}$ . B and D will have an absorption around  $1600\text{--}1800\text{ cm}^{-1}$  and C and D will have a broad absorption at around  $3000\text{--}3500\text{ cm}^{-1}$  and therefore are all not a match for the spectrum.