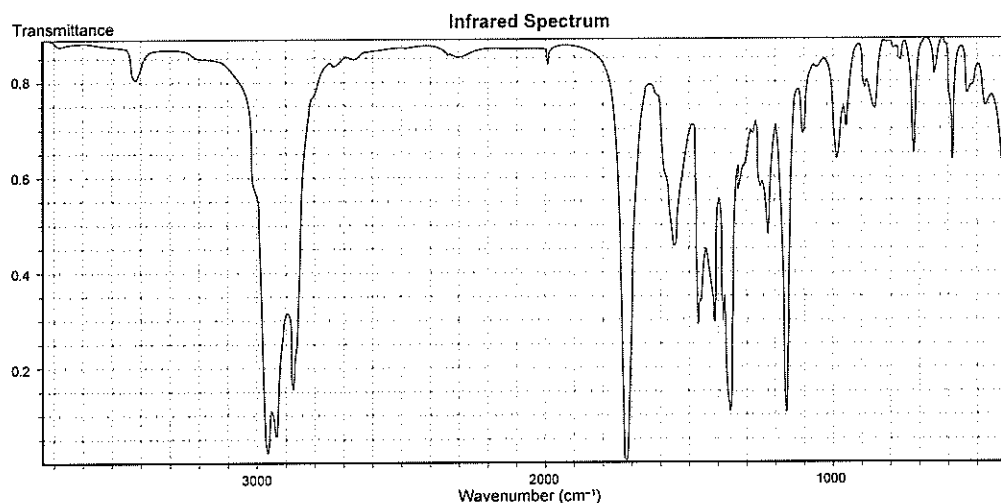
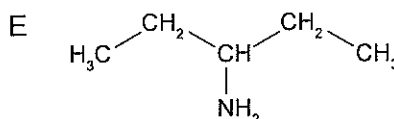
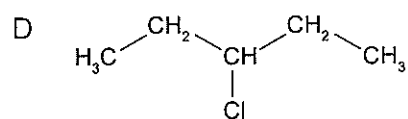
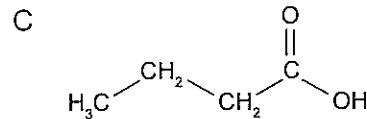
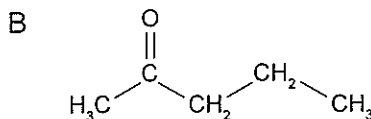
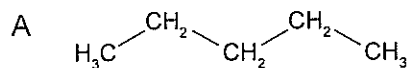


3. Consider the spectrum below and name two families of compounds that could give this spectrum and explain why.



The spectrum has a carbonyl absorption (1700 cm^{-1}) but no N-H/O-H absorption therefore it could be an aldehyde, ketone, ester, acyl chloride or tertiary amide.

4. Which two of the following could not be easily distinguished with IR spectroscopy? Explain your answer.



A and D. B would have a carbonyl absorption ($1600\text{-}1800\text{ cm}^{-1}$); C would have both a carbonyl absorption ($1600\text{-}1800\text{ cm}^{-1}$) and an O-H/N-H absorption ($3000\text{-}3500\text{ cm}^{-1}$); E would have just an O-H/N-H absorption ($3000\text{-}3500\text{ cm}^{-1}$); A and D would not have any distinct absorptions.