

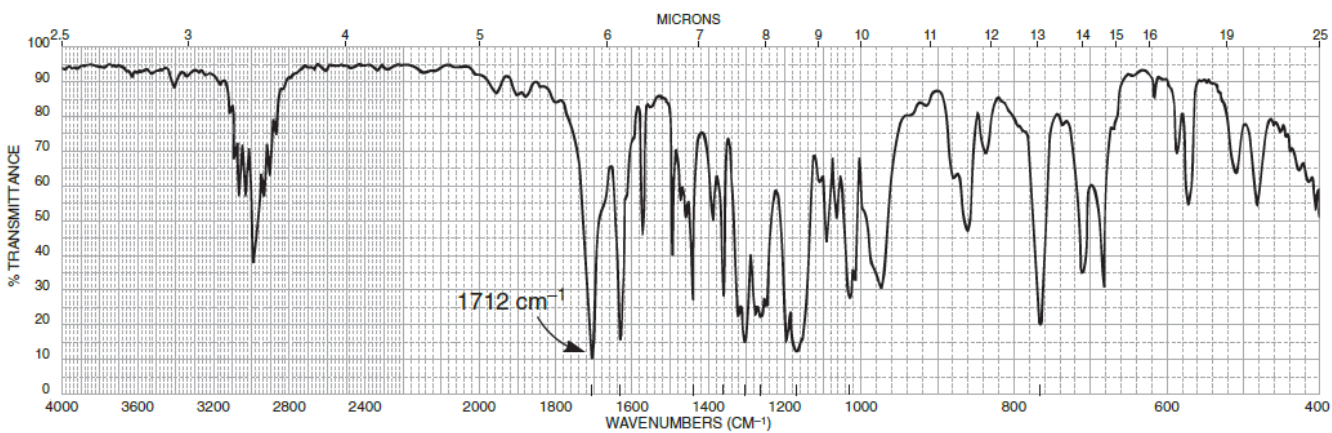
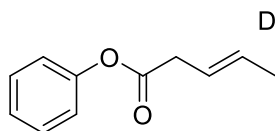
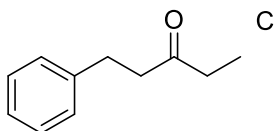
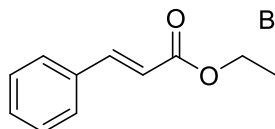
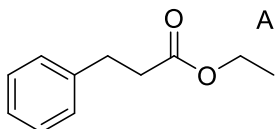
Homework 1

Student Name: _____

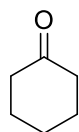
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i) In each part, choose the structure that best fits the infrared spectrum shown.

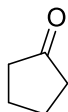
A)



B)



A



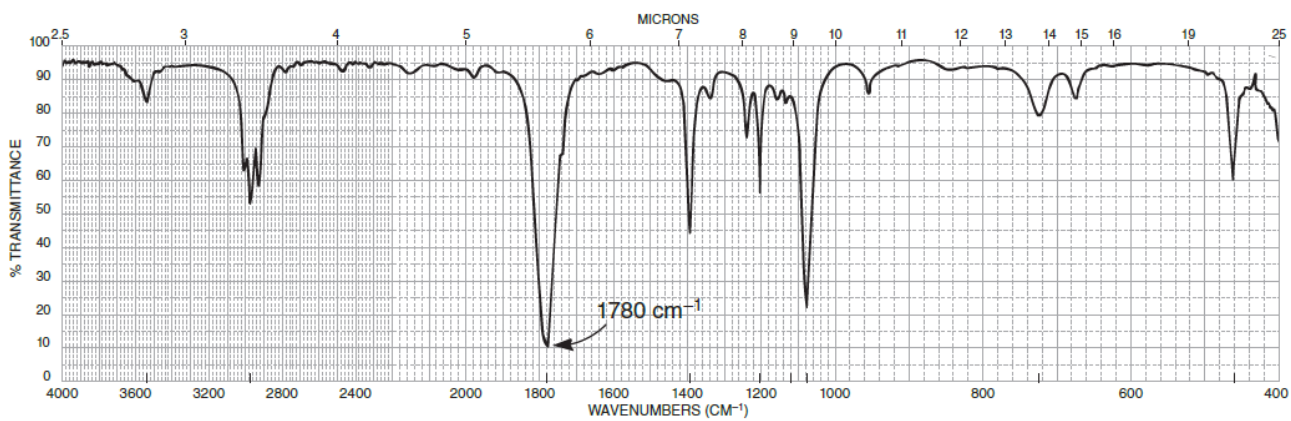
B



C



D



ii) Substitution of an amino group on the para position of acetophenone shifts the C=O frequency from about 1685 to 1652 cm^{-1} , whereas a nitro group attached to the para position yields a C=O frequency of 1693 cm^{-1} . Explain the shift for each substituent from the 1685 cm^{-1} base value for acetophenone.

iii) How will you distinguish *o*-hydroxybenzaldehyde (salicylaldehyde) and *m*-hydroxybenzaldehyde on the basis of IR spectroscopy?