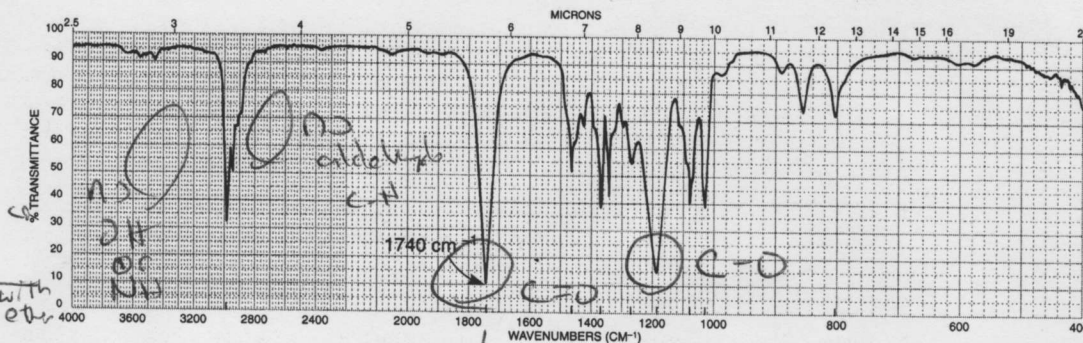


FEEL FREE TO PRINT THIS PAGE AND WRITE YOUR ANSWERS ON THIS SHEET

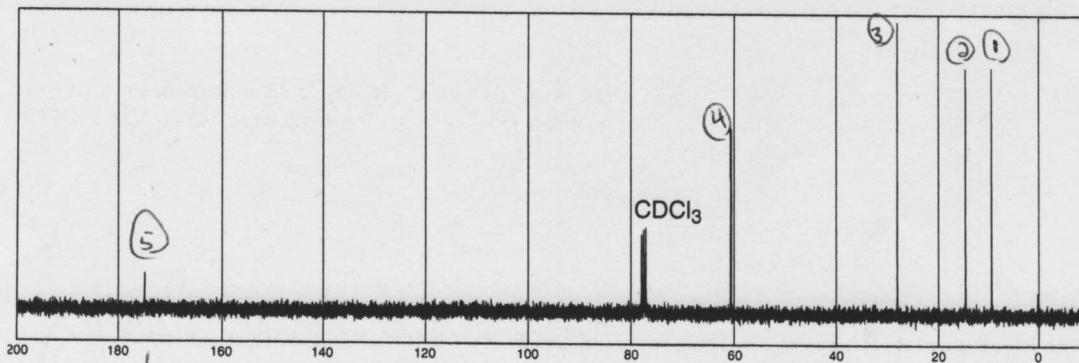
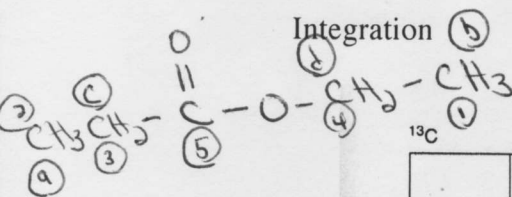
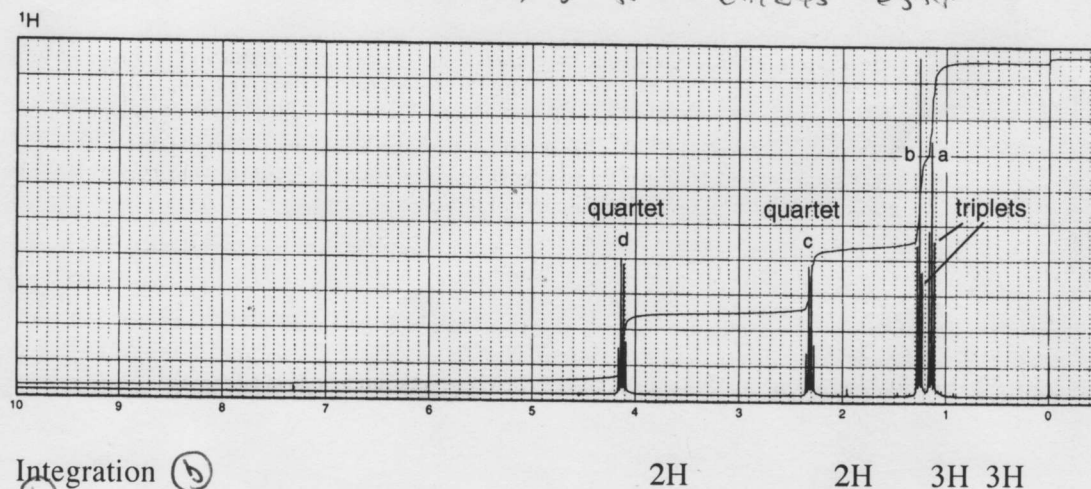
1. Determine the structure of a compound with the formula $C_5H_{10}O_2$ given the IR, 1H -NMR, and ^{13}C -NMR provided below. Assign the appropriate peaks in the IR and NMR spectra (on the spectra below) and providing a short narrative (on the following page) describing what structural information each piece of data provided..

$$DU = 5 - \frac{10}{2} + 1 = 1$$

alkene
carbonyl
ring
no anhydride
no carbonyl
no aldehyde
no amide
SS, Ketone with ether
or ester



IR & ^{13}C
indicate an
ester



shift indicates ester
5 carbons $\Rightarrow$ no symmetry

2. Provide the products produced from each of the following reactions.

