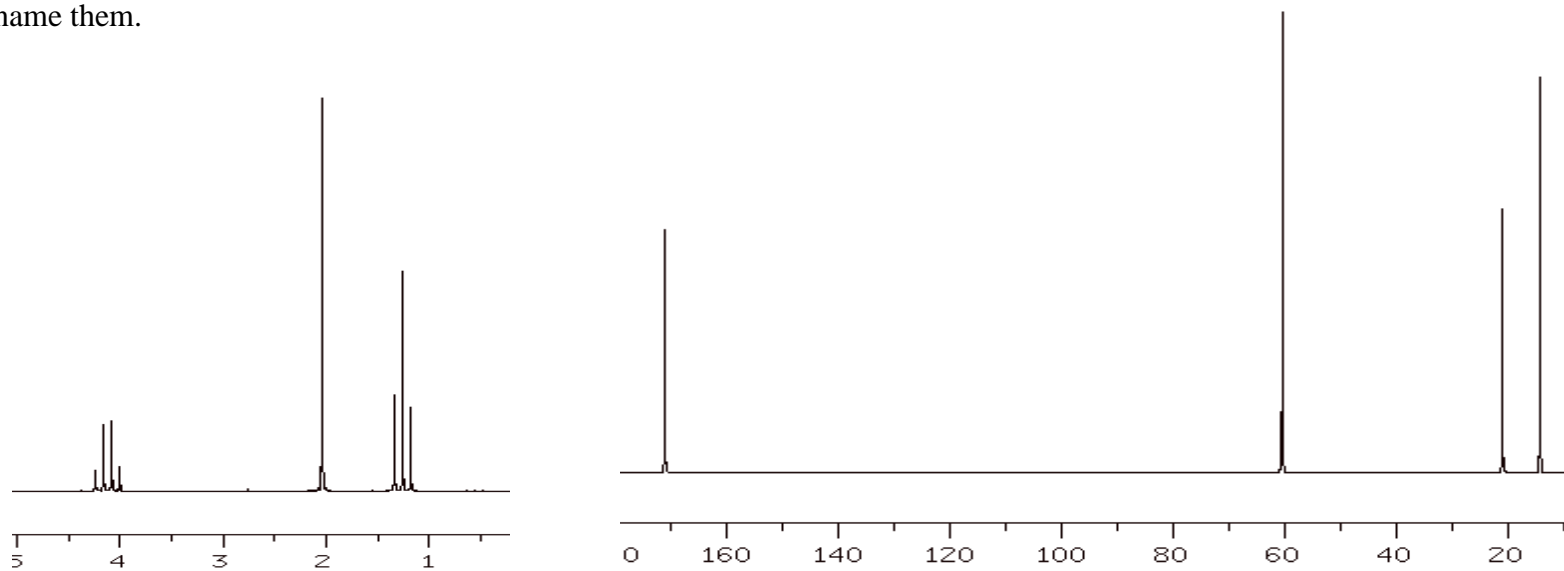


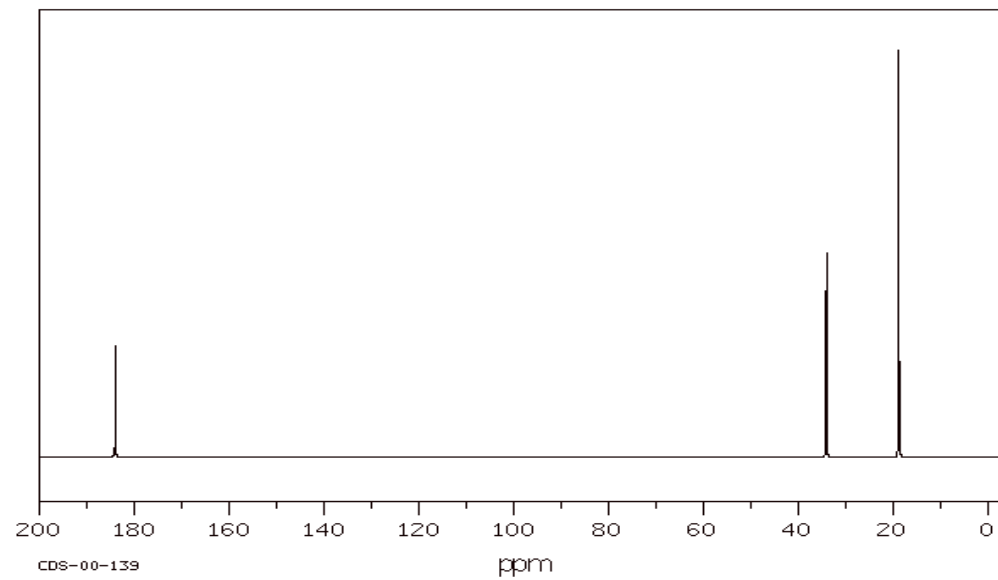
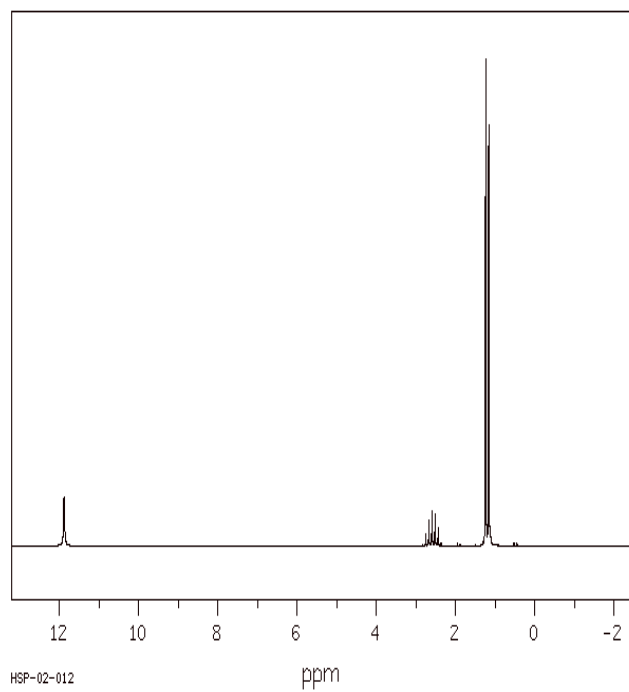
Homework 7

1. The following are the proton and carbon-13 spectra of 4 compounds with the molecular formula, $C_4H_8O_2$. Identify their structures and name them.

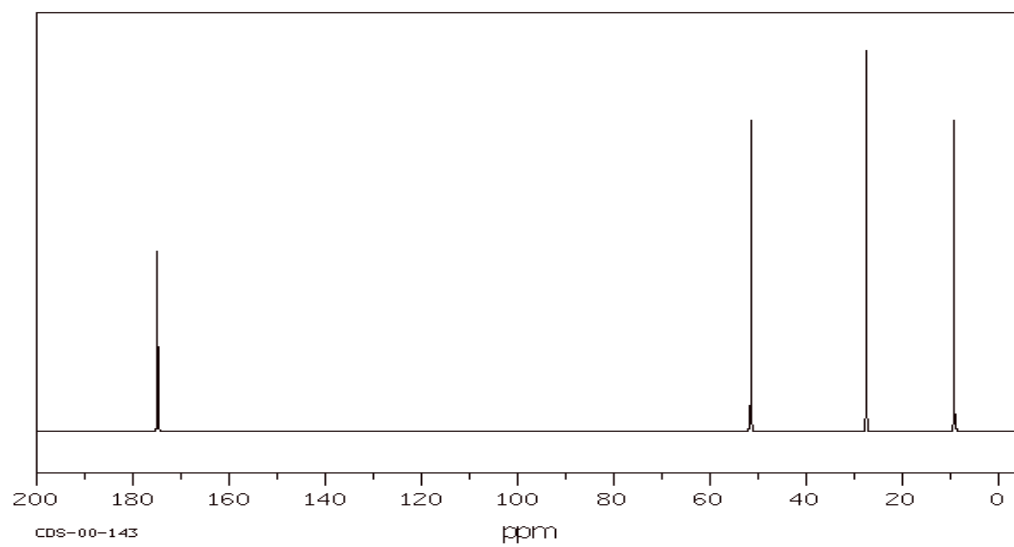
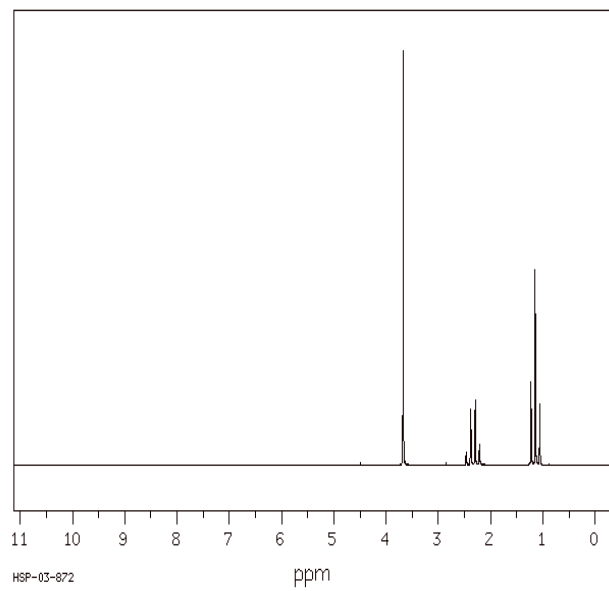
A.



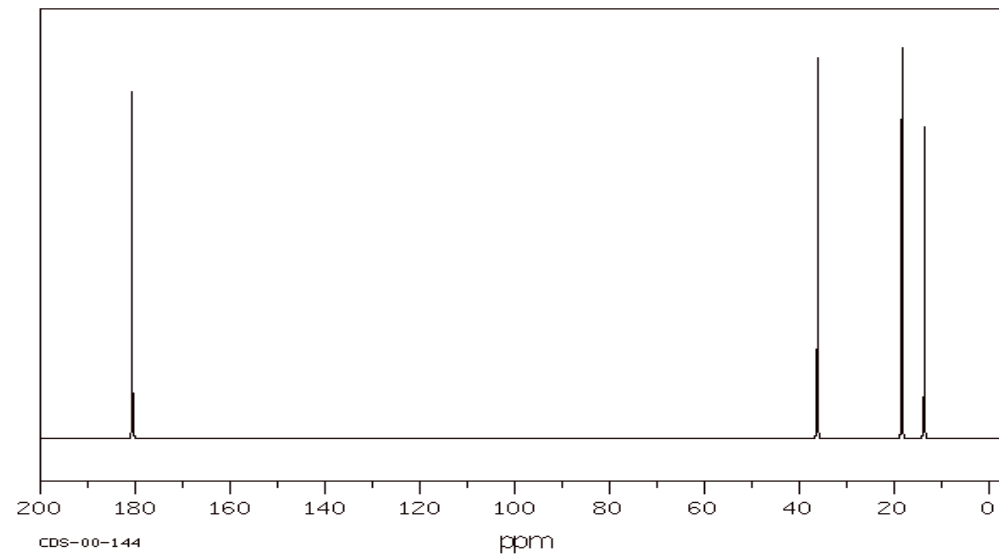
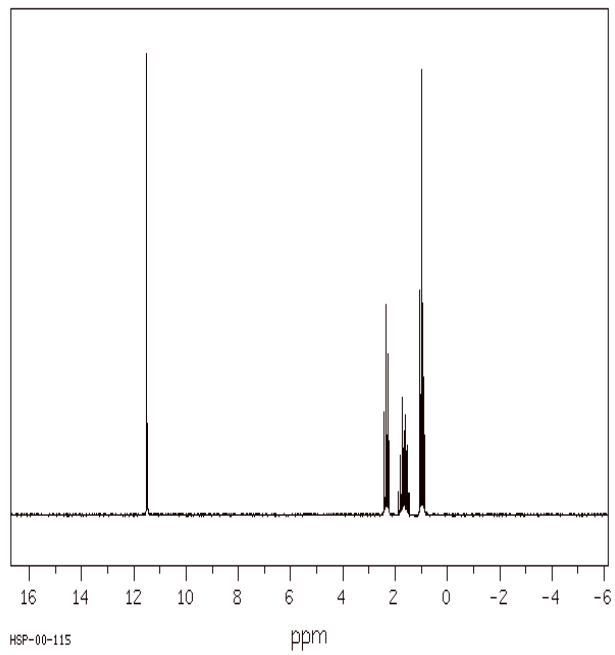
B.



C.



D.



2. A compound is 69.6% C, 7.24% H, and 23.2% O. When 0.3 grams of the compound is dissolved in 10 g of t-butyl alcohol ($K_f=8.2\text{ }^\circ\text{C/m}$) the freezing point of the solution is $23.1\text{ }^\circ\text{C}$ compared to $24.9\text{ }^\circ\text{C}$ for the pure solvent. The compound has the following C-13 and proton NMR spectra. a) What is the empirical formula of the compound? b) What is the molecular formula of the compound? c) What is the structure and name of the compound?

