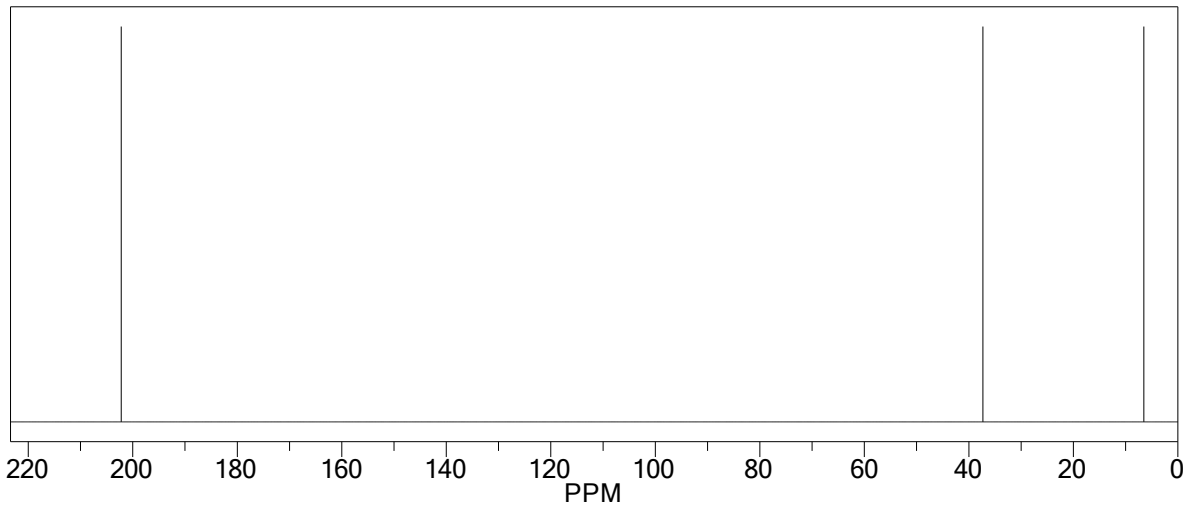
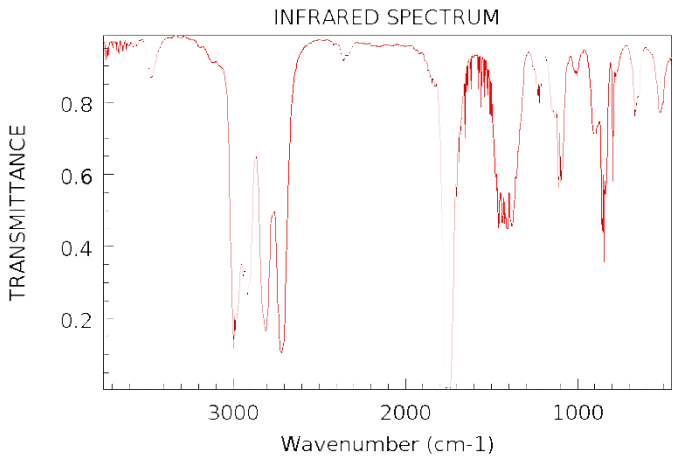
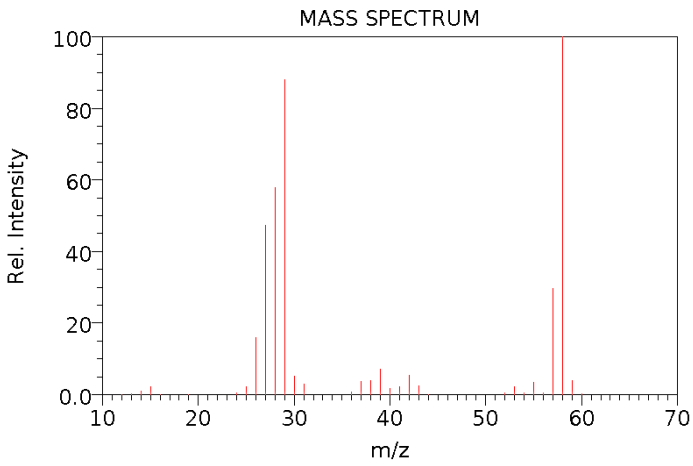
Chemistry 3.2 **Worksheet 4** Name _____

Below are the spectra-data for Compound D







^{13}C NMR indicates there are three carbon environments and one of them could be an aldehyde or ketone (C=O)

This is confirmed by a strong absorption peak around 1800 cm^{-1} on the IR spectrum

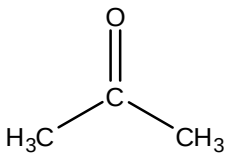
The mass spectrum indicates the molar mass of the molecule is 58 m/z

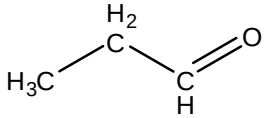
Since there is C=O present (12 + 16 = 28)

58 – 28 = 30 = 2 × C + 6 × H

I predict that the molecular formula would be C_3H_6O

There are two possibilities with this formula





Propanone only has two carbon environments, however propanal has three carbon environments. Therefore, I would predict the molecule is **propanal**.