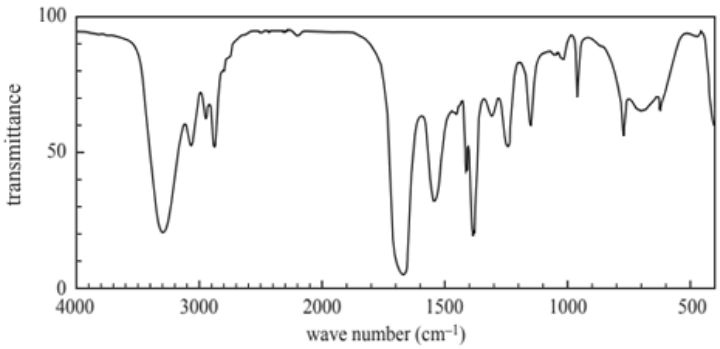
Spectroscopy (2017 VCE)

1) Shown below is the infra-red spectrum of an organic compound.

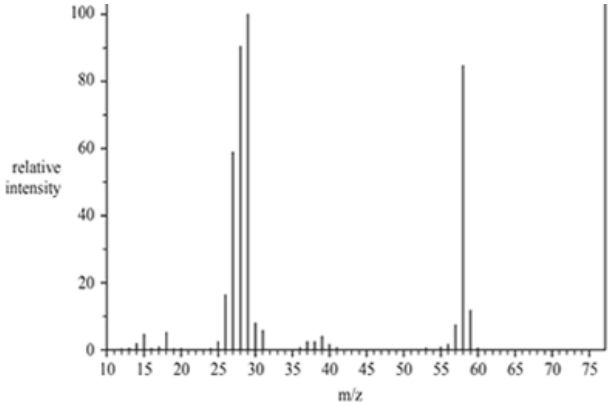


Solution will appear here

The organic compound that produces this spectrum is an
A. aldehyde.
B. alcohol.
C. amide.
D. ester

Solution

2) There are a number of structural isomers for the molecular formula C_3H_6O. Three of these are propanal, propanone and prop-2-en-1-ol. The mass spectrum below was produced by one of the three named isomers of C_3H_6O.



Solution will appear here

a) Identify the fragment at 29 m/z.

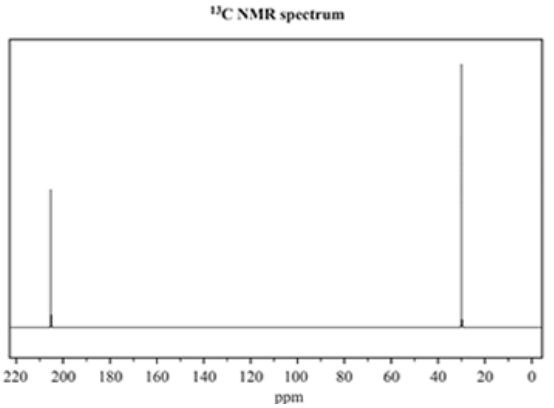
Solution

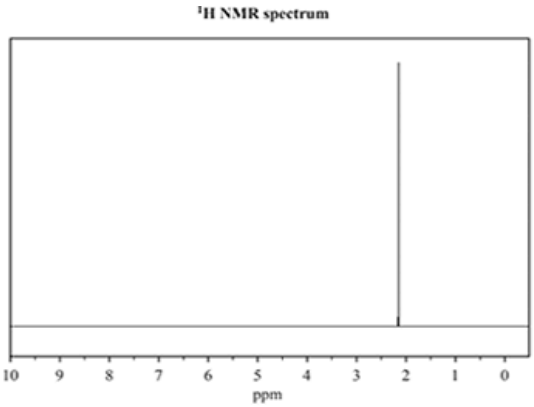
b) Name the isomer of C_3H_6O. that produced this spectrum and justify your answer..

Solution will appear here

Solution

c) Consider the ^{13}C NMR and ^{1}H NMR spectra below





Solution will appear here

Identify which one of the three named isomers of C_3H_6O produced the NMR spectra. Justify your answer by referencing both spectra.

Solution