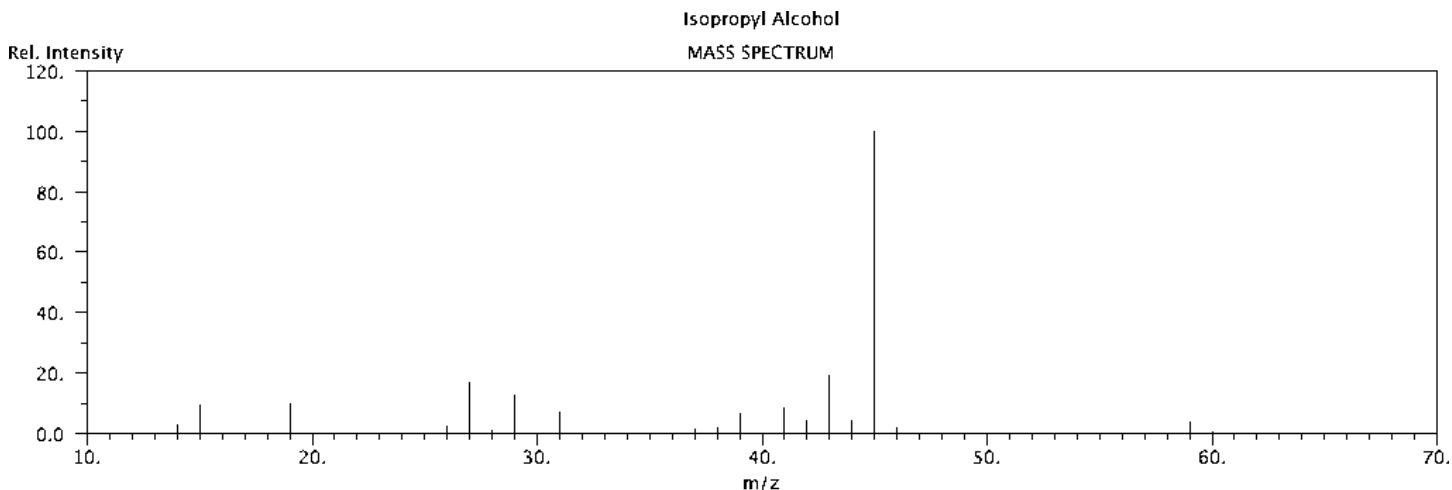
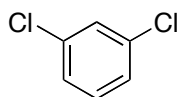


2a. The electron impact ionization (EI) mass spectrum for 2-propanol is shown below. Write Lewis structures for the species that give rise to the peaks at m/z 45 and m/z 43. Make sure to show all carbon, hydrogen, and oxygen atoms and all bonds, charges, lone pairs of electrons, and unpaired electrons. (6 points)

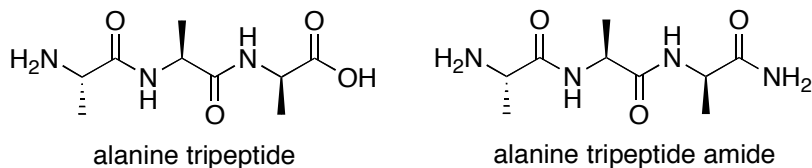


2b. What are mass-to-charge ratios (m/z) for the three biggest peaks in the electron impact ionization (EI) mass spectrum associated with the intact, unfragmented molecular ion of *m*-dichlorobenzene? (3 points).



m-dichlorobenzene

2c. The electrospray ionization (ESI) mass spectrum of a peptide shows large peaks at m/z 231 and m/z 253. (5 points)



Is the peptide the alanine tripeptide or the alanine tripeptide amide? _____

Explain your answer, indicating clearly the compositions of the species that generate the observed peaks.