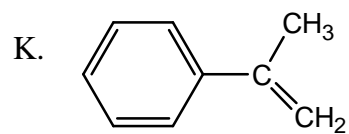
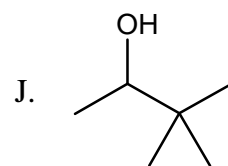
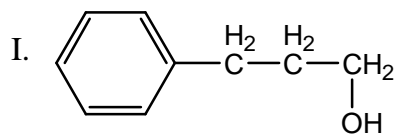
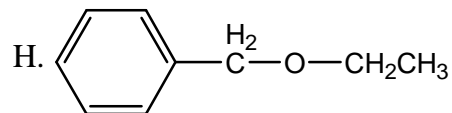
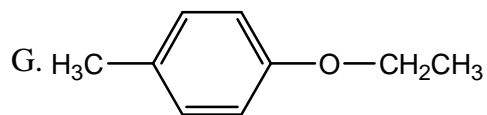
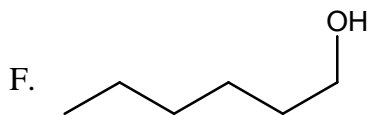
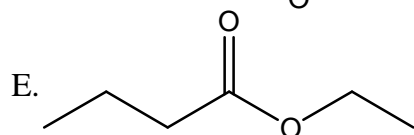
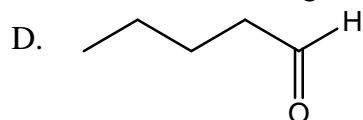
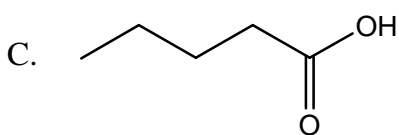
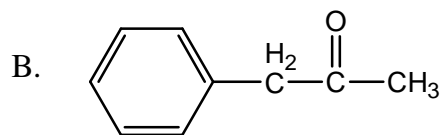
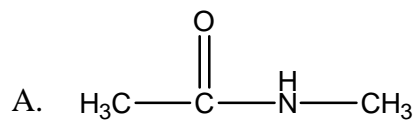
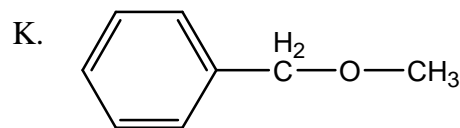
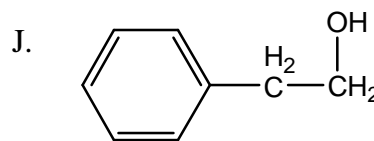
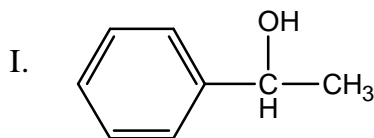
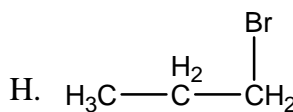
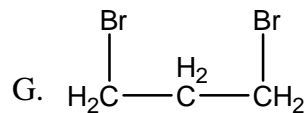
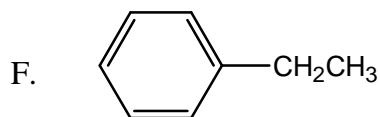
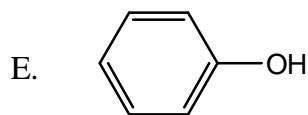
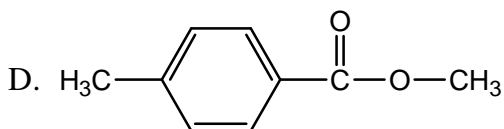
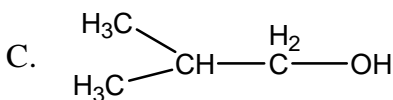
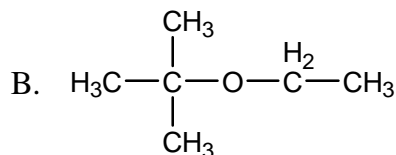
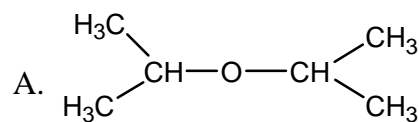


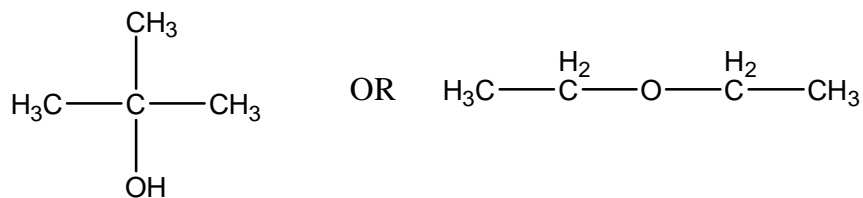
## Structural Formulas for Infrared Handout



## Structural Formulas for $^1\text{H}$ NMR Handout



## Structural Formula for $^{13}\text{C}$ NMR Handout



$^{13}\text{C}$  NMR data alone is not good enough to definitively tell which of these two compounds is present. An IR spectrum would easily allow the two compounds to be distinguished. Remember, the area under the peaks in  $^{13}\text{C}$  NMR is not proportional to the number of carbons giving rise to that peak.