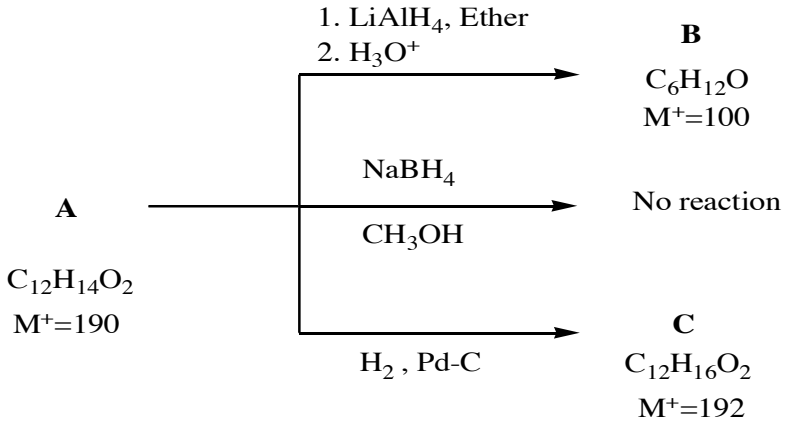
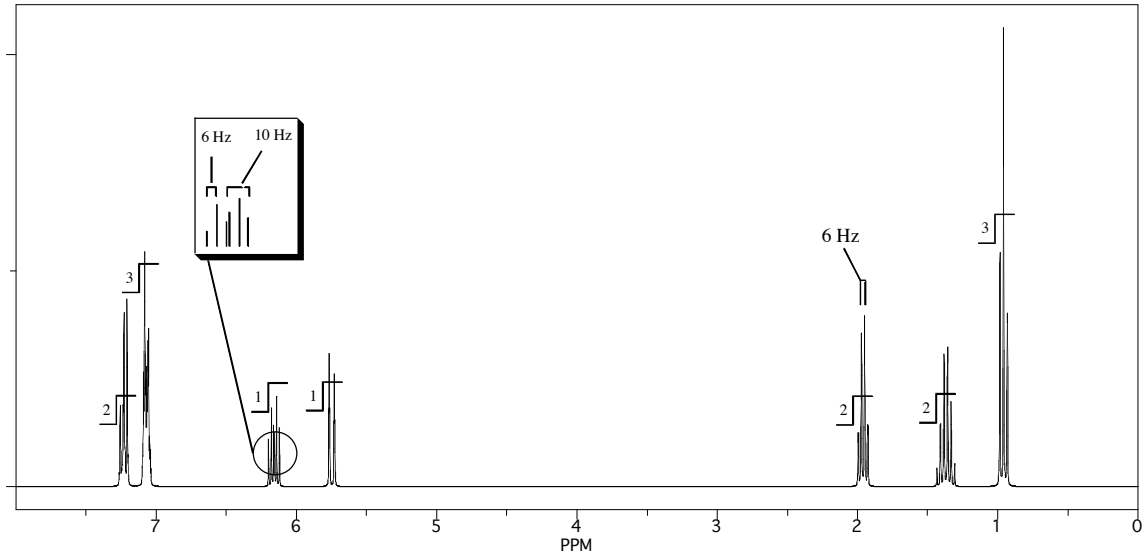
1. Compound **A** with molecular formula $C_{12}H_{14}O_2$ and $M^+ = 190$ in its mass spectrum has the IR data, ^1H NMR and ^{13}C NMR spectra shown below. Treatment of **A** with $LiAlH_4$, in ether followed by aqueous acid workup gave compound **B**. Treatment of **A** with $NaBH_4$ in methanol gave no reaction; treatment of **A** with palladium on carbon under a n atmosphere of hydrogen gives compound **C**. The IR, ^1H NMR and ^{13}C NMR data for **B** and **C** are on the following pages. Propose structures for compounds A, B, and C that are consistent with these data, and provide your rationale. (30 pts)



Compound A:

IR data : strong absorption at 1705 cm^{-1}; weak absorption at 1620 cm^{-1}; sharp spike at 1600 cm^{-1}

^{1}H NMR



^{13}C NMR