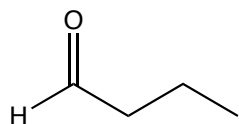
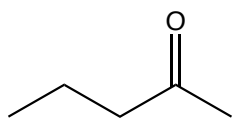


1. Devise syntheses for the following molecules using any inorganic reagents that we have discussed and any of the following reagents: 3,3-dimethyl-1-butene, methylenecyclopentane (see structure below), propyne, ethyne (acetylene), diazomethane, *tert*-butyl iodide, methyl bromide, ethyl bromide, diiodomethane, 1-bromopropane, 2-bromopropane, 1-bromobutane, peracetic acid (CH_3COOOH), $\text{Hg}(\text{OAc})_2$, carbon, strychnine, *tert*-butyl alcohol, methyl alcohol, 2-methyl-2-pentanol, 1-pentanol, cyclohexanol, and ethyl alcohol. **NO** mechanisms are required. Be sure to show the retrosynthetic analysis AND the complete synthesis.

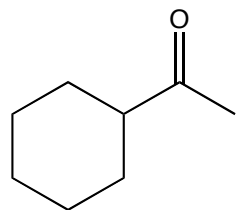
a)



b)



c)



2. Synthesize the following molecule using styrene and 1-chloro-3-methyl-2-butene as your only sources of carbon. You may use any other needed reagents.

