

1. Show how you would synthesize 2-octanone from each compound. You may use any necessary reagents.
 - a) 1-octyne
 - b) 2-octanol
 - c) 2-dimethyl-2-nonene
 - d) Heptanal

2. Show how you would synthesize octanal from each compound. You may use any necessary reagents.
 - a) 1-octanol
 - b) 1-nonene
 - c) 1-octyne
 - d) 1,1-dichlorooctane
 - e) Octanoic acid ($\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{COOH}$)

3. Hydration of alkynes (via oxymercuration) gives good yields of single compounds only with symmetrical or terminal alkynes. Show what the products would be from hydration of each compound.

a) 3-hexyne

b) 2-hexyne

c) 1-hexyne

d) Cyclodecyne