

Chemistry 251
Worksheet 10

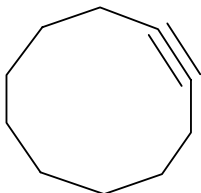
Name: _____

A. (2.0 pts.) Give an acceptable name or structure for each of the following compounds

1. 3-heptyne

2. $\text{CH}\equiv\text{CCH}_2\text{CH}_2\text{CH}_3$

3.



4. 3,3-dimethyl-1-hexyne

B. (4.0 pts.) Predict the major product(s) expected for each of the following reactions. Be sure to consider stereochemistry where appropriate.

1. $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CH} + \text{HBr} \rightarrow$

2. $\text{CH}_3\text{C}\equiv\text{CCH}_2\text{CH}_3 + \text{H}_2(\text{Lindlar Pd}) \rightarrow$

3. $\text{CH}_3\text{C}\equiv\text{CCH}_3 + 2\text{HBr} \rightarrow$

4. $\text{CH}_3\text{CH}_2\text{CH}_2\text{C}\equiv\text{CH} + \text{H}_3\text{O}^+ \rightarrow$

C. (4.0 pts.) Outline a laboratory synthesis for each of the following from the given starting material and any other needed organic or inorganic reagents.

1. 2-pentyne from acetylene

2. $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CH}$ from 1-chlorobutane

3. 3-hexyne from ethanol

4. (E)-2-hexene from 1-pentyne

Bonus (1.0 pts.) The alkane formed by the hydrogenation of (S)-4-methyl-1-hexyne is optically active, but the one formed by hydrogenation of (S)-3-methyl-1-pentyne is not. Explain.