1. Provide the correct reagents and solvents (if appropriate) for the following alkyne reactions. Please remember that there may be more than one step for each step. If there are two or more steps for one transformation, then indicate it clearly with 1 and 2. Practice these mechanisms on your own.

A: __________________________________________
B: __________________________________________
C: __________________________________________
D: __________________________________________
E: __________________________________________
F: __________________________________________
G: __________________________________________
H: __________________________________________
I: __________________________________________

2. Reactions of alkynes. Provide product(s) for the following reactions of alkynes.

a. \( \text{Br} \quad \text{Br} \quad 2 \text{NaH} \)

b. \( \text{2 HI} \)
c. 

\[ \text{1. NaH} \]

\[ \xrightarrow{2. \text{CH}_2\text{I}} \]

\[ \text{H}_2\text{SO}_4, \text{H}_2\text{O} \]

\[ \xrightarrow{\text{HgSO}_4} \]

d. 

\[ \text{1. BH}_3(\text{THF}) \]

\[ \xrightarrow{2. \text{H}_2\text{O}_2, \text{NaOH}} \]

e. 

\[ \text{1. O}_3 \]

\[ \xrightarrow{2. \text{H}_2\text{O}} \]

3. Draw ALL the tautomers for the following molecule. Which is the most thermodynamically favored enol?