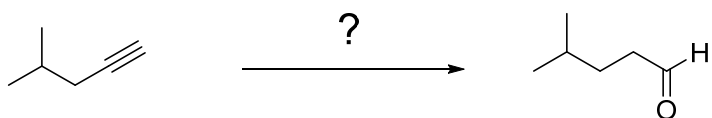
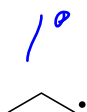
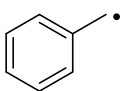


Name: \_\_\_\_\_

1. Circle the reagents required for the given reaction. (1 point)

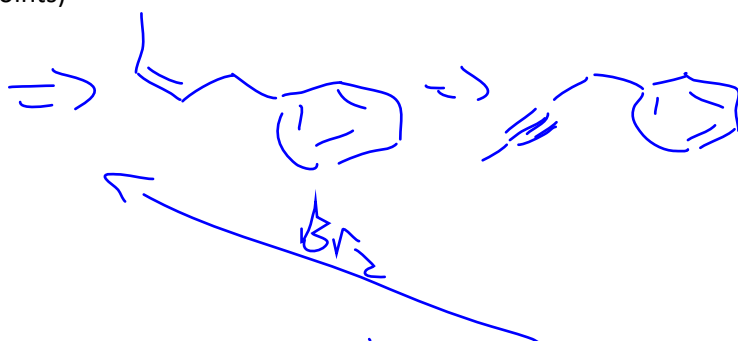
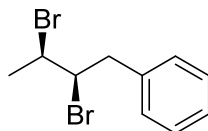
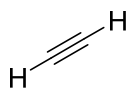
a. conc.  $\text{H}_2\text{SO}_4$ c. 1. 9-BBN  
2.  $\text{NaOH}$ ,  $\text{H}_2\text{O}_2$ b. 1.  $\text{O}_3$   
2. DMSd.  $\text{HgSO}_4$ ,  $\text{H}_2\text{SO}_4$   
 $\text{H}_2\text{O}$ 

2. Rank the stability of these radicals from
- least stable to most stable**
- . (1 point)

a.  $\text{I} < \text{II} < \text{III} < \text{IV}$ c.  $\text{IV} < \text{II} < \text{III} < \text{I}$ b.  $\text{IV} < \text{II} < \text{I} < \text{III}$ d.  $\text{III} < \text{IV} < \text{II} < \text{I}$ 

resonance

3. Provide a synthesis for the following transformation. (4 points)



4. a. Provide a mechanism for the following reaction and label each step as initiation (I) or propagation (P).
- 
- b. Provide one reasonable termination step (T). (4 points)

