

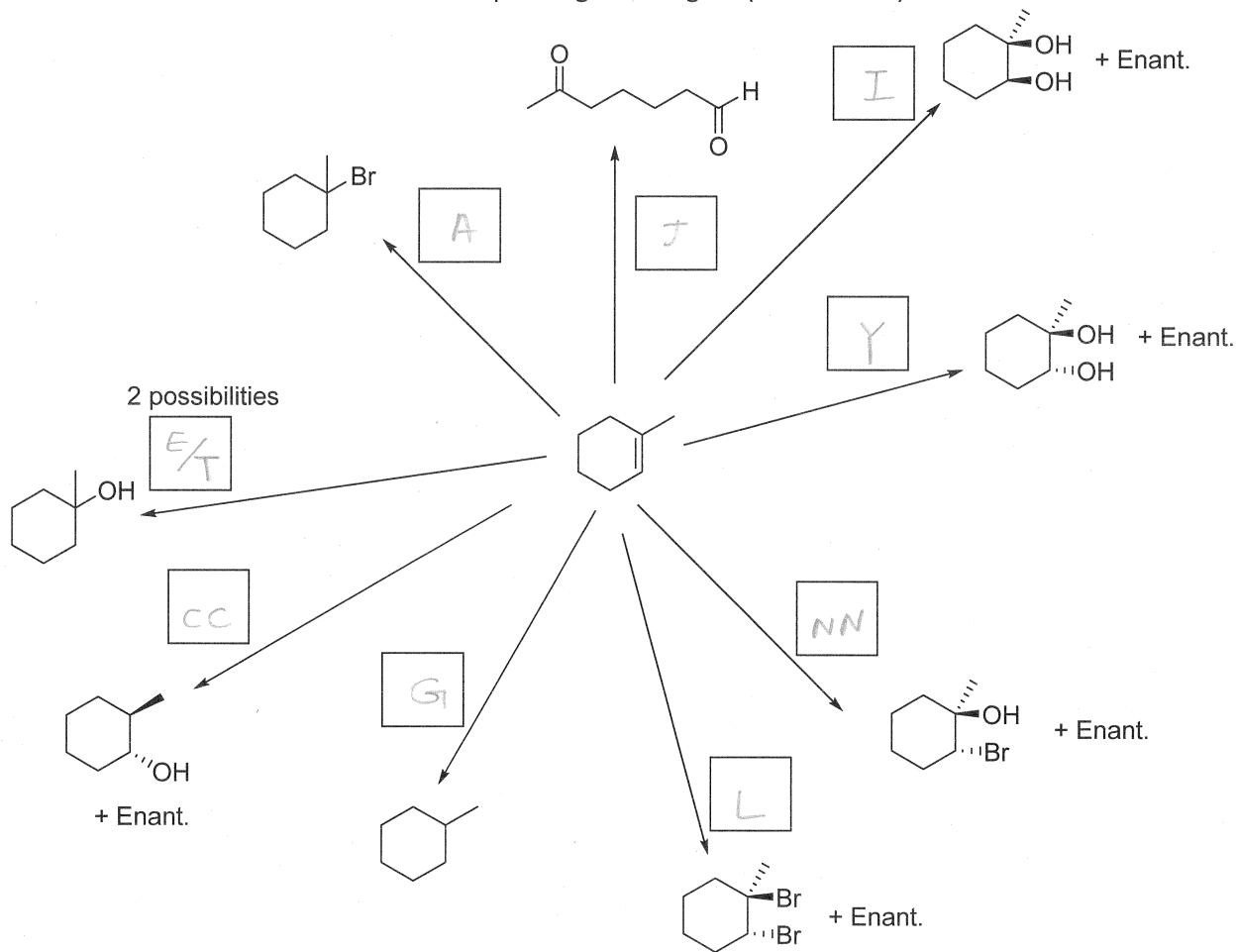
## Synthesis: Putting it all together

### Reaction Medley: Review of reagents

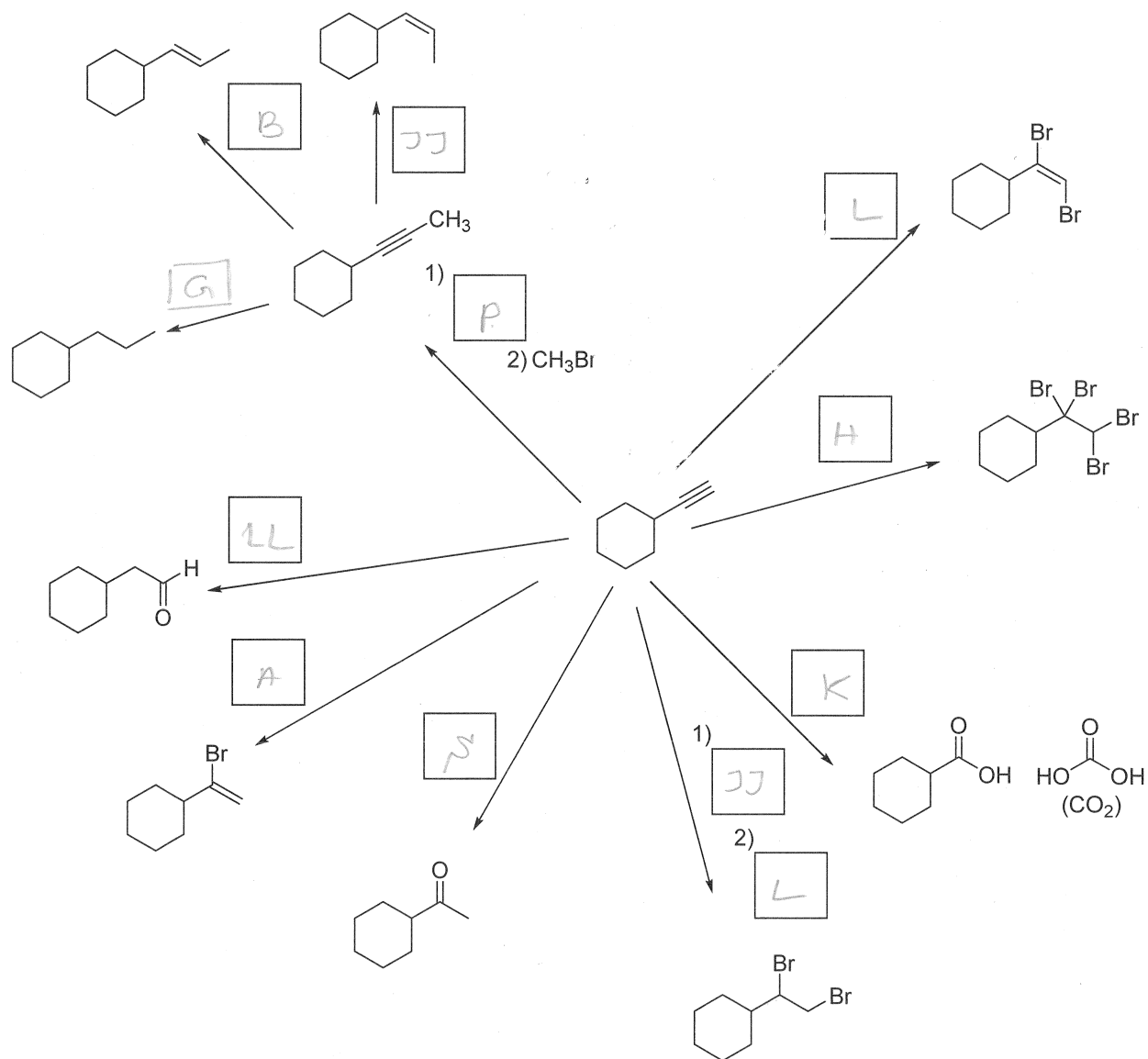
Use the table for problems below.

|  |   |  |   |
|--|---|--|---|
| (A) HBr  | (B) Na, NH <sub>3</sub> (liquid)  | (C) 1 mol HCl  | (D) 2 mol HCl   |
| (E) 1) Hg(OAc) <sub>2</sub> , H <sub>2</sub> O<br>2) NaBH <sub>4</sub>                                 | (F) KMnO <sub>4</sub> , NaOH (cold)   | (G) H <sub>2</sub> , Pd/C or<br>H <sub>2</sub> , Pt/C or<br>H <sub>2</sub> , Ni              | (H) 2 mol Br <sub>2</sub> (in CH <sub>2</sub> Cl <sub>2</sub><br>solvent)   |
| (I) 1) OsO <sub>4</sub><br>2) NaHSO <sub>3</sub> , H <sub>2</sub> O                                    | (J) 1) O <sub>3</sub> , -78 C<br>2) DMS (required!!)<br>(DMS = dimethylsulfide)<br><b>(compare K)</b> | (K) 1) O <sub>3</sub> , -78 C<br>2) H <sub>2</sub> O<br>(no DMS required)<br>dimethylsulfide | (L) 1 mol Br <sub>2</sub> (in CH <sub>2</sub> Cl <sub>2</sub><br>solvent)   |
| (M) 1) BH <sub>3</sub> , THF<br>2) HO <sup>⊖</sup> , H <sub>2</sub> O <sub>2</sub> , H <sub>2</sub> O  | (N) CHCl <sub>3</sub> , KOH (base)  | (O) 1) XS moles NaNH <sub>2</sub><br>2) H <sub>2</sub> O                                     | (P) 1 mol NaNH <sub>2</sub>   |
| (Q) HIO <sub>4</sub>   | (R) MnO <sub>2</sub> (in THF solvent)   | (S) 1) HgSO <sub>4</sub> , H <sub>2</sub> O,<br>H <sub>2</sub> SO <sub>4</sub> ,             | (T) H <sub>3</sub> O <sup>⊕</sup> (23 °C)<br><b>(mild addition cond'ns)</b> |
| (U) <i>m</i> -chloroperoxybenzoic<br>acid ( <i>m</i> CPBA)   | (V) CH <sub>2</sub> I <sub>2</sub> , Zn(Cu)   | (W) CH <sub>3</sub> Br   | (X) NBS, <i>hν</i><br><i>N</i> -bromosuccinimide                            |
| (Y) 1) <i>m</i> -chloroperoxybenzoic<br>acid ( <i>m</i> CPBA)<br>2) H <sub>3</sub> O <sup>⊕</sup>      | (Z) HBr, ROOR (peroxides)   | (AA) ( <i>t</i> -BuOK)<br><br>OR<br><br>DBU<br>OR<br><br>DBN                                 | (BB) 1 mol Cl <sub>2</sub> (in CH <sub>2</sub> Cl <sub>2</sub><br>solvent)  |
| (CC) 1) BH <sub>3</sub> , THF<br>2) HO <sup>⊖</sup> , H <sub>2</sub> O <sub>2</sub> , H <sub>2</sub> O | (DD) CHCl <sub>3</sub> , KOH (base)   | (EE) NaNH <sub>2</sub> (in NH <sub>3</sub><br>solvent)                                       | (FF) Cl <sub>2</sub> (in CH <sub>2</sub> Cl <sub>2</sub><br>solvent)        |
| (GG) (NaOCH <sub>3</sub> )<br><br>OR (NaOEt)   | (HH) Br <sub>2</sub> , excess CH <sub>3</sub> OH  | (II) H <sub>2</sub> O  | (JJ) H <sub>2</sub> , Lindlar catalyst                                      |
| (KK) 2 mol Cl <sub>2</sub> (in CH <sub>2</sub> Cl <sub>2</sub><br>solvent)                             | (LL) 1) disiamylborane<br>2) HO <sup>⊖</sup> , H <sub>2</sub> O <sub>2</sub> , H <sub>2</sub> O       | (MM) H <sub>2</sub> O, conc. H <sub>2</sub> SO <sub>4</sub> ,<br>Heat                        | (NN) Br <sub>2</sub> , excess H <sub>2</sub> O                              |
| (OO) Br <sub>2</sub> , <i>hν</i> (light)   | (PP) Tosyl Cl (TsCl), pyridine  |  |   |

Fill in the **small boxes** with a letter corresponding to a reagent (Table above)



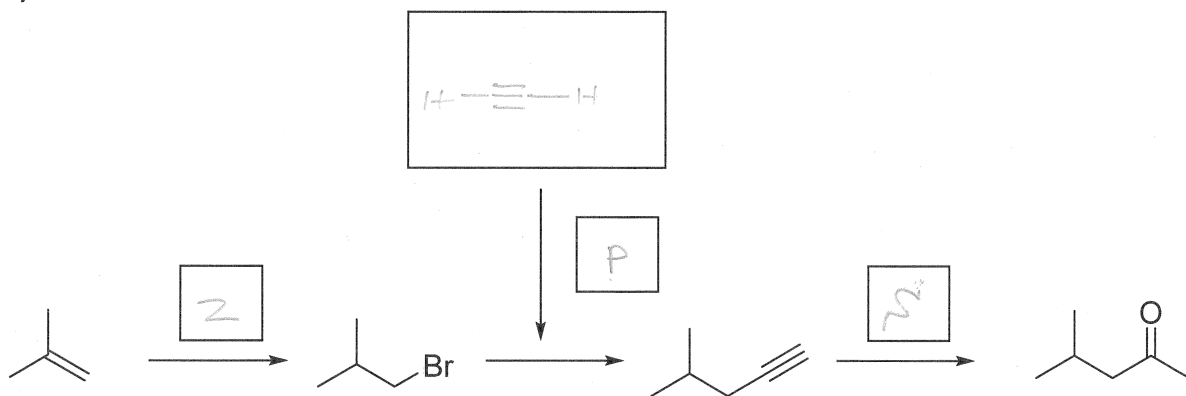
Fill in the **small boxes** with a letter corresponding to a reagent (Table above)



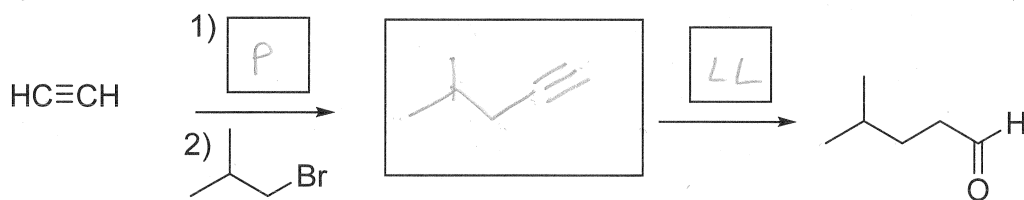
Fill in the **small boxes** with a letter corresponding to a reagent (Table above)

Fill in the **larger rectangles** with organic reactant

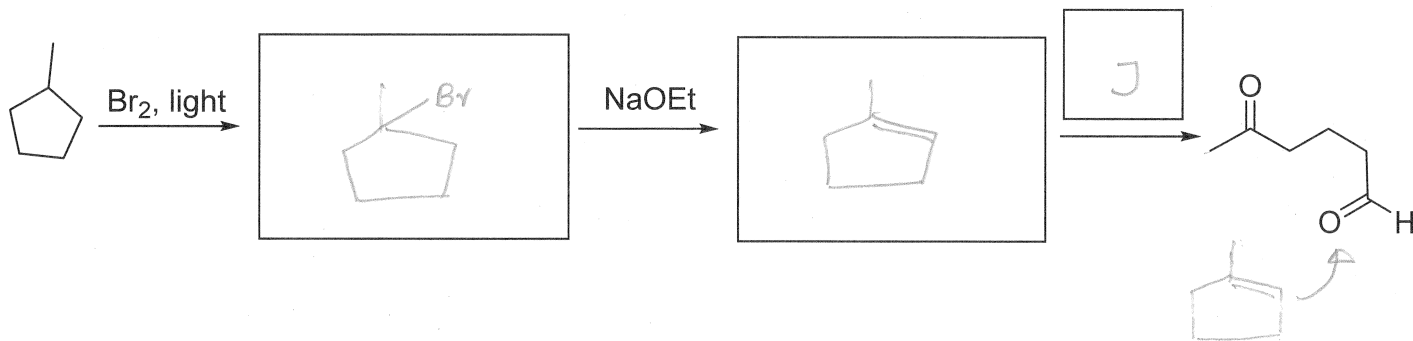
a)

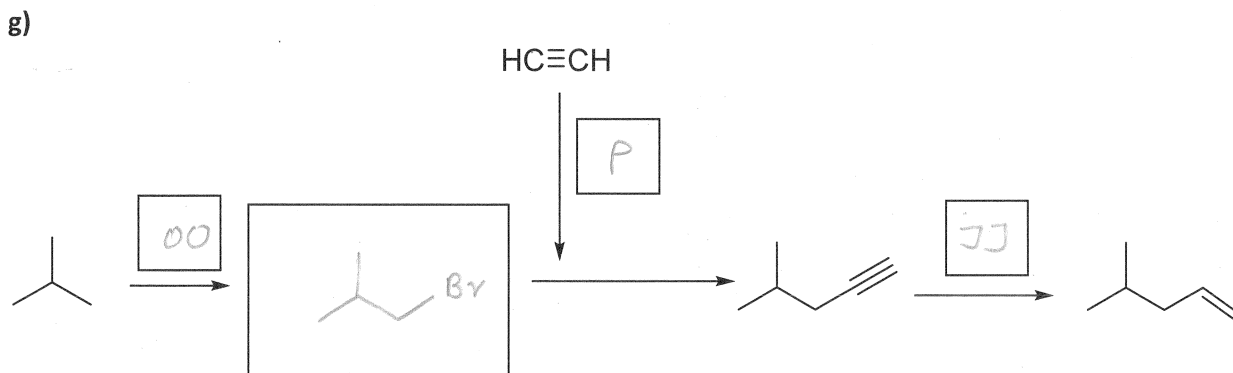
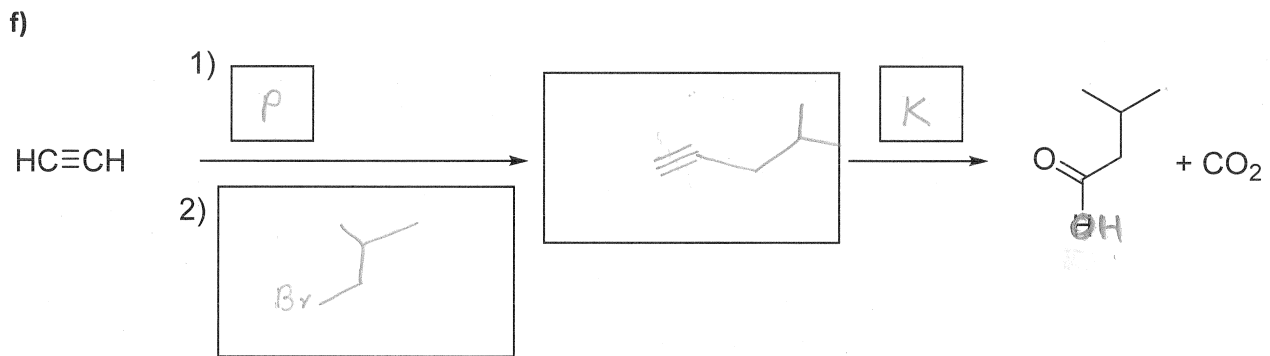
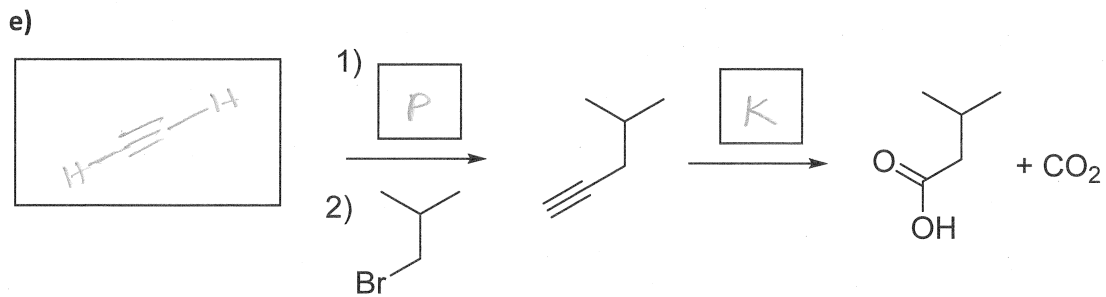
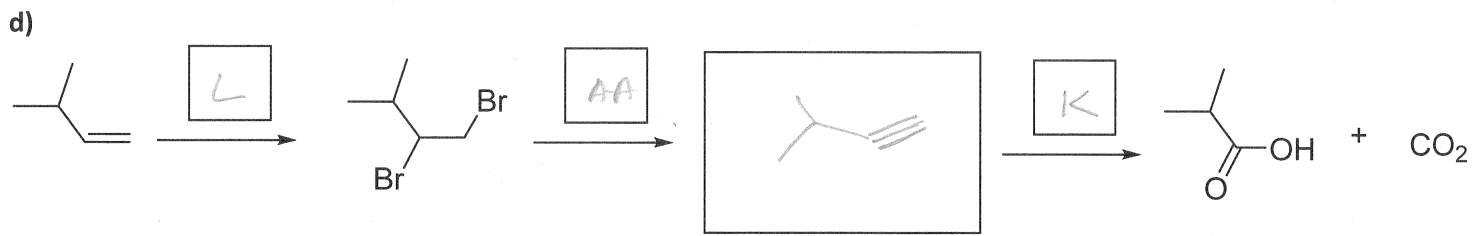


b)

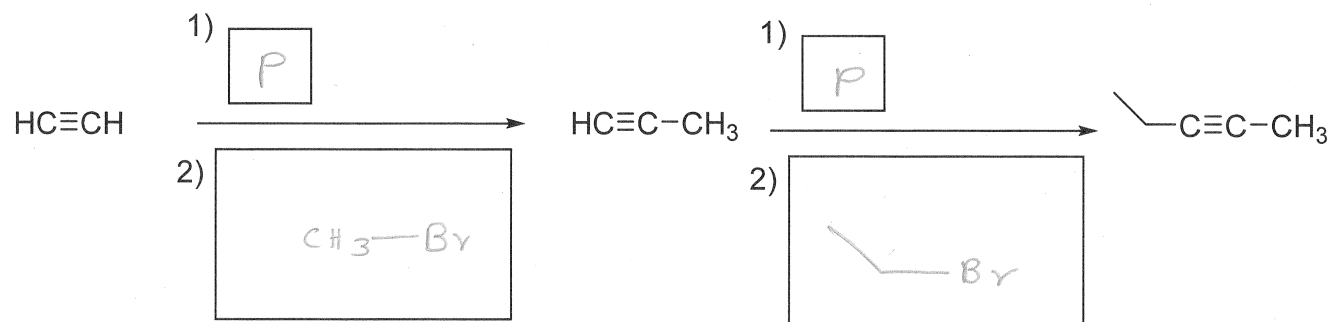


c)

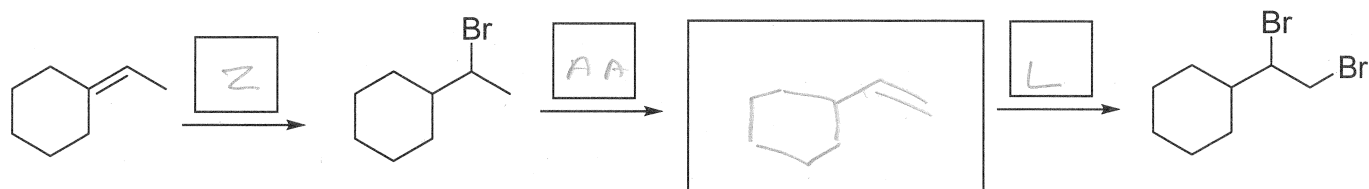




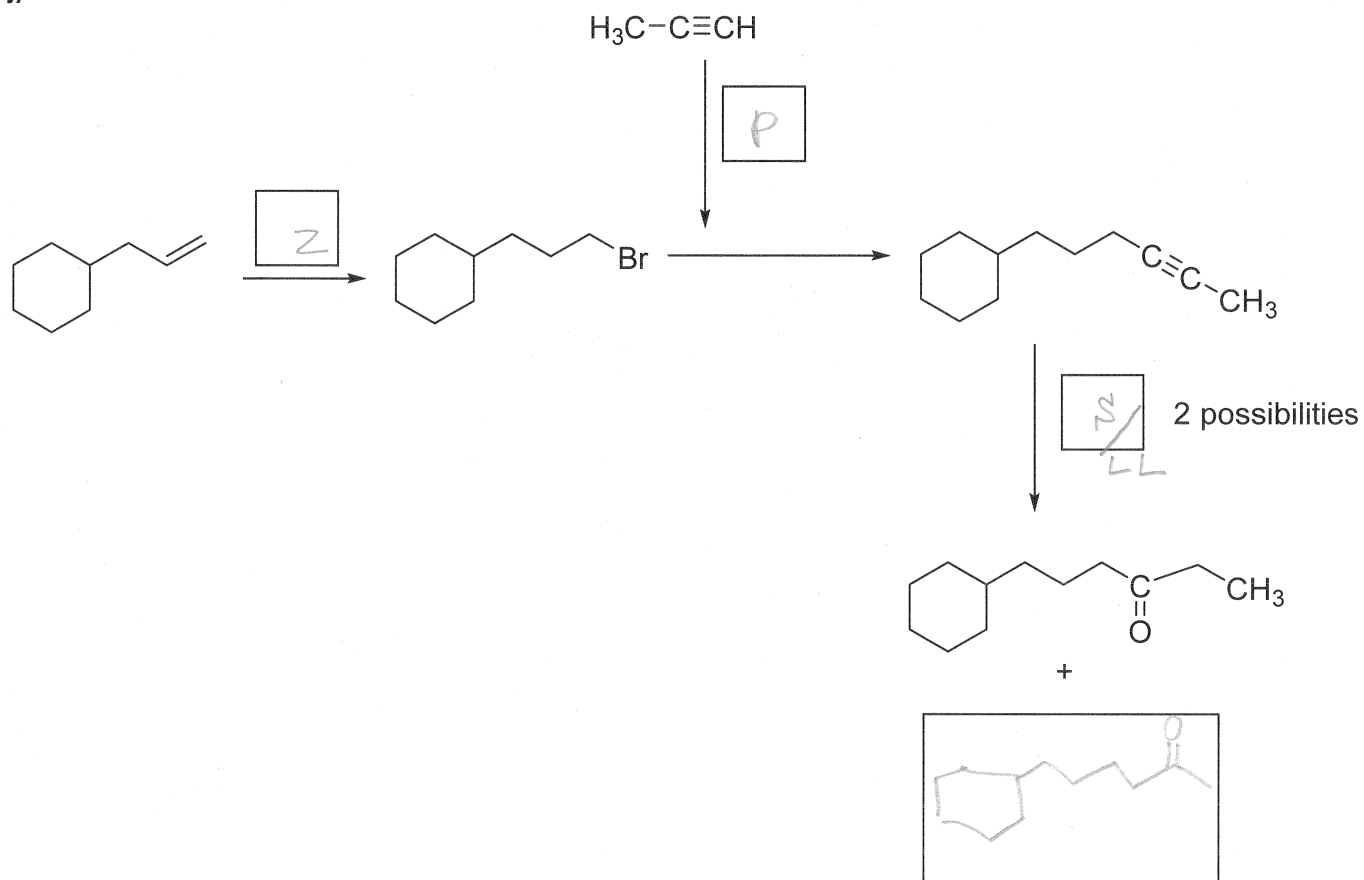
h)



i)



j)



k)

