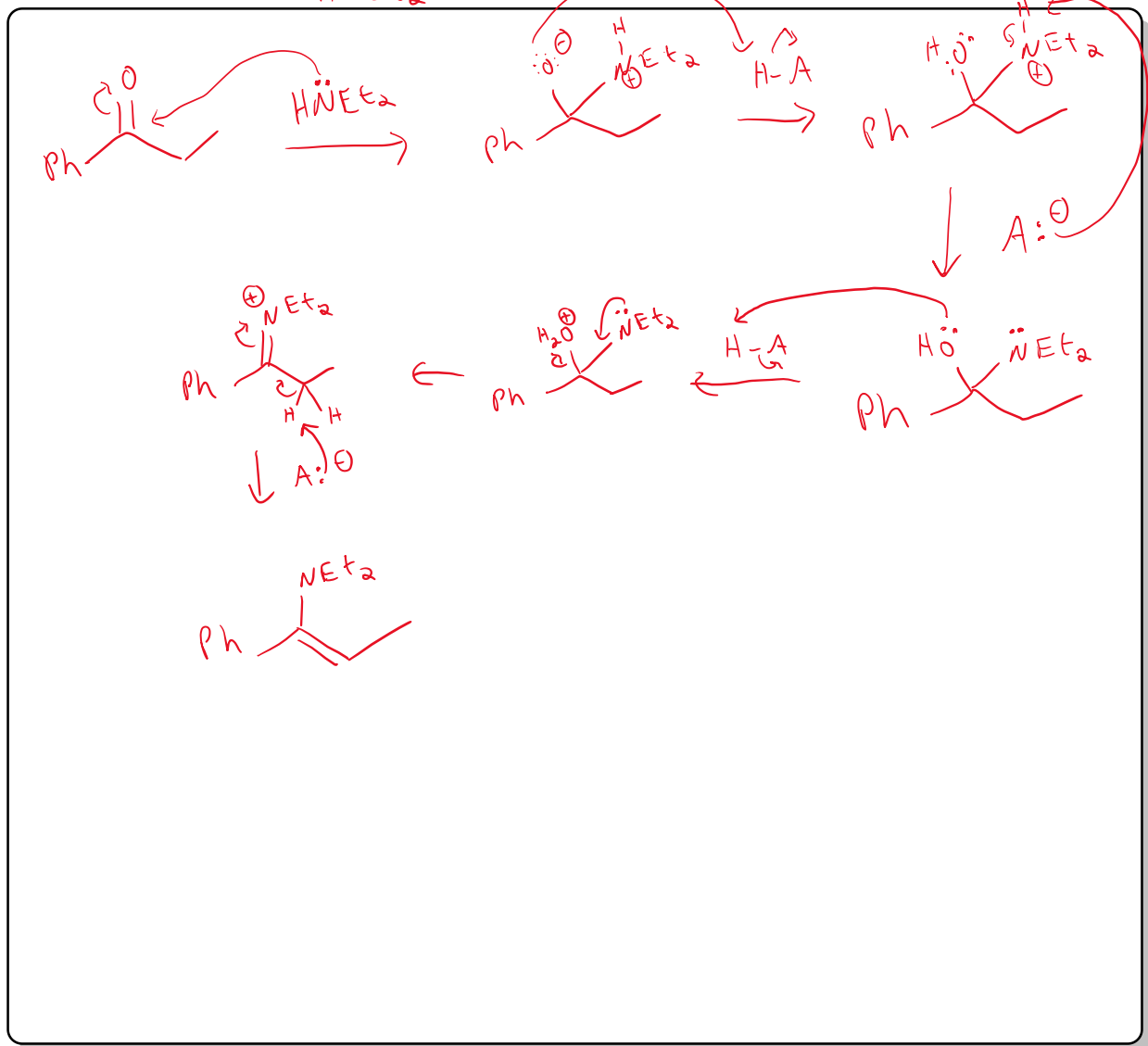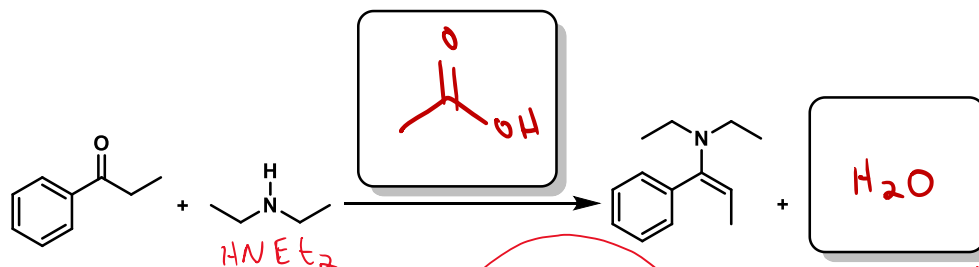1.   **Mechanism.** First, provide the reagent needed above the arrow and the by-product you would expect from the reaction below. Then, give an arrow-pushing mechanism for the transformation. You may use HA and A⁻ if acid / base are needed. (6 points)

2.   **Synthesis.** Complete the synthesis below by filling in each box with the correct products from each reaction. (4 points)

1) BH_3 / THF
2) H_2O_2, NaOH

+ enantiomer

1)

2) NEt_3

only attack more $E^{\oplus}$ $C=O$ ... the aldehyde

1 equivalent

OH   OH
cat. H_2SO_4

+ enantiomer

+ enantiomer