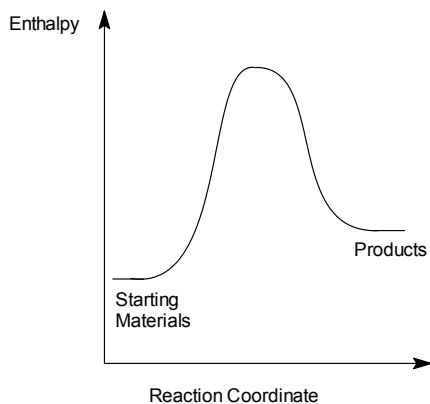
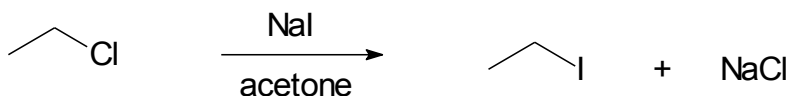


Given the reaction and energy diagram below:

A) (2 pts). Calculate the Heat of Reaction (ΔH°) for the formation of iodoethane from reaction of chloroethane with sodium iodide in acetone. Bond energies: $\text{CH}_3\text{CH}_2\text{-Cl}$ (81 kcal/mole), $\text{CH}_3\text{CH}_2\text{-I}$ (53 kcal/mole).

B) (3 pts). Draw a step by step mechanism for the formation of iodoethane from reaction of chloroethane with sodium iodide in acetone. Use arrows to show "pushing" of electrons.

C) (3 pts.) Draw the structure of the Transition State (the high energy intermediate) that would occur during the reaction of chloroethane with sodium iodide in acetone.



D) (2 pts.) How would the rate of the reaction be affected if the concentration of both chloroethane and sodium iodide were tripled?