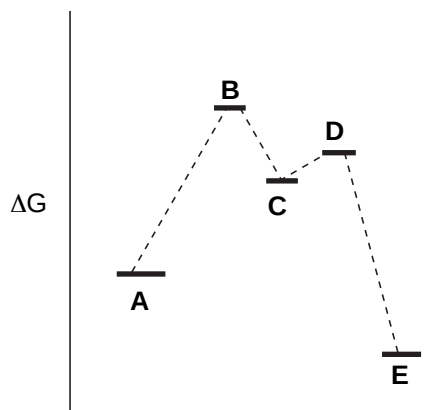


problem set 6; chem 131(231) A



1. Consider the transformation of **A** to **E** & the diagram shown to the left.

- [a] Is the first step exo- or endothermic?
- [b] What about the overall transformation?
- [c] Which of the labels correspond to transition states? Specify the free energy of activation for each step.
- [d] Which would occur faster and with what activation barrier - the conversion of **A** to **C**, or **C** to **E**?
- [e] Indicate the rate determining step in the overall transformation.
- [f] Should the transition state for the first step occur late or early? How about the second step?
- [g] Suppose that **A** and **E** are present at the end of the reaction, and that a complete equilibrium has been established. Indicate, on the diagram, the quantity that determines how much of each will be present at that time..

2. In class you saw that at equilibrium, the ratio of the more to less substituted enolate formed by adding 2-methylcyclohexanone to THF at -78 °C is 90:10. Determine the energy difference between the two enolates under these conditions.

3. Using Baldwin rule terminology, classify each of the following transformations.

