

Name:

Homework for Lecture 1, 2

1. For a reaction $A + B \rightarrow C$, the Gibbs free energy change (ΔG) is -50 J mol^{-1} . Considering the reaction temperature in the range of $300 - 1000 \text{ K}$, discuss whether the reaction is thermo controlled or kinetic controlled, and why? Describe two ways to speed up the reaction and discuss why that works.
2. Find the activation energy (in kJ/mol) of the reaction if the rate at 600K is $3.4 \text{ M}^{-1}\text{s}^{-1}$ and $31.0 \text{ M}^{-1}\text{s}^{-1}$ at 750K .
3. Find the rate at a new temperature of 500K .