

**TEST 1
STUDY GUIDE**

<i>Topic</i>	<i>Text Reference</i>
<u>CHAPTER 13</u>	
<ul style="list-style-type: none"> • Write the rate of a reaction in terms of any reactants or products • Calculate the average rate of a reaction from concentration and time data • Know what order of reaction is and how the rate changes based on concentration of a reactant • Use rate law to determine the order of a reaction with respect to any reactant • Determine the rate law for a reaction from given data • Use the integrated rate laws for 1st and 2nd order reactions to determine the concentration of a reactant at a given time or the rate constant • Determine the order of a reaction by graphical methods • Determine the half-life of 1st and 2nd order reactions from given data • Use half-life of a reaction to calculate the rate constant • Know collision theory and the factors that affect the rate of a reaction • Know what an activated complex is and how it is involved in the progress of a reaction • Determine activation energy and enthalpy of a reaction from its PE diagram • Use Arrhenius plot to determine the activation energy and frequency factor for a reaction • Know what elementary reactions are and write rate equations for them • Determine the molecularity of an elementary reaction • Determine the rate law for a reaction from its mechanism • Evaluate proposed mechanisms for agreement with a known rate law • Know how a catalyst increases the rate of a reaction 	13.1 13.1 13.3 13.3 13.3 13.4 13.4 13.4 13.4 13.5 13.5 13.5 13.5 13.6 13.6 13.6 13.6 13.7
<u>CHAPTER 14</u>	
<ul style="list-style-type: none"> • Know what chemical equilibrium is and its characteristics • Write equilibrium constant expression based on chemical equations • Interpret the significance of equilibrium constant and its magnitude on the progress of a reaction • Predict the equilibrium constant of a reaction, when reversed, multiplied by a factor or reactions with multiple equations • Calculate K_P values from K_C and vice versa • Write equilibrium constant expression for heterogeneous equilibria • Calculate equilibrium constant from measured equilibrium concentrations • Predict the direction of a reaction based on given concentration of reactants and products by using the reaction quotient • Determine equilibrium composition of each substance from the equilibrium constant and initial concentrations • Use La Chatelier's principle to predict the effect on equilibrium when changes in concentration, temperature or pressure occurs 	14.2 14.3 14.3 14.3 14.4 14.5 14.6 14.7 14.8 14.9