TEST 1
STUDY GUIDE

Topic	*Text Reference*
CHAPTER 14	
• Write the rate of a reaction in terms of any reactants or products	14.1
• Calculate the average rate of a reaction from concentration and time data	14.1
• Know what order of reaction is and how the rate changes based on concentration of a reactant	14.3
• Use rate law to determine the order of a reaction with respect to any reactant	14.3
• Determine the rate law for a reaction from given data	14.3
• 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	14.4
• Determine the order of a reaction by graphical methods	14.4
• Determine the half-life of 1st and 2nd order reactions from given data	14.4
• Use half-life of a reaction to calculate the rate constant	14.4
• Know collision theory and the factors that affect the rate of a reaction	14.5
• Know what an activated complex is and how it is involved in the progress of a reaction	14.5
• Determine activation energy and enthalpy of a reaction from its PE diagram	14.5
• Use Arrhenius equation to determine the activation energy of a reaction	14.6
• Determine activation energy of a reaction by graphical methods	14.6
• Know what elementary reactions are and write rate equations for them	14.7
• Determine the molecularity of an elementary reaction	14.7
• Determine the rate law for a reaction from its mechanism	14.8
• Evaluate proposed mechanisms for agreement with a known rate law	14.8
• Know how a catalyst increases the rate of a reaction	14.9
CHAPTER 15	
• Know what chemical equilibrium is and its characteristics	15.1
• Apply stoichiometry to determine the equilibrium composition of reactants and products	15.1
• Write equilibrium constant expression based on chemical equations	15.2
• Know equilibrium constant in terms of rate constant of forward and reverse reactions	15.2
• Calculate equilibrium constant from equilibrium concentration data given	15.2
• Calculate equilibrium constant for reverse or reactions with multiple equations	15.2
• Set up reaction table to determine the equilibrium composition each substance	15.2
• Calculate K_P values from K_C and vice versa	15.2
• Write equilibrium constant expression for heterogeneous equilibria	15.3
• Quantitatively interpret the equilibrium position by the magnitude of the constant	15.4
• Predict the direction of a reaction based on given concentration of reactants and products	15.5
• Calculate the equilibrium concentration of a substance by solving linear and quadratic equations	15.6
• Use La Chatelier's principle to predict the effect on equilibrium when changes in concentration, temperature or pressure occurs	15.7-15.8
• Know the effect of catalyst on equilibrium	15.9