Group Equilibrium Prelab

1. Record the respective number of red and blue spheres:

	5 s	10 s	15 s	20 s	3 min
Red					
Blue					

  a. At the instant the reaction begins, what is the rate of the reverse reaction, that of **B** going to **A**? Explain in the context of a microscopic view of the collisions of molecules.

  b. How does the rate of change in A compare to B from 0 to 10 sec?

   1) Much Greater;   2) Greater;   3) Equal;   4) Less;   5) Much Less

  c. How does the rate of change in A compare to B from 1 to 3 minutes?

   1) Much Greater;   2) Greater;   3) Equal;   4) Less;   5) Much Less

True/False

At time = 0 seconds:

  d. The rate of the forward reaction exceeds the rate of the reverse reaction.   T / F
  e. The rate of the reverse reaction exceeds the rate of the forward reaction.   T / F
  f. For a period of ~20 sec. after initial mixing, the concentration of the products increases.   T / F
  g. For a period of ~20 sec after initial mixing, the concentration of the reactants increases.   T / F

At equilibrium:

  h. The rate of the forward reaction is zero.   T / F
  i. The rate of the reverse reaction is zero.   T / F
  j. The rate of the forward reaction is equal to the rate of the reverse reaction.   T / F
  k. The rates of the forward and reverse reactions are both constant.   T / F

2. Write the equilibrium expression for the reaction.

   Using the equilibrium concentrations in question #1 calculate Kc.

3. Record the respective number of red and blue spheres at 3 min.   Red: _____   Blue: _____

    Calculate Kc.

4. Record the respective number of red and blue spheres at 3 min.   Red: _____   Blue: _____

    Calculate Kc.

4. Compare the calculated values of Kc for the three trials. Questions #2, 3, 4.

     Kc average _____   Kc average deviation_____

    What do you conclude about different starting concentrations and Kc.

PART II: *http://www.chm.davidson.edu/ronutt/che115/equkin/equkin.htm*

1.

Red_o	$Blue_o$	Red_{eq}	$Blue_{eq}$	T (Kelvin)	Kc
80	0			298	
80	0			380	

2.   In what way are the two plots (#1 and #2) similar, how do they differ?

3.   Is this reaction exothermic or endothermic? Briefly explain the reasons for your selection.