CH 117 Session 6: Test Review

Feb. 4, 2014

1. Consider the Reaction 2NOBr(g) ⇌2NO(s)+Br2 (g). Which way will the equilibrium shift if the volume is decreased by half?

 b. If ∆H is 40. Which way will the reaction shift if temperature is increased?

2. A reaction is 5 times faster at 50 C than at 25 C. Find the Ea of the reaction? Note R is 8.314 J/mol K.

3. Write the overall reaction eq. for the following reaction. Identify the reactants

  (fast )

  (slow)

b. Write the Rate Law expression for the reaction.

c. If ∆H is -60, how would increasing the temperature effect rate? Which direction would the reaction shift?

4. 5. The half-life for decomposition of cyclopentene at 825 K is 25s. How long would it take for a sample of cyclopentene to decompose to 4% of the original amount?

5. 3. Use the Data from the table to determine the rate law expression.

2A + B 🡪 P

|  |  |  |  |
| --- | --- | --- | --- |
| Experiment | [A] | [B] | Initial Rate (M/s) |
| 1 | .4 | .2 | 2 \*10-2 |
| 2 | .4 | .4 | 2\* 10-2 |
| 3 | .6 | 1.0 | 3\*10-2 |
| 4 | .8 | .2 | 8\*10-2 |

b. Using experiment 1, find k.

d. Find concentration of A at t=6 if initial concentration of B is 9.

6. Suppose you poured 1 M of SO2 with 1M of O2 in a 2L container. What would the equilibrium concentration of all reactant and product be?

2SO2 (g)+ O2(g) ⇌ 2SO3(g) Kc is 2.8E-2