Participation Assignment
CHEM 1100-General Chemistry II

Name: **#10**

Section: 31, TR **Due Date: Thursday 2/20/2020**

1. At 800 K, equilibrium concentrations for the formation of sulfur trioxide, SO_3, were:

$$2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$$

$[SO_2]_{eq} = 0.0030$ M $[O_2]_{eq} = 0.0035$ M $[SO_3]_{eq} = 0.050$ M

Calculate the equilibrium constant, K_c.

2. Determine the reaction quotient for the following conditions:

$$H_2(g) + I_2(g) \rightleftharpoons 2HI(g) \qquad K_c = 54.3 \text{ at } 430\ ^\circ C$$

$[H_2] = 0.10$ M $[I_2] = 0.20$ M $[HI] = 0.40$ M

$[H_2]$ (M)	**$[I_2]$ (M)**	**[HI] (M)**		
0.10	0.20	0.40		
0.011	0.013	0.18		
0.15	0.016	0.36		

3. Le Châtelier's principle:

Stress:

$$2NH_3(g) \rightleftharpoons N_2(g) + 3H_2(g)$$

Change the concentrations $K_c = 422$ at 720 °C

$[NH_3]$ (M)	**$[N_2]$ (M)**	**$[H_2]$ M**		
1.05	0.683	8.80		
3.65	0.683	8.80		
0.665	0.683	8.80		

Change the pressures (or volume) $K_p = 2.80 \times 10^6$ at 720 °C

NH_3 (atm)	**N_2 (atm)**	**H_2 (atm)**		
0.00200	0.100	4.82		
0.00400	0.200	9.64		
0.00100	0.050	2.41		

Change the temperature

$$Co(H_2O)_6^{2+}(aq) + 4Cl^{1-}(aq) \rightleftharpoons CoCl_4^{2-}(aq) + 6H_2O(l)$$