

Chemistry 102 _ Summer_ 2012-2013 _ Quiz # 4

Name Key ID _____ Sec _____

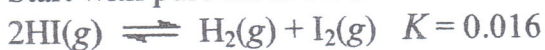
Q1. (2 marks)

Complete the following table for the reaction $3A(g) + 2B(g) \rightleftharpoons C(g)$

Time (s)	0	10
P_A (atm)	2.45	2.00
P_B (atm)	1.50	<u>1.2</u>
P_C (atm)	0.00	<u>0.15</u>

Q2. (2 marks)

Start with pure HI at 0.100 atm. Find the equilibrium partial pressures of H_2 .



$$P_{H_2} = \underline{0.010} \text{ atm}$$

Q3. (3 marks)

Consider the system $SO_3(g) \rightleftharpoons SO_2(g) + \frac{1}{2} O_2(g) \quad \Delta H = 98.9 \text{ kJ}$

a) Predict whether the forward or reverse reaction will occur when the equilibrium is disturbed by

- 1) adding O_2 gas. \leftarrow
- 2) compressing the system. \leftarrow
- 3) adding Ar gas. *no effect*
- 4) decreasing the temperature. \leftarrow

b) Which of the above factors will increase the value of K ? which will decrease it? *none*
decreasing T decreases K

Q4. (2.5 marks)

Consider the system $A(g) + 2B(g) + C(s) \rightleftharpoons 2D(g)$ at $25^\circ C$.

Initially, only A, B, and C are present. The reaction reaches equilibrium 10 min after the reaction is started. Answer the question below, using

LT for *less than* GT for *greater than*
 EQ for *equal to* MI for *more information required*

- (a) P_D at 12 min EQ P_D at 13 min
- (b) P_A at 6 min GT P_A at 8 min.
- (c) K for forward reaction MI K for reverse reaction.
- (d) At equilibrium, K EQ
- (e) After the system is at equilibrium, more of B is added. The system then returns to equilibrium. K before addition of B EQ K after addition of B.