CHEM 1105 TEST#4

<u>NAME:</u> <u>Student Number:</u>

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1. Using Le Chatelier's principle circle the correct response that corresponds to the shift in position the following disturbances will have on the equilibrium below:

 $Ni(s) + 4CO(g) \Leftrightarrow Ni(CO)_4(g) \Delta H = -161 kJ$

a) Increasing [CO(g)]:

	i) to products on the right	ii) reactants on the left	iii) no change
b) Increasing the amount of Ni(s):			
	i) to products on the right	ii) reactants on the left	iii) no change
c) Increasing the temperature:			
	i) to products on the right	ii) reactants on the left	iii) no change
d) Increasing the pressure:			
	i) to products on the right	ii) reactants on the left	iii) no change
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2. Consider the following equilibrium system: $I_2(g) + Cl_2(g) \Leftrightarrow 2ICl(g)$

 $K_c = 130 \text{ at } 630^{\circ}\text{C}$

If the system contained the following concentrations: $[ICl] = 0.15 \text{ M}, [I_2] = 0.00125 \text{ M}, [Cl_2] = 0.0075 \text{ M}$

a) Is the system at equilibrium?

b) If not, what direction must it shift to obtain equilibrium?

3. A mixture of 3.00 mol of Cl_2 and 2.00 mol of I_2 is placed into a rigid 1.00 L container at 630°C. When the system has come to equilibrium, the concentration of ICl is 3.80 M. What is the equilibrium constant for the following equilibrium at 630°C:

 $2ICl(g) \Rightarrow I_2(g) + Cl_2(g)$ $K_c = ? at 630°C$

Answer Set for CHEM 1105 TEST#4

1.a) i, b) iii, c) ii, d) i

2. Q = 2400. Since Q > K_c the equilibrium will shift to the left or reactants.

3. $K_c = 7.6 \times 10^{-3}$ Note: K_c (question #3) = 1/K_c(question #2)