1) For a certain chemical reaction, the equilibrium constant K_{eq} will be modified whenever _____ changes.

A) reactant concentrations
B) volume
C) temperature
D) atmospheric pressure

2) Consider the following reaction: $H_2(g) + I_2(g) \rightarrow 2\ HI(g)$. Knowing that the enthalpy of the reaction is positive ($\Delta H_{rxn} > 0$) indicate what will happen if the temperature is increased.

A) more HI will be formed
B) more H_2 and I_2 will be formed
C) the magnitude of the equilibrium constant will remain constant, only the concentration of reactants and products will change (Le Chatelier Principle)
D) the pressure in the container will increase

3) Consider the following reaction: $2\ SO_2(g) + O_2(g) \leftrightarrow 2\ SO_3(g)$, where ΔH_{rxn} = -196.6 kJ. The equilibrium will be displaced to the left if

A) the temperature is raised
B) three moles of sulfur trioxide are removed
C) the pressure is increased
D) two moles of oxygen are added

4) In terms of chemical equilibrium, a chemical reaction is at equilibrium when

A) the concentrations of reactants and products are equal
B) the limiting reagent has been completely depleted
C) the rate of the forward reaction equals the rate of the reverse reaction
D) the concentrations of reactants is equal to the concentrations of products for a certain reaction and determined at 298 K (standard conditions).

5) What is the correct equilibrium constant expressed in terms of concentration for the following reaction? $CO\ (g) + H_2O\ (g) \leftrightarrow CO_2(g) + H_2(g)$

A) $K_c = [H_2]^2[CO]/[CO_2][H_2O]$
B) $K_c = [H_2O][CO_2]/[CO_2][H_2]$
C) $K_c = [H_2][CO_2]/[CO][H_2O]$
D) None of the above