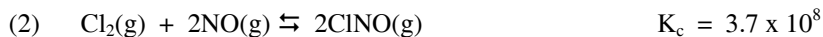


1. The value of K changes with
- concentrations of reactants and products
 - pressure
 - volume
 - temperature
 - all of the above
2. For which of the following reactions will the equilibrium mixture contain an appreciable concentration of both reactants and products?

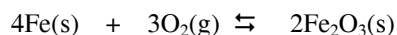


- 3
 - 2 and 3
 - 1, 2, and 3
 - 1
 - none of these
3. Hydrogen iodide undergoes decomposition according to the equation



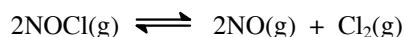
The value of K_c at 425°C for this system is 0.018. If 1.0 mol each of H_2 , I_2 , and HI were placed together in a 1.0 L container at 425°C , then

- the concentration of HI would decrease.
 - the concentration of HI would increase.
 - the concentration of HI would not change.
 - the total pressure of the system would increase.
 - the total pressure of the system would decrease.
4. Consider the following reaction at a certain temperature:



An equilibrium mixture contains 1.0 mol Fe , 1.0×10^{-2} mol O_2 , and 2.0 mol Fe_2O_3 , all in a 2.0 L container. What is the value of K_c for this reaction?

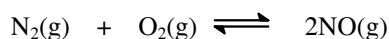
- 4.0×10^6
 - 8.0×10^6
 - 1.3×10^8
 - 1.0×10^6
 - 1.0×10^2
5. Consider the following reaction:



0.50 mol of NOCl was placed in a 2.0 L container and allowed to come to equilibrium at a certain temperature. If the concentration of Cl_2 at equilibrium was found to be 0.015 M, what is the value of the equilibrium constant, K_c , at this temperature?

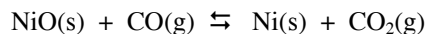
- 6.1×10^{-5}
- 2.8×10^{-4}
- 9.0×10^{-4}
- 4.5×10^{-4}
- 4.6×10^{-3}

6. At 2200°C, $K_c = 0.050$ for the reaction:



If 0.50 mol of N_2 and 0.50 mol of O_2 are placed in a 2.0 L container and warmed to 2200°C, what is the concentration of NO when the system reaches equilibrium?

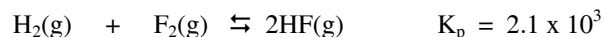
- a) 0.025 M
 - b) 0.075 M
 - c) 0.13 M
 - d) 0.050 M
 - e) 0.20 M
7. Carbon monoxide reduces nickel oxide to nickel metal:



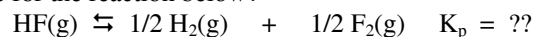
At 1200 °C, the K_p for this reaction is 4540. At 1400 °C, the K_p for this reaction is 1580. Which of the following statements is/are true?

- I. This is an endothermic reaction.
 - II. The equilibrium yield of nickel can be increased by increasing the partial pressure of $\text{CO}(\text{g})$.
 - III. The equilibrium yield of nickel can be increased by decreasing the partial pressure of $\text{CO}_2(\text{g})$.
 - IV. The equilibrium yield of nickel can be increased by increasing the mass of NiO .
 - V. The equilibrium yield of nickel can be increased by increasing the total pressure by compression.
- a) II and III
 - b) I, II, and III
 - c) I, II, III, and IV
 - d) II, III, and IV
 - e) II, III, IV, and V

8. The equilibrium constant K_p for the reaction below is 2.1×10^3 .



What is the K_p value for the reaction below?



- a) 4.6×10^1
 - b) 2.4×10^{-4}
 - c) 2.2×10^{-2}
 - d) 9.5×10^{-4}
 - e) 4.8×10^{-4}
9. Consider the equilibrium below:



The value of K_p for this reaction is 0.052 at 60°C. What is the value of K_c at this temperature?

- a) 1.4
- b) 39
- c) 1.9×10^{-3}
- d) 5.2×10^{-2}
- e) 7.0×10^{-5}

Answers:

- 1. D
- 2. A
- 3. B
- 4. B
- 5. B
- 6. D
- 7. A
- 8. C
- 9. E