9. The Kc value for the dissociation of iodine molecules into iodine atoms is $5.00x10^{-4}$ at TK.

$$I_2(g) \rightleftharpoons 2I(g)$$

An analysis was carried out on sample of iodine at TK and the following concentration were obtained $[I_2]=0.02M$ and $[I]=0.001M$. which of the following is ***TRUE***?

A. Qc<Kc, reaction is moving forward

B. Qc<Kc, reaction is moving backward

C. Qc>Kc, reaction is moving backward

D. Qc=Kc, reaction is at equilibrium

10. At 25°C, the decomposition of N_2O_4 has a Kp value of 0.14.

$$N_2O_4(g) \rightleftharpoons 2NO_2(g)$$

If the partial pressure of NO at equilibrium is 0.15 atm, what is the partial pressure of N_2O_4 in the mixture?

A. 0.0032 atm C. 0.16 atm

B. 0.15 atm D. 1.07 atm

11. At 25°C, the value of Kp for the reaction

$$2NO_2(g) \rightleftharpoons N_2O_4(g)$$

is 7.13. At equilibrium, the partial pressure of NO_2 in a container is 0.15atm. what is the partial pressure of N_2O_4 in the mixture?

A. 7.13 C. 0.16

B. 0.15 D. 0.17

12. At 44°C, the value of Kc for the equilibrium

$$2HI(g) \rightleftharpoons H_2(g)+I_2(g)$$

is 50. If at equilibrium, $[HI]=0.5moldm^{-3}$, what is $[I_2]$?

A. 0.0025 C. 0.0045

B. 3.5355 D. 0.0055

13. For the equilibrium

$$2HI(g) \rightleftharpoons H_2(g)+I_2(g)$$

the value of Kc is 50 at 445°C. If 0.75 mol each of H_2 and I_2 gas are placed in a $1.00dm^{-3}$ flask at 445°C, what are the concentrations of HI, H_2 and I_2 after equilibrium is established?

A. 0.7, 0.7, 0.0992

B. 0.8, 0.08, 0.0992

C. 0.6, 0.7, 0.0992

D. 0.7, 0.7, 0.7

14. For the Haber process

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

$Kp=1.45x10^{-5}$ atm at 500°C

In an equilibrium mixture of the three gasses, the partial pressure of H_2 is 0.928 atm and that of N_2 is 0.432 atm. What is the partial pressure of NH_3?

A. 0.432 C. $1.45x10^{-5}$

B. 0.928 D. $2.24x10^{-3}$

15. Hydrogen iodide decompose according to the reaction

$$2HI(g) \rightleftharpoons H_2(g)+I_2(g)$$

If a certain temperature, 30% of HI has dissociated to achieve equilibrium and the total pressure is 2.0 atm, calculate the equilibrium constant, Kp.

A. 0.15 C. $2.0x10^{-2}$

B. 0.3 D. $4.6x10^{-2}$

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