XI Chemistry Worksheet

Ch#7 : Equilibrium -03

Instructions:
1. All questions are compulsory.
2. Please give the explanation for the answer where applicable.

Q1 - Define Lewis Acids and Bases. (1 Mark)

Q2 - What is a Common Ion Effect? (2 Marks)

Q3 - At equilibrium, the concentrations of $N_2 = 0.0032 \text{ M}$, $O_2 = 0.0043 \text{ M}$ and $NO = 0.0026 \text{ M}$ in a sealed vessel at 800K. What will be $K_c$ for the reaction?

$$N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$$

(2 Marks)

Q4 - 12.8 gm of N2O4 was placed in a 1L reaction vessel at 400 K and allowed to attain equilibrium

$$N_2O_4 \rightleftharpoons 2NO_2$$

The total pressure at equilibrium was found to be 8.29 bar calculate $K_p$, $K_c$ and partial pressure at equilibrium? (5 Marks)

Q5 - Hydrolysis of sucrose gives,

Sucrose + water $\rightleftharpoons$ Glucose + Fructose

Equilibrium constant, $K_c$ for the reaction is $3 \times 10^{11}$ at 300 K. Calculate $\Delta G$ at 300 K

(2 Marks)

Q6 - Write conjugate acid of NH₃. (1 Mark)

Q7 - Write conjugate acid of HCOO⁻. (1 Mark)

Q8 - Write conjugate base of HClO₄. (1 Mark)

Q9 - The ionization constant of HF is $3.4 \times 10^{-4}$. Calculate the degree of dissociation of HF in its 0.02 M solution? (3 Marks)

Q10 - Calculate the solubility of AX in pure water. The solubility product of AX is $2.5 \times 10^{-20}$. (2 Marks)