

XI Chemistry Worksheet

Time: 30 min

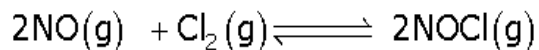
Ch#7 : Equilibrium -01

Full Marks: 20

Instructions:

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

Q1 - (a) Write expression showing relationship between K_p and K_c for following reaction



(b) Define conjugate acid and base with an example.

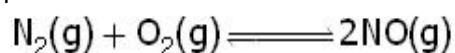
(5 Marks)

Q2 - (i) Define the term 'pH of solution'.

(ii) The hydrogen ion concentration of a solution is 10^{-4} . Calculate the pH of solution.

(2 Marks)

Q3 - At equilibrium, the concentrations of $\text{N}_2 = 0.0032 \text{ M}$, $\text{O}_2 = 0.0043 \text{ M}$ and $\text{NO} = 0.0026 \text{ M}$ in a sealed vessel at 800 K . What will be K_c for the reaction?



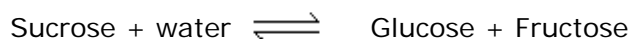
(2 Marks)

Q4 - For the equilibrium, $2\text{NOCl}(\text{g}) \rightleftharpoons 2\text{NO}(\text{g}) + \text{Cl}_2(\text{g})$

The value of equilibrium constant, K_c is 4.30×10^{-6} at 1069 K . Calculate the K_p for the reaction at this temperature?

(3 Marks)

Q5 - Hydrolysis of sucrose gives,



Equilibrium constant, K_c for the reaction is 3×10^{11} at 300 K . Calculate ΔG° at 300 K

(2 Marks)

Q6 - State Ostwald's dilution law.

(2 Marks)

Q7 - The pK_a of acetic acid and pK_b of ammonium hydroxide are 4.82 and 4.72 . Calculate the pH of ammonium acetate solution?

(2 Marks)

Q8 - Calculate the solubility of AX in pure water. The solubility product of AX is 2.5×10^{-20} .

(2 Marks)