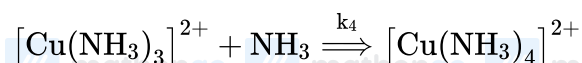
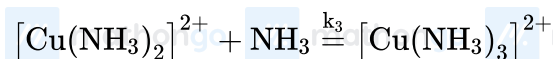
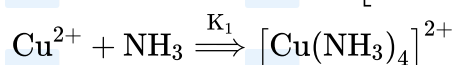


Questions with Answer Keys

MathonGo

Q1: 24 Feb (Shift 1) - Numerical

The stepwise formation of $[\text{Cu}(\text{NH}_3)_4]^{2+}$ is given below:



The value of stability constants K_1 , K_2 , K_3 and K_4 are 10^4 , 1.58×10^2 , 5×10^2 and 10^2

respectively. The overall equilibrium constants for dissociation of $[\text{Cu}(\text{NH}_3)_4]^{2+}$ is $x \times 10^{-12}$. The value of x is _____. (Rounded off to the nearest integer)

Q2: 24 Feb (Shift 1) - Numerical

At 1990 K and 1 atm pressure, there are equal number of Cl_2 molecules and Cl atoms in the reaction mixture.

The value of K_p for the reaction $\text{Cl}_{2(g)} = 2\text{Cl}_{(g)}$ under the above conditions is $x \times 10^{-1}$. The value of x is _____. (Rounded off to the nearest integer)

Q3: 24 Feb (Shift 1) - Numerical

For the reaction $\text{A}_{(g)} \rightarrow \text{B}_{(g)}$, the value of the equilibrium constant at 300 K and 1 atm is equal to 100.0. The

value of $\Delta_r G$ for the reaction at 300 K and 1 atm in J mol^{-1} is $-xR$, where x is _____. (Rounded off to the nearest integer) [$R = 8.31 \text{ J mol}^{-1} \text{ K}^{-1}$ and $\ln 10 = 2.3$]

Q4: 25 Feb (Shift 1) - Numerical

The ionization enthalpy of Na^+ formation from $\text{Na}_{(g)}$ is $495.8 \text{ kJ mol}^{-1}$, while the electron gain enthalpy of Br is $-325.0 \text{ kJ mol}^{-1}$. Given the lattice enthalpy of NaBr is $-728.4 \text{ kJ mol}^{-1}$. The energy for the

formation of NaBr ionic solid is (-) _____ $\times 10^{-1} \text{ kJ mol}^{-1}$.

Q5: 26 Feb (Shift 1) - Numerical

Questions with Answer Keys

MathonGo

A homogeneous ideal gaseous reaction $AB_{2(g)} \rightleftharpoons A_{(g)} + 2 B_{(g)}$ is carried out in a 25 litre flask at 27°C . The initial amount of AB_2 was 1 mole and the equilibrium pressure was 1.9 atm. The value of K_p is $x \times 10^{-2}$. The value of x is _____ $[R = 0.08206\text{dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}]$

Q6: 26 Feb (Shift 2) - Numerical

The average S-F bond energy in kJ mol^{-1} of SF_6 is _____ (Rounded off to the nearest integer)

[Given : The values of standard enthalpy of formation of $\text{SF}_6(\text{g})$, $\text{S}(\text{g})$ and $\text{F}(\text{g})$ are -1100, 275 and 80 kJ mol^{-1} respectively.]

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Answer Key

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Q1 (1)

Q2 (5)

Q3 (1380)

Q4 (5576)

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Q5 (74)

Q6 (309)

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