

NEET EQUILIBRIUM — EQUILIBRIUM CONSTANT EXPRESSION (Kp/Kc) AND FACTORS AFFECTING Kp OR Kc — PYQS

Max. Marks: 60
Questions: 15

Section A (MCQ) — 15 questions

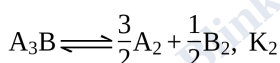
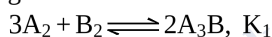
Q.1 In which of the following equilibria, K_p and K_c are NOT equal? [NEET (UG) 2024]

- (1) $\text{PCl}_{5(g)} \rightleftharpoons \text{PCl}_{3(g)} + \text{Cl}_{2(g)}$
 (2) $\text{H}_{2(g)} + \text{I}_{2(g)} \rightleftharpoons 2\text{HI}_{(g)}$
 (3) $\text{CO}_{(g)} + \text{H}_2\text{O}_{(g)} \rightleftharpoons \text{CO}_{2(g)} + \text{H}_{2(g)}$
 (4) $2\text{BrCl}_{(g)} \rightleftharpoons \text{Br}_{2(g)} + \text{Cl}_{2(g)}$

Scan or tap for the full solution



Q.2 At a given temperature and pressure, the equilibrium constant values for the equilibria are given below:



The relation between K_1 and K_2 is :

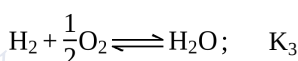
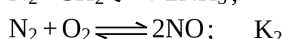
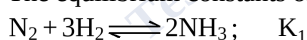
[RE-NEET (UG) 2024]

- (1) $K_1^2 = 2K_2$ (2) $K_2 = \frac{K_1}{2}$
 (3) $K_1 = \frac{1}{\sqrt{K_2}}$ (4) $K_2 = \frac{1}{\sqrt{K_1}}$

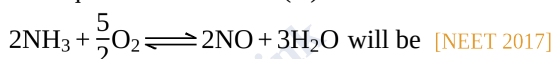
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Q.3 The equilibrium constants of the following are



The equilibrium constant (K) of the reaction :

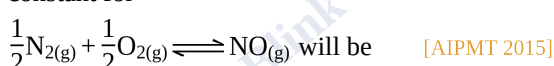


- (1) $K_2K_3^3/K_1$ (2) K_2K_3/K_1
 (3) $K_2^3K_3/K_1$ (4) $K_1K_3^3/K_2$

Scan or tap for the full solution



Q.4 If the equilibrium constant for $\text{N}_{2(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{NO}_{(g)}$ is K, the equilibrium constant for



- (1) $\frac{1}{2}K$ (2) K (3) K^2 (4) $K^{1/2}$

Scan or tap for the full solution



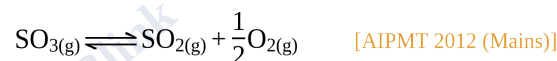
Q.5 For a given exothermic reaction, K_p and K'_p are the equilibrium constants at temperatures T_1 and T_2 , respectively. Assuming that heat of reaction is constant in temperature range between T_1 and T_2 , it is readily observed that [AIPMT 2014]

- (1) $K_p > K'_p$ (2) $K_p < K'_p$ (3) $K_p = K'_p$ (4) $K_p = \frac{1}{K'_p}$

Scan or tap for the full solution



Q.6 Given that the equilibrium constant for the reaction, $2\text{SO}_{2(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{SO}_{3(g)}$ has a value of 278 at a particular temperature. What is the value of the equilibrium constant for the following reaction at the same temperature ?

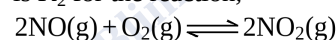


- (1) 1.8×10^{-3} (2) 3.6×10^{-3}
 (3) 6.0×10^{-2} (4) 1.3×10^{-5}

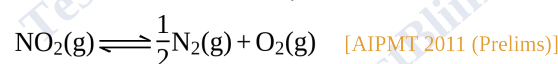
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Q.7 For the reaction, $\text{N}_2(g) + \text{O}_2(g) \rightleftharpoons 2\text{NO}(g)$, the equilibrium constant is K_1 . The equilibrium constant is K_2 for the reaction,



What is K for the reaction,

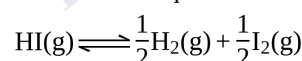


- (1) $\frac{1}{2K_1K_2}$ (2) $\frac{1}{4K_1K_2}$
 (3) $\left[\frac{1}{K_1K_2}\right]^{1/2}$ (4) $\frac{1}{K_1K_2}$

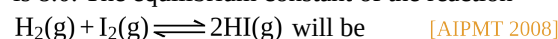
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Q.8 The value of equilibrium constant of the reaction



is 8.0. The equilibrium constant of the reaction

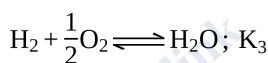
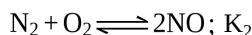
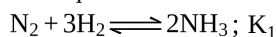


- (1) 16 (2) 1/8 (3) 1/16 (4) 1/64

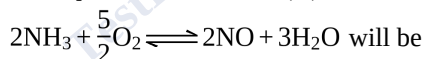
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Q.9 The equilibrium constants of the following are



The equilibrium constant (K) of the reaction:



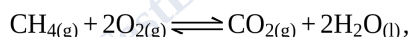
[AIPMT 2007]

- (1) $K_2K_3^3/K_1$ (2) K_2K_3/K_1
(3) $K_2^3K_3/K_1$ (4) $K_1K_3^3/K_2$

Scan or tap for the full solution



Q.10 For the reaction :



$$\Delta H_r = -890.3 \text{ kJ mol}^{-1}.$$

Which of the following statements is not true?

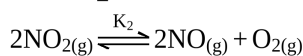
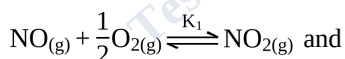
[AIPMT 2006]

- (1) The reaction is exothermic.
(2) At equilibrium, the concentrations of $\text{CO}_2(\text{g})$ and $\text{H}_2\text{O}(\text{l})$ are not equal.
(3) The equilibrium constant for the reaction is given by $K_p = \frac{[\text{CO}_2]}{[\text{CH}_4][\text{O}_2]}$
(4) Addition of $\text{CH}_4(\text{g})$ or $\text{O}_2(\text{g})$ at equilibrium will cause a shift to the right.

Scan or tap for the full solution



Q.11 Equilibrium constants K_1 and K_2 for the following equilibria:



are related as

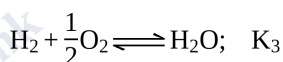
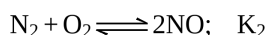
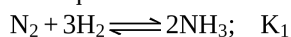
[AIPMT 2005]

- (1) $K_2 = 1/K_1^2$ (2) $K_2 = K_1^2$
(3) $K_2 = 1/K_1$ (4) $K_2 = K_1/2$

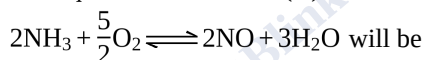
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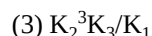
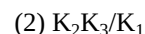
Q.12 The equilibrium constants of the following are



The equilibrium constant (K) of the reaction :



[AIPMT 2003]



Scan or tap for the full solution



Q.13 Reaction $\text{BaO}_2(\text{s}) \rightleftharpoons \text{BaO}(\text{s}) + \text{O}_2(\text{g})$; $\Delta H = + \text{ve}$. In equilibrium condition, pressure of O_2 depends on

[AIPMT 2002]

- (1) increase mass of BaO_2
(2) increase mass of BaO
(3) increase temperature on equilibrium
(4) increase mass of BaO_2 and BaO both

Scan or tap for the full solution



Q.14 For any reversible reaction, if we increase concentration of the reactants, then effect on equilibrium constant

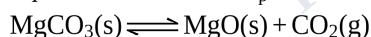
[AIPMT 2000]

- (1) depends on amount of concentration
(2) unchanged
(3) decrease
(4) increase

Scan or tap for the full solution



Q.15 Equilibrium constant K_p for following reaction



[AIPMT 2000]

$$(1) K_p = P_{\text{CO}_2}$$

$$(2) K_p = P_{\text{CO}_2} \times \frac{P_{\text{CO}_2} \times P_{\text{MgO}}}{P_{\text{MgCO}_3}}$$

$$(3) K_p = \frac{P_{\text{CO}_2} + P_{\text{MgO}}}{P_{\text{MgCO}_3}}$$

$$(4) K_p = \frac{P_{\text{MgCO}_3}}{P_{\text{CO}_2} + P_{\text{MgO}}}$$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	1	4	1	4	1	3	3	4	1	3	1
Ques.	12	13	14	15							
Ans.	1	3	2	1							