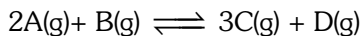


**AIPMT-Pre 2010**

1. The reaction :



is start with the concentrations of A and B both at an initial value of 1.00 M. When equilibrium is reached, the concentration of D is measured and found to be 0.25 M. The value for the equilibrium constant for this reaction is given by the expression.

- (1)  $[(0.75)^3 (0.25)] \div [(0.50)^2 (0.75)]$   
 (2)  $[(0.75)^3 (0.25)] \div [(0.50)^2 (0.25)]$   
 (3)  $[(0.75)^3 (0.25)] \div [(0.75)^2 (0.25)]$   
 (4)  $[(0.75)^3 (0.25)] \div [(1.00)^2 (1.00)]$

**AIPMT-Mains 2010**

2. In which of the following equilibrium  $K_c$  and  $K_p$  are not equal ?

- (1)  $2C_{(s)} + O_{2(g)} \rightleftharpoons 2CO_{2(g)}$   
 (2)  $2NO_{(g)} \rightleftharpoons N_{2(g)} + O_{2(g)}$   
 (3)  $SO_{2(g)} + NO_{2(g)} \rightleftharpoons SO_{3(g)} + NO_{(g)}$   
 (4)  $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$

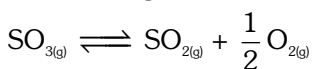
**AIPMT-Pre 2011**

3. For the reaction  $N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$ , the equilibrium constant is  $K_1$ . The equilibrium constant is  $K_2$  for the reaction  $2NO(g) + O_2(g) \rightleftharpoons 2NO_2(g)$ . What is K for the reaction  $NO_2(g) \rightleftharpoons \frac{1}{2} N_2(g) + O_2(g)$  ?

- (1)  $1/(2K_1K_2)$  (2)  $1/(4K_1K_2)$   
 (3)  $[1/K_1K_2]^{1/2}$  (4)  $1/(K_1K_2)$

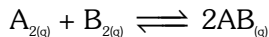
**AIPMT-Mains 2012**

4. Given that the equilibrium constant for the reaction  $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$  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)  $6.0 \times 10^{-2}$  (2)  $1.3 \times 10^{-5}$   
 (3)  $1.8 \times 10^{-3}$  (4)  $3.6 \times 10^{-3}$

5. Given the reaction between 2 gases represented by  $A_2$  and  $B_2$  to give the compound  $AB(g)$



At equilibrium, the concentration

$$\text{of } A_2 = 3.0 \times 10^{-3} \text{ M}$$

$$\text{of } B_2 = 4.2 \times 10^{-3} \text{ M}$$

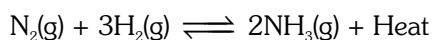
$$\text{of } AB = 2.8 \times 10^{-3} \text{ M}$$

If the reaction takes place in a sealed vessel at  $527^\circ\text{C}$ , then the value of  $K_c$  will be :-

- (1) 0.62 (2) 4.5  
 (3) 2.0 (4) 1.9

**AIPMT 2014**

6. For the reversible reaction :



The equilibrium shifts in forward direction :

- (1) By increasing the concentration of  $NH_3(g)$   
 (2) By decreasing the pressure  
 (3) By decreasing the concentrations of  $N_2(g)$  and  $H_2(g)$   
 (4) By increasing pressure and decreasing temperature

7. 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 :-

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

**AIPMT-2015**

8. If the value of an equilibrium constant for a particular reaction is  $1.6 \times 10^{12}$ , then at equilibrium the system will contain :-
- mostly reactants
  - mostly products
  - similar amounts of reactants and products
  - all reactants

**Re-AIPMT-2015**

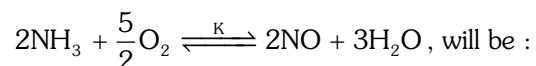
9. If the equilibrium constant for  $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}(\text{g})$  is K, the equilibrium constant for  $\frac{1}{2}\text{N}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g}) \rightleftharpoons \text{NO}(\text{g})$  will be:-
- K
  - $K^2$
  - $K^{1/2}$
  - $\frac{1}{K}$

**NEET(UG) 2017**

10. The equilibrium constant of the following are :



The equilibrium constant (K) of the reaction :



- $K_2 K_3^3 / K_1$
- $K_2 K_3 / K_1$
- $K_2^3 K_3 / K_1$
- $K_1 K_3^3 / K_2$

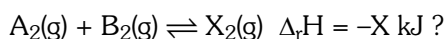
11. A 20 litre container at 400 K contains  $\text{CO}_2(\text{g})$  at pressure 0.4 atm and an excess of SrO (neglect the volume of solid SrO). The volume of the container is now decreased by moving the movable piston fitted in the container. The maximum volume of the container, when pressure of  $\text{CO}_2$  attains its maximum value, will be :-

(Given that :  $\text{SrCO}_3(\text{s}) \rightleftharpoons \text{SrO}(\text{s}) + \text{CO}_2(\text{g})$ ,  $K_p = 1.6 \text{ atm}$ )

- 10 litre
- 4 litre
- 2 litre
- 5 litre

**NEET(UG) 2018**

12. Which one of the following conditions will favour maximum formation of the product in the reaction,



- Low temperature and high pressure
- Low temperature and low pressure
- High temperature and high pressure
- High temperature and low pressure

Que.	1	2	3	4	5	6	7	8	9	10	11	12	
Ans.	1	1	3	1	1	4	1	2	3	1	4	1	