NEET · CHAPTER WISE TEST-6

CLASS :- 11 th NAMECHAPTER :- CHEMICAL EQUILIBRIUM(A) At equilibrium, concentration of reactions must be equilibrum is concentration of products.N. + $O_{1} \implies 2NO.$ For this reaction $K_{y} = 1$ (A) At equilibrium can be attained in both homogenous and heterogenous reaction.(C) 100, then K_{y} for reaction, $2NO N_{y} + O_{y}$ will be :(B) Equilibrium can be attained in both homogenous and heterogenous reaction.(C) 100, then K_{y} for reaction $2NO N_{y} + O_{y}$ will be :(A) Coracle the equilibrium is dynamic in nature(A) $0 = 1$ (B) $0 = 1$ (C) error $0 = 0$ (B) $0 = 1$ (C) 100(A) $0 = 0$ (B) $0 = 1$ (C) 100(A) $0 = 0$ (B) $0 = 1$ (C) 100(A) $0 = 0$ (B) $0 = 1$ (C) 100(A) $0 = 0$ (B) $0 = 1$ (C) 100(C) $0 = 0$ (D) All of these(C) $1 = 1$ (C) $0 = 0$ (D) All of these(C) $K_{z} = 1$ (C) $0 = 0$ (D) All of these(C) $K_{z} = 1$ (C) $0 = 0$ (D) All of these(C) $K_{z} = 1$ (C) $0 = 0$ (D) All of these(C) $K_{z} = 1$ (C) $0 = 0$ (D) All of these(C) $K_{z} = 1$ (C) $0 = 0$ (D) $2 = 0$ (D) $K_{z} = 1$ (C) $0 = 0$ (D) $2 = 0$ (D) $K_{z} = 1$ (C) $0 = 0$ (D) $2 = 0$ (D) $K_{z} = 1$ (C) $0 = 0$ (D) $2 = 0$ (D) $K_{z} = 1$ (C) $0 = 0$ (D) $2 = 0$ (D) $K_{z} = 1$ (C) $0 = 0$ (D) $2 = 0$ (D) $K_{z} = 1$ (D) $1 = 0$ (D) $2 = 0$	SUBJECT :- CHEMISTRY			DATE		
CHAPTER : CHEMICAL EQUILIBRUM(SECTION-A)(SECTION-A)(A) Which of the following statement is incorrect:(A) At equilibrium, concentration of products.(B) Equilibrium can be attained in both thomogenous and heterogenous reaction.(C) Approach to the equilibrium is fast in initial state but gradually it decreases.(D) Equilibrium is dynamic in nature(C) 10 (D) 1002. Rate of reaction curve for equilibrium can be like: [Tr, = forward rate, r, = backward rate](A) correction (B) at the corresponding equilibrium constant at 299 K SO ₂ (g) + 1/2O ₂ (g) (D) SO ₃ (g) (C) 44SO ₂ (g) (F ₂) (G) (C) area (D) All of these (C) Faraday law of ether stochometric coefficient. This statement is known as: (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 2 + 2V(g) (D) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C	CLASS :- 11 th			NAME		
1.(SECTORIA)1.Which of the following statement is incorrect: (A) At equilibrium, concentration of products. (B) Equilibrium can be attained in both homogenous and heterogenous reaction. (C) Approach to the equilibrium is fast in initial state but gradually it decreases. (D) Equilibrium is dynamic in nature7.2.Rate of reaction curve for equilibrium is fast in initial state but gradually it decreases. (D) C quilibrium is forward rate, r _k = backward rate]7.3.At equilibrium is forward reaction is proportional to active mass's of reactions (C) for a mass action (B) Le-chatelle principle (C) 4 mol/L(B) All of these ime3.At equilibrium rate of forward reaction is proportional to active mass's of reactions (C) Farazy law of electrolysis (D) Law of constant proportion(B) K ₂ = K ⁴ , (C) K ₂ = ($\frac{1}{K_1}$) ^{V/2} (D) K ₂ = $\frac{1}{K_1}$, (D) K ₂ = $\frac{1}{K_1}$, the value of K ₂ depends upon : (A) 16m ol/L(B) K = K ⁴ , (C) He mass concentration of 9 g of O ₂ (g) contained in a 2L vessel is - (A) 16 mol/L(B) K = K ⁴ , (C) 1 K5.In a reaction A(g) + B(g) ⇒ C(g) + D(g) the rate constant of forward k backward readitors are k ₁ and k ₂ respectively then the equilibrium constant (K) for reaction is expressed s - (A) K = $\frac{K_k}{k_1}$ (C) K = k ₁ , xk ₂ (C) K = k ₁ , xk ₂ 	CHAPTER :- CHEMICAL EQUILIBRIUM SECTION					
 1. Which of the following statement is incorrect: (A) At equilibrium, concentration of products. (B) Equilibrium can be attained in both homogenous and heterogenous reaction. (C) Approach to the equilibrium is fast in initial state but gradually it decreases. (D) Equilibrium can be attained in both be is: (A) contribution is dynamic in nature 2. Rate of reaction curve for equilibrium can be like : [r₁ = forward rate , r₅ = backward rate] (A) contribution is dynamic in nature (C) for effective (B) for effective (B) for eaction is proportional to active mass's of reactain the power of their stochametric coefficient. This statement is known as : (A) 16 mol/L (C) for areaction A(g) + B(g) =⇒ C(g) + D(g) the rate constant of forward & backward reactions are k, and k₂ respectively then the equilibrium constant of forward & backward reactions are k, and k₂ respectively then the equilibrium constant for the reactorin sepressed as - (A) 12Z[12X] (B) K₂ = K₁ (C) K₂ = (K₁)^{1/2} 3. At equilibrium constant of forward reaction is proportional to active mass's of reactains. (B) Le-chaelle principle (C) Farady I aw of elertrolysis (D) Law of constant proportion 4. Active mass concentration of 96 g of O₂(g) the rate constant of forward & backward reactions are k, and k₁ respectively then the equilibrium constant for the reaction is expressed as - (A) 12Z[12X] (B) K₂ = K₁ (C) K₂ K₁ (C) K₂ K₁ (D) K₂ K₁ (C) K₂ K₁ (D) K₂ K₁ (D) K₂ K₁ (D) K₂ (C) K₁ (K) (E) Level (B) (K K₁ K₂ (E) Level (B) (K K₁ K₂ (E) Level (B) (K K₁ K₂ (E) K₁ (K) (E) Level (B) (K K₁ K₂ (E) K₁ (K) (E) K₁ (K) (E) K₁ (K) (E) K₂		(SECT	ON-A)			
100, then K _p for reaction, 2NO N ₂ + O ₂ will 100, then K _p for reaction, 2NO N ₂ + O ₂ will 100, then K _p for reaction, 2NO N ₂ + O ₂ will 100, then K _p for reaction, 2NO N ₂ + O ₂ will be: (A) 0.01 (B) 0.1 (C) 10 (D) 100 100 100 100 100 100 100 100	1.	Which of the following statement is	7.	$N_2 + O_2 \implies 2NO.$ Fo	r this reaction $K_p =$	
reactants must be equal to concentration of products. (B) Equilibrium can be attained in both homogenous and heterogenous reaction. (C) Approach to the equilibrium is fast in initial state but gradually it decreases. (D) Equilibrium is drature in noting involving SO ₂ and the corresponding equilibrium constant at 299 K SO ₂ (g) + 2102 (g) \Longrightarrow SO ₂ (g) + K ₁ (A) $conc_{1} \longrightarrow (B) e_{1} \longrightarrow (D)$ All of these involving SO ₂ and the corresponding equilibrium constant at 299 K SO ₂ (g) + 220 (g) (\rightleftharpoons K = $\frac{1}{K_1}$. (A) $conc_{1} \longrightarrow (D)$ All of these involving SO ₂ and the corresponding equilibrium constant at 299 K SO ₂ (g) + 220 (g) (\rightleftharpoons SO ₂ (g) + 4120 (g) \rightleftharpoons SO ₂ (g) + 220 (g) (\circlearrowright K = $\frac{1}{K_1}$. (C) $conc_{1} \longrightarrow (D)$ All of these involving SO ₂ and the corresponding equilibrium constant at 299 K SO ₂ (g) + 220 (g) (\rightleftharpoons K = $\frac{1}{K_1}$. (C) $conc_{1} \longrightarrow (D)$ All of these involving SO ₂ and the corresponding equilibrium constant are related by: (A) $conc_{1} \longrightarrow (D)$ All of these involving SO ₂ (g) (\rightleftharpoons K = $\frac{1}{K_1}$. (C) $conc_{1} \longrightarrow (D)$ All of these involving SO ₂ (g) (\circlearrowright K = $\frac{1}{K_1}$. (C) $K_2 = (\frac{1}{K_1})^{V_4}$ (D) $K_2 = K_1^*$. (A) $K_2 = \frac{1}{K_1}$. (B) Le-chatelie principle (C) Farady Iaw of electrolysis (D) Law of constant proportion (D) Law of constant of forward k backward reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as – (A) $K = \frac{k_2}{K_1}$ (B) $K = \frac{k_1}{K_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ (B) $N_2(g) \rightarrow 21/2(g)$ (E) $N_2(g) \rightarrow 22/2(g)$ (E) $N_2(g) \rightarrow 21/2(g)$ (C) $H_2(g) + C_2(g) \rightleftharpoons 21/2(g)$ (D) $2SO_2(g) + C_2(g) \rightleftharpoons 22SO_3(g)$ 12. For hypothetical equilibrium, AA(g) + 5B(g) $\rightleftharpoons 4X(g) + 6Y(g)$ The unit of K_1 will be : (A) $\frac{ Z }{ Z } (Y)^2$ (D) $\frac{ Z ^2}{ X } (Y)^2$ (C) $ Itre mole^{-1}$ (B) mole litre ⁻¹ (C) mole ⁻¹ (D) mole ⁻¹ ((A) At equilibrium, concentration of		100, then K_p for reaction, 2NO N_2 + O_2 will		
b) products. (a) Equilibrium can be attained in both homogenous and heterogenous reaction. (c) Approach to the equilibrium is fast in initial state but gradually it decreases. (d) Equilibrium is dynamic in nature 2. Rate of reaction curve for equilibrium can be like : $[r_1 = \text{forward rate}, r_y = \text{backward rate}]$ (a) $conc_{und} (B) = \frac{1}{2}$ (b) $Equilibrium rate of forward rate, r_y = backward rate] (c) conc_{und} (D) All of these(c) conc_{und} (D) All of the eaction is conc_{und} (D) All of the eacti$		reactants must be equal to concentration		be :		
homogenous and heterogenous reaction. (C) Approach to the equilibrium is fast in initial state but gradually it decreases. (D) Equilibrium is dynamic in nature 2. Rate of reaction curve for equilibrium can be like: $[r_1 = forward rate , r_2 = backward rate]$ (A) $condition (B) = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$		(B) Equilibrium can be attained in both		(A) 0.01	(B) 0.1	
(c) Approach to the equilibrium is fast in initial state but gradually it decreases. (d) Equilibrium is dynamic in nature 2. Rate of reaction curve for equilibrium can be like: $[r_1 = forward rate, r_5 = backward rate]$ (a) $core \int_{1}^{1} (B) = c \int_{1}^{1} ($		homogenous and heterogenous reaction.		(C) 10	(D) 100	
(b) Equilibrium is dynamic in nature (c) Equilibrium is dynamic in nature 2. Rate of reaction curve for equilibrium can be like : $[r_1 = forward rate , r_5 = backward rate] (A) consider the two gaseous equilibrium (B) constant (C) constant (C) and (C) constant (C) (C) constant (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)$		(C) Approach to the equilibrium is fast in initial state but gradually it decreases				
2. Rate of reaction curve for equilibrium can be like : [r, = forward rate, r, = backward rate] (A) core (A) (B) (B) (C) (B) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C		(D) Equilibrium is dynamic in nature	8.	Consider the two ga	seous equilibrium	
2. There of the scalar of curve for equilibrium can be like: If, = forward rate, r ₀ = backward rate] (A) correspondence for the scalar	2	Rate of reaction curve for equilibrium can		involving SO ₂ and	the corresponding	
rate] (A) $cond_{true}$ (B) $cond_{true}$ (C) $cond_{true}$ (D) All of these (C) $K_2 = (\frac{1}{K_1})^{1/4}$ (D) $K_2 = K_1^4$ (C) $K_2 = (\frac{1}{K_1})^{1/4}$ (D) $K_2 = \frac{1}{K_1}$ (D) $K_2 = \frac{1}{K_1}$ (D	2.	be like : $[r_f = forward rate , r_h = backward$		equilibrium constant at	299 K SO ₂ (g) +	
(A) $\operatorname{core}_{\operatorname{Une}}$ (B) $\operatorname{exp}_{\operatorname{U}}$ (D) All of these (C) $\operatorname{core}_{\operatorname{Une}}$ (D) All of these (C) $\operatorname{K_2} = (\frac{1}{(K_1)^4}$ (D) $\operatorname{K_2} = K_1^4$ (C) $\operatorname{K_2} = (\frac{1}{(K_1)^4}$ (D) $\operatorname{K_2} = \frac{1}{K_1}$ (C) $\operatorname{K_2} = (\frac{1}{(K_1)^4}$ (D) $\operatorname{K_2} = \frac{1}{K_1}$ (C) $\operatorname{K_2} = (\frac{1}{(K_1)^4}$ (D) $\operatorname{K_2} = \frac{1}{K_1}$ (D) Lev of the statement is known as : (A) Law of mass action (B) Le-chatelie principle (C) Faraday law of electrolysis (D) Law of constant proportion 4. Active mass concentration of 96 g of O_2(g) contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 24 mol/L (C) 4 mol/L (B) 24 mol/L (C) 4 mol/L (B) 22 to mol/L (C) 4 mol/L (B) 22 to mol/L (C) 4 mol/L (B) 24 mol/L (C) 4 mol/L (B) 24 mol/L (C) 1 K (D) 12.19 K 11. For which reaction is $\operatorname{K_p} = \operatorname{K_c}$: (A) 2 NOCl(g) $\rightleftharpoons 2NO(g) + \operatorname{Cl}(g)$ (B) N ₂ (g) + 3H ₂ (g) $\rightleftharpoons 2NO(g) + \operatorname{Cl}(g)$ (B) N ₂ (g) + 2Y(g) $\longrightarrow 2Z(g)$ is given as : (A) $\frac{ ZX }{ ZZ }$ (B) $\frac{ X }{ X }$ (M) (C) $\frac{ Z ^2}{ X ^2}$ (D) $\frac{ Z ^2}{ X }$ (P) (D) $\frac{ Z ^2}{ X }$ (P) $\frac{ Z ^2}{ X }$ (D) $\frac{ Z ^2}{ X }$ (P) (D) $\frac{ Z ^2}{ X }$ (D) $\frac{ Z ^2}{ X }$		rate]		$1/2O_2(g) \Longrightarrow SO_3(g)$);K ₁	
(A) $\overset{\text{conc.}}{\underset{\text{unne}}{\underset{unne}}{\underset{unne}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}$				$4SO_3(g) \Longrightarrow 4SO_2(g)$	(g) + 2O ₂ (g) ; K ₂	
related by: (C) $conc.$ (D) All of these (C) $conc.$ (D) $conc.$ (E) $conc.$		(A) ^{conc.} (B) ^{conc.}		The value of the equili	brium constant are	
(C) $conc_{une}$ (D) All of these (C) $conc_{une}$ (D) All of these (D) All of these (E) $race (1) race (1)$		time time		related by :		
(C) $corc_{unne}$ (D) All of these (C) $corc_{unne}$ (D) All of these (C) $K_2 = \left(\frac{1}{K_1}\right)^{1/4}$ (D) $K_2 = \frac{1}{K_1}$ (C) $K_2 = \left(\frac{1}{K_1}\right)^{1/4}$ (D) $K_2 = \frac{1}{K_1}$ (D) $K_2 = \frac{1}{K_1}$ (C) $K_2 = \left(\frac{1}{K_1}\right)^{1/4}$ (D) $K_2 = \frac{1}{K_1}$ (D) $K_2 = \frac{1}{K_1}$ (C) $K = \frac{1}{K_1}$ (C) $K = \frac{1}{K_1}$ (D) $K = \frac{1}{K_2}$ (C) $K = \frac{1}{K_1}$ (D) $K = \frac{1}{K_2}$ (D) $K = \frac{1}{K_2}$ (C) $K = \frac{1}{K_1}$ (D) $K = \frac{1}{K_2}$ (D) $K = \frac{1}{K_2}$ (C) $K = \frac{1}{K_1}$ (D) $K = \frac{1}{K_2}$ (D) $K = \frac{1}{K_2}$ (C) $K = \frac{1}{K_1}$ (D) $K = \frac{1}{K_2}$ (D) $K = \frac{1}{K_2}$ (D) $K = \frac{1}{K_2}$ (D) $K = \frac{1}{K_2}$ (C) $\frac{1}{K_1}$ (D) 1				(A) $K_2 = \frac{1}{(K_2)^4}$	(B) $K_2 = K_1^4$	
3. At equilibrium rate of forward reaction is proportional to active mass's of reactants with the power of their stochiometric coefficient. This statement is known as : (A) Law of mass action (B) Le-chatelie principle (C) Faraday law of electrolysis (D) Law of constant proportion 4. Active mass concentration of 96 g of O ₂ (g) contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L 5. In a reaction A(g) + B(g) \rightleftharpoons C(g) + D(g) the rate constant of forward & backward reactions are k ₁ and k ₂ respectively then the equilibrium constant (K) for reaction is expressed as - (A) $\frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = \frac{k_1}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = \frac{k_1}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = \frac{k_1}{k_1}$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[X]}$ (M) $\frac{[X]}{[X]}$ (D) $\frac{[Z]^2}{[X]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D)		(C) ^{conc.} (D) All of these		- (K ₁) ⁻		
 At equilibrium rate of forward reaction is proportional to active mass's of reactants with the power of their stoichiometric coefficient. This statement is known as : (A) Law of mass action (B) Le-chatelie principle (C) Faraday law of electrolysis (D) Law of constant proportion Active mass concentration of 96 g of O₂(g) contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L 5. In a reaction A(g) + B(g) ⇒ C(g) + D(g) the rate constant of forward & backward reactions are k₁ and k₂ respectively then the equilibrium constant (K) for reaction is expressed as - (A) K = ^k/_{k₁} (C) K = k₁ x k₂ (D) K = k₁ + k₂ 6. The equilibrium constant for the reaction 2X(g) + 2Y(g) → 2Z(g) is given as : (A) ^[2X] ^[2Y] [2Z] (B) ^[X] ^[Y] [Y] 6. The equilibrium constant for the reaction 2X(g) + 2Y(g) → 2Z(g) is given as : (A) ^[2X] ^[2Y] [Y]² (D) ^{[Z]²} [X] ^[Y] [Y] 6. The equilibrium constant for the reaction 2X(g) + 2Y(g) → 2Z(g) is given as : (A) ^[2X] ^[2Y] [Y]² (D) ^{[Z]²} [X] ^[Y] 6. The equilibrium constant for the reaction 2X(g) + 2Y(g) → 2Z(g) is given as : (A) ^[2X] ^[2Y] [Y]² (D) ^{[Z]²} [X] ^[Y] 		time		(C) $K_2 = \left(\frac{1}{1}\right)^{1/4}$	(D) $K_2 = \frac{1}{2}$	
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with the power of their stoichiometric coefficient. This statement is known as : (A) Law of mass action (B) Le-chatelie principle (C) Faraday law of electrolysis (D) Law of constant proportion 4. Active mass concentration of 96 g of $O_2(g)$ contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 24 mol/L 5. In a reaction A(g) + B(g) \rightleftharpoons $C(g) + D(g)$ the rate constant of forward & backward reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as - (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 x k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[ZZ]}$ (B) $\frac{[X]}{[X]}$ (Y) (C) $\frac{[Z]^2}{[X]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D) $[$	0.	proportional to active mass's of reactants	•			
(A) Law of mass action (B) Le-chatelie principle (C) Faraday law of electrolysis (D) Law of constant proportion (A) Active mass concentration of 96 g of O ₂ (g) contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 24 mol/L (C) 4 mol/L (D) 24 mol/L (C) 1 K (D) 12.19 K 11. For which reaction is $K_p = K_c$: (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ (C) $\frac{[Z]^2}{[ZZ]}$ (B) $\frac{[X] [Y]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]$		with the power of their stoichiometric	9.	For a reaction N_2 + 3r	$\Pi_2 \rightleftharpoons 2 \Pi_3$, the	
(B) Le-chatelie principle (C) Faraday law of electrolysis (D) Law of constant proportion 4. Active mass concentration of 96 g of O ₂ (g) contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L 5. In a reaction A(g) + B(g) \implies C(g) + D(g) the rate constant of forward & backward reactions are k ₁ and k ₂ respectively then the equilibrium constant (K) for reaction is expressed as - (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[X]}$ (Y) (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D) $\frac{[Z]^2}$		(A) Law of mass action		(A) Initial concentration	of the reactants	
(C) Painday law of effectivitys (D) Law of constant proportion 4. Active mass concentration of 96 g of $O_2(g)$ contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L 5. In a reaction A(g) + B(g) \rightleftharpoons C(g) + D(g) the rate constant of forward & backward reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as - (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[X]}$ (Y) (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D)		(B) Le-chatelie principle		(B) Pressure	or the reactants	
4. Active mass concentration of 96 g of $O_2(g)$ contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L 5. In a reaction A(g) + B(g) \rightleftharpoons C(g) + D(g) the rate constant of forward & backward reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as - (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[X]}$ (Y] (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$		(C) Faladay law of electrolysis (D) Law of constant proportion		(C) Temperature		
4. Active mass concentration of 96 g of O ₂ (g) contained in a 2 L vessel is - (A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L 5. In a reaction A(g) + B(g) ⇒ C(g) + D(g) the rate constant of forward & backward reactions are k ₁ and k ₂ respectively then the equilibrium constant (K) for reaction is expressed as - (A) K = $\frac{k_2}{k_1}$ (B) K = $\frac{k_1}{k_2}$ (C) K = k ₁ x k ₂ (D) K = k ₁ + k ₂ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]^2}$ (D) $\frac{[Z]^2}{[X]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [X] [X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [X] [X] [X] [X] [X] [X] [X] [X] [X] $				(D) catalyst		
(A) 16 mol/L (B) 1.5 mol/L (C) 4 mol/L (D) 24 mol/L (D) 24 mol/L (E) 4 mol/L (D) 24 mol/L (G) 2 mol/L (E) 4 mol/L (D) 24 mol/L (E) 4 mol/L (D	4.	Active mass concentration of 96 g of $O_2(g)$	10	For the following gase	s equilibrium NO	
(C) 4 mol/L (D) 24 mol/L (D) 24 mol/L (D) 24 mol/L (D) 273 K (C) 1 K (D) 12.19 K (D) 2 NOCl(g) $\rightleftharpoons 2NO(g) + Cl_2(g)$ (D) $2 NOCl(g) \rightleftharpoons 2NO(g) + Cl_2(g)$ (D) $2 NOCl(g) \rightleftharpoons 2NO(g) + Cl_2(g)$ (D) $2 SO_2(g) + O_2(g) \rightleftharpoons 2NH_3(g)$ (C) $H_2(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D) $[Z$		(A) 16 mol/L (B) 1.5 mol/L		$(a) \implies 2NO_{a}(a)$, K is	s found to be equal	
5. In a reaction $A(g) + B(g) \rightleftharpoons C(g) + D(g)$ the rate constant of forward & backward reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as – (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D) $[Z$		(C) 4 mol/L (D) 24 mol/L		to K. This is attained w	hen :	
the rate constant of forward & backward reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as – (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[Z]}$ (B) $\frac{[X]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{(C)}{(C)} \frac{(C)}{(C)} (C)$	5.	In a reaction $A(g) + B(g) \Longrightarrow C(g) + D(g)$		(A) o°C	(B) 273 K	
reactions are k_1 and k_2 respectively then the equilibrium constant (K) for reaction is expressed as – (A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[X]}$ (Y) (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D) $[Z]^2$		the rate constant of forward & backward		(C) 1 K	(D) 12.19 K	
$\begin{array}{llllllllllllllllllllllllllllllllllll$		the equilibrium constant (K) for reaction is	44	For which reaction is K	- K	
(A) $K = \frac{k_2}{k_1}$ (B) $K = \frac{k_1}{k_2}$ (C) $K = k_1 x k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[X]} \frac{[Y]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X]} \frac{[Y]}{[Y]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{[Z]^2}{[X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{[Z]^2}{[X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{[Z]^2}{[X] [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{[Z]^2}{[X] [Y]^2}$ (E) $\frac{[Z]^2}{[X] [Y]}$		expressed as –	11.	For which reaction is R_p	$r_{\rm C} = r_{\rm C}$	
6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g) \text{ is given as :}$ $(A) \frac{[2X]}{[2Z]} (B) \frac{[X]}{[Z]} (B) \frac{[X]}{[Z]} (D) \frac{[Z]^2}{[X] [Y]} (D) \frac{[Z]^2}{[X] [Y]}$ $(C) \frac{[Z]^2}{[X]^2 [Y]^2} (D) \frac{[Z]^2}{[X] [Y]}$ $(C) \frac{[Z]^2}{[X]^2 [Y]^2} (D) \frac{[Z]^2}{[X] [Y]}$ $(C) \frac{[Z]^2}{[X] [Y]^2} (D) \frac{[Z]^2}{[X] [Y]}$		(A) $K = \frac{K_2}{R_2}$ (B) $K = \frac{K_1}{R_1}$		(A) \geq NOCI(g) \leftarrow \geq 2NOCI(g) \leftarrow	$2(g) + Ci_2(g)$	
(C) $K = k_1 \times k_2$ (D) $K = k_1 + k_2$ 6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X]}{[2Z]}$ (B) $\frac{[X]}{[Z]}$ (B) $\frac{[X]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X]}$ (D) $\frac{[Z]^2}{[X]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$		k_1 k_2		(C) $H_2(g) + CL(g) \longrightarrow$	2HCl(a)	
6. The equilibrium constant for the reaction $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X] [2Y]}{[2Z]}$ (B) $\frac{[X] [Y]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (E) $\frac{[Z]^2}{[X] [X]}$ (E) $\frac{[Z]^2}{[X] [X]}$ (E) $\frac{[Z]^2}{[X] [X]}$ (E) $\frac{[Z]^2}{[X] [X]}$ (E) $\frac{[Z]^2}{[X] [X]}$ (E) $\frac{[Z]^2}{[X] [X]}$ (E) $\frac{[Z]^2}{[X]}$ (E)		(C) $K = k_1 x k_2$ (D) $K = k_1 + k_2$		$(D) 2SO_{2}(a) + O_{2}(a) =$	$\Rightarrow 2SO_{a}(a)$	
12. For hypothetical equilibrium, $4A(g) + 5B(g)$ $2X(g) + 2Y(g) \longrightarrow 2Z(g)$ is given as : (A) $\frac{[2X] [2Y]}{[2Z]}$ (B) $\frac{[X] [Y]}{[Z]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (D) $\frac{[Z]^2}{[X] [Y]}$	6	The equilibrium constant for the reaction			3(0)	
$(A) \frac{[2X]}{[2Z]} (B) \frac{[X]}{[Z]} (B) \frac{[X]}{[Z]} (C) \frac{[Z]^2}{[X]^2 [Y]^2} (D) \frac{[Z]^2}{[X] [Y]} (D) $	0.	$2X(q) + 2Y(q) \longrightarrow 2Z(q)$ is given as :	12.	For hypothetical equilibrium, 4A(g) + 5B(g)		
$(A) \underbrace{[2Z]}_{[2Z]} \qquad (B) \underbrace{[Z]}_{[Z]} \qquad The unit of K_c will be :$ $(C) \underbrace{[Z]^2}_{[X]^2 [Y]^2} \qquad (D) \underbrace{[Z]^2}_{[X] [Y]} \qquad (A) \text{ litre mole}^{-1} \qquad (B) \text{ mole litre}^{-1} \qquad (C) \text{ litre mole}^{-2} \qquad (D) \text{ mole}^2 \text{ litre}^{-2}$	(a) [2X] [2Y] (b) [X] [Y]			→ 4X(g) +6Y(g)		
(C) $\frac{[Z]^2}{[X]^2 [Y]^2}$ (D) $\frac{[Z]^2}{[X] [Y]}$ (A) litre mole ⁻¹ (B) mole litre ⁻¹ (C) litre mole ⁻² (D) mole ² litre ⁻²		(A) $\frac{1}{[2Z]}$ (B) $\frac{1}{[Z]}$		The unit of $\mathbf{K}_{\mathbf{c}}$ will be :		
$(C) \frac{(C)}{[X]^2 [Y]^2} \qquad (D) \frac{(D)}{[X] [Y]} \qquad (C) \text{ litre mole}^2 \qquad (D) \text{ mole}^2 \text{ litre}^2$		$(C) [Z]^2 (D) [Z]^2$		(A) litre mole ⁻¹	(B) mole litre ⁻¹	
PC #1		$(U) \frac{1}{[X]^2 [Y]^2} \qquad (U) \frac{1}{[X] [Y]}$		(C) litre mole ⁻²	(D) mole ² litre ⁻²	

- **13.** $PCI_{5}(g) \longrightarrow PCI_{3}(g) + CI_{2}(g)$ In above reaction, at equilibrium condition mole fraction of PCI_{5} is 0.4 and mole fraction of CI_{2} is 0.3. Then find out mole fraction of PCI_{3} $PCI_{5}(g) \longrightarrow PCI_{3}(g) + CI_{2}(g)$
 - $\begin{array}{c|c} (A) & 0.3 \\ (C) & 0.4 \end{array} \quad \begin{array}{c} (B) & 0.7 \\ (D) & 0.6 \end{array}$
- **15.** In the reaction $2P(g) + Q(g) \rightleftharpoons 3R(g) + S(g)$. If 2 moles each of P and Q taken initially in a 1 litre flask. At equilibrium which is true : (A) [P] < [Q] (B) [P] = [Q] (C) [Q] = [R] (D) None of these
- **16.** $K_c = 9$ for the reaction, $A + B \rightleftharpoons C + D$, If A and B are taken in equal amounts, then ratio of C to A at equilibrium is : (A) 1 (B) 0.25 (C) 0.75 (D) None of these
- **17.** 1 mole of N_2 and 2 moles of H_2 are allowed to react in a 1 dm³ vessel. At equilibrium, 0.8 mole of NH_3 is formed. The concentration of H_2 in the vessel is : (A) 0.6 mol/L (B) 0.8 mol/L (C) 0.2 mol/L (D) 0.4 mol/L
- **18.** $PCl_5 \rightleftharpoons PCl_3 + Cl_2$ in the reversible reaction the moles of PCl_5 , PCl_3 and Cl_2 are a, b and c at equilibrium respectively and total pressure is P then value of K_0 is :

(A)
$$\frac{bc}{a}$$
.RT
(B) $\frac{b}{(a+b+c)}$.P
(C) $\frac{bc.P}{a (a+b+c)}$
(D) $\frac{c}{(a+b+c)}$.P

19. For the reaction $A_2(g) + 3B_2 \implies 2C_2(g)$ the partial pressure of A_2 , B_2 at equilibrium are 0.80 atm and 0.40 atm respectively. The pressure of the system is 2.80 atm. The equilibrium constant K_p will be (A) 50 (B) 5.0 (C) 0.02 (D) 0.2

- 20. When two reactants, A & B are mixed to give products C & D, the reaction quotient Q, at the initial stages of the reaction :
 (A) is zero
 (B) decrease with time
 (C) is independent of time
 (D) increases with time
 21. The reaction quotient Q for
 - **21.** The reaction quotient Q for $N_2(g) + 3H_2(g) \implies 2NH_3(g)$ is given by $Q = \frac{[NH_3]^2}{[N_2][H_2]^3}$. The reaction will proceed in backward direction, when (A) $Q = K_c$ (B) $Q < K_c$ (C) $Q > K_c$ (D) A = 0
- 22. A reaction mixture containing H_2 , N_2 and NH_3 has partial pressure 2 atm, 1 atm and 3 atm respectively at 725 K. If the value of K_p for the reaction, $N_2 + 3H_2 \rightleftharpoons 2NH_3$ is 4.28×10^{-5} atm⁻² at 725 K, in which direction the net reaction will go :
 - (A) Forward
 - (B) Backward
 - (C) No net reaction
 - (D) Direction of reaction cannot be predicted
- 23. For the reaction, 2A + B → 3C at 298 K, K_c = 49 A 3L vessel contains 2, 1 and 3 moles of A, B and C respectively. The reaction at the same temperature (A) must proceed in forward direction (B) must proceed in backward direction (C) must be equilibrium (D) can not be predicted
- 24. The dissociation of CO_2 can be expressed as $2CO_2 \rightleftharpoons 2CO + O_2$. If the 2 moles of CO_2 is taken initially and 40% of the CO_2 is dissociated equilibrium then total number of moles at equilibrium : (A) 2.4 (B) 2.0 (C) 1.2 (D) 5
- **25.** In a 0.25 litre tube dissociation of 4 moles of NO is take place. If its degree of dissociation is 10%. The value of K_p for reaction 2NO $\implies N_2 + O_2$ is :

(A)
$$\frac{1}{(18)^2}$$
 (B) $\frac{1}{(8)^2}$
(C) $\frac{1}{16}$ (D) $\frac{1}{32}$

PG #2

26. What will be the amount of dissociation, if the volume is increased 16 times of initial volume in the reaction $PCl_5 \implies PCl_3 + Cl_2$? (Assume

dissociation is negligible) (A) 4 times (B) $\frac{1}{4}$ times (C) 2 times (D) $\frac{1}{5}$ times

- 27. For $NH_4HS(s) \implies NH_3(g) + H_2S(g)$ reaction started only with $NH_4HS(s)$, the observed pressure for reaction mixture in equilibrium is 1.2 atm at 106°C. What is the value of K_P for the reaction ? (A) 1.44 atm² (B) 0.36 atm² (C) 0.16 atm² (D) 3.6 atm²
- **29.** In an equilibrium reaction for which $\Delta G^{\circ} = 0$, the value of equilibrium constant K = is (A) 0 (B) 1 (C) 2 (D) 10
- **30.** The effect of temperature on equilibrium constant is expressed as $(T_2 > T_1) \log K_2$ /

 $\log K_1 = \frac{\Delta H}{2.303 R} \left[\frac{1}{T_1} - \frac{1}{T_2} \right]$. For

endothermic reaction false statement is

(A)
$$\left\lfloor \frac{1}{T_2} - \frac{1}{T_1} \right\rfloor$$
 = positive
(B) ΔH = positive
(C) log K₂ > log K₁
(D) K₂ > K₁

- **31.** The equilibrium constant for the reaction $Br_2 \rightleftharpoons 2Br$ at 500 K and 700 K are 1 × 10^{-10} and 1 × 10^{-5} respectively. The reaction is : (A) Endothermic (B) Exothermic
 - (C) Fast (D) Slow
- **32.** For the reaction $CO(g) + H_2O(g) \rightleftharpoons$ $CO_2(g) + H_2(g)$ at a given temperature the equilibrium amount of CO_2 (g) can be increased by : (A) adding a suitable catalyst
 - (B) adding an inert gas
 - (C) decreasing the volume of container
 - (D) increasing the amount of CO(g)
- 33. Given the following reaction at equilibrium $N_2(g) + 3H_2(g) \implies 2NH_3(g)$. Some inert gas at constant pressure is added to the system. Predict which of the following facts will be affected. (A) More NH₃(g) is produced (B) Less NH₃(g) is produced (C) No affect on the equilibrium (D) $K_{_{D}}$ of the reaction is decreased 34. Introduction of inert gas (at the same temperature) will affect the equilibrium if : (A) volume is constant and $\Delta n_a \neq 0$ (B) pressure is constant and $\Delta n_a \neq 0$ (C) volume is constant and $\Delta n_a = 0$ (D) pressure is constant and $\Delta n_a = 0$ 35. Consider the reactions (i) $PCl_{5}(g) \Longrightarrow PCl_{3}(g) + Cl_{2}(g)$ (ii) $N_2O_4(g) \Longrightarrow 2NO_2(g)$ The addition of an inert gas at constant volume (A) will increase the dissociation of PCI_{5} as well as N₂O₄ (B) will reduce the dissociation of PCI₅ as well as N₂O₄ (C) will increase the dissociation of PCI₅ and step up the formation of NO₂ (D) will not disturb the equilibrium of the reactions (SECTION-B) 36. Vapour density of equilibrium $PCI_{5}(g)$ \longrightarrow PCl₃(g) + Cl₂(g) is decreased by (A) increasing temperature (B) decreasing volume (C) increasing pressure (D) decreasing temperature 37. For the reaction : $PCl_5(g) \Longrightarrow PCl_3(g) +$ $Cl_2(g)$ The backward reaction at constant temperature is favoured by (A) introducing chlorine gas at constant
 - (A) introducing chlorine gas at constant volume
 - (B) introducing an inert gas at constant pressure
 - (C) increasing the volume of the container (D) introducing PCl_5 at constant volume

38. For the reaction, $\frac{1}{2}$ N₂(g) + $\frac{1}{2}$ O₂(g) \implies NO(g)

If pressure is increased by reducing the volume of the container then :

(A) Degree of dissociation at equilibrium will change.

(B) Concentration of all the component at equilibrium will change.

(C) Concentration of all the component at equilibrium will remain same(D) Equilibrium will shift in the forward

direction

- When hydrogen molecules decomposed into its atoms which conditions give maximum yield of hydrogen atoms ?
 (A) High temperature and low pressure
 (B) Low temperature and high pressure
 (C) High temperature and high pressure
 - (D) Low temperature and low pressure
- 40. A gas 'X' when dissolved in water heat is evolved. Then solublity of 'X' will increase :
 (A) Low pressure, high temperature
 (B) Low pressure, low temperature
 (C) high pressure, high temperature
 (D) high pressure, low temperature

41. For an equilibrium
$$H_2O(s) \rightleftharpoons H_2O(\ell)$$

which of the following statements is true.

(A) The pressure changes do not affect the equilibrium

(B) More of ice melts if pressure on the system is increased

(C) More of liquid freezes if pressure on the system is increased

(D) The degree of advancement of the reaction do not depend on pressure.

1

42. For $N_2 + 3H_2 2NH_3$ equilibrium constant is K then equilibrium constant for $2N_2 + 6H_2$ $\implies 4NH_3$:

(A)
$$\sqrt{K}$$
 (B) K^{2}
(C) $\frac{K}{2}$ (D) $\sqrt{\frac{1}{K}}$ +

43. Equilibrium constant for following reactions respectively K_1 , K_2 and K_3

$$N_2 + 3H_2 \Longrightarrow 2NH_3$$

 K_1
 $N_2 + O_2 \rightleftharpoons 2NO$
 K_2

$$H_{2} + \frac{1}{2} O_{2} \Longrightarrow H_{2}O$$

$$K_{3}$$

$$2NH_{3} + \frac{5}{2} O_{2} \Longrightarrow 2NO + 3H_{2}O$$

$$K_{4}$$

Which of the following relation is incorrect.

(A)
$$K_1 = \frac{K_2 \times (K_3)^3}{K_4}$$

(B) $K_4 = K_1 \times K_2 / (K_3)^3$
(C) $K_2 = \frac{K_4 \times K_1}{(K_3)^3}$
(D) $K_4 = \frac{K_2 \times (K_3)^3}{K_1}$

44. For the reaction $CuSO_4.5H_2O(s) \iff CuSO_4.3H_2O(s) + 2H_2O(g)$ Which one is correct representation :

(A)
$$K_{P} = (P_{H_{2}O})^{2}$$
 (B) $K_{C} = [H_{2}O]^{2}$
(C) $K_{P} = K_{C}(RT)^{2}$ (D) All

45. Vapour density of PCI_5 is 104.16 but when heated to 230°C its vapour density is reduced to 62.. The degree of dissociation of PCI_5 at this temperature will be : (A) 6.8 % (B) 68% (C) 46% (D) 64%

46. Match column–I having reactions with column–II having conditions.
 Column I

(a) $2NH_{3(g)} \Longrightarrow N_{2(g)} + 3H_{2(g)}$ (b) $2HI_{(g)} \Longrightarrow H_{2(g)} + I_{2(g)}$ (c) $2(CH_{3}COOH)_{(g)} \Longrightarrow (CH_{3}COOH)_{2(g)}$

Column II

(p) Extent of reaction will not increase with increase in pressure.

(q) Concentration of products will increase with increase in temperature.

(r) Increase in volume will increase moles of reactant.

(s) Introduction of inert gas at constant pressure will shift equilibrium to the product side.

- (A) (a) p, s (b) p, q, r (c) r, s
- (B) (a) p,q,s (b) p, q (c) r
- (C) (a) p,q (b) q, r (c) r, s
- (D) (a) s (b) p,s (c) r

- 47. A: The reaction quotient, Q has the same form as the equilibrium constant K_{eq} , and is evaluated using any given concentrations of the species involved in reaction. and the not necessarily equilibrium concentrations. **R** : If the numerical value of Q is not the same as the value of equilibrium constant, a reaction will occur. (A) A is True, R is True; R is a correct explanation for A. (B) A is True, R is True; R is NOT a correct explanation for A. (C) A is True, R is False. (D) A is False, R is True.
- **48.** A : For $PCI_{s}(g) \Longrightarrow PCI_{s}(g) + CI_{2}(g)$. If more CI_{2}

is added the equilibrium will shift in backward direction hence equilibrium constant will decrease.

R : Addition of inert gas to the equilibrium mixture at constant volume, does not alter the equilibrium.

(A) A is True, R is True; R is a correct explanation for A.

(B) A is True, R is True; R is NOT a correct explanation for A.

(C) A is True, R is False.

(D) A is False, R is True.

49. A : The catalyst does not alter the equilibrium constant.
R : For the catalysed reaction and uncatalysed reaction ΔH remains same and equilibrium constant depends on ΔH.
(A) A is True, R is True; R is a correct explanation for A.
(B) A is True, R is True; R is NOT a correct explanation for A.
(C) A is True, R is False.
(D) A is False, R is True.

50. A : For the reaction at certain temperature

 $A(g) + B(g) \longrightarrow C(g)$ there will be no effect by addition of inert gas at constant volume.

R : Molar concentration of all gases remains constant.

(A) A is True, R is True; R is a correct explanation for A.

(B) A is True, R is True; R is NOT a correct explanation for A.

(C) A is True, R is False.

(D) A is False, R is True.