

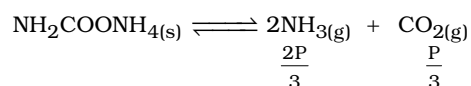
Daily Tutorial Sheet-2

Level-1

16.(A) Equilibrium constant depends on temperature only.

$$\mathbf{17.(C)} \quad K_c = \frac{[PCl_3][Cl_2]}{[PCl_5]} = \frac{\frac{0.4}{4} \times \frac{0.4}{4}}{\frac{1.2}{4}} = \frac{0.4^2}{4 \times 1.2} = \frac{0.4}{12} = \frac{4}{10 \times 12} = 0.033$$

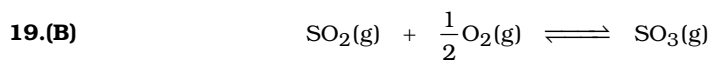
18.(B) Let the total pressure at equilibrium be P



$$K_P = \frac{4P^3}{27} = 2.9 \times 10^{-5}$$

$$P^3 = \frac{27}{4} \times 2.9 \times 10^{-5} = 195 \times 10^{-6}$$

$$\text{Hence } P = 0.0582$$



	4	4	0
t = 0			
t = t _{eq}	2	3	2

20.(B) $K_P = K_C (RT)^{\Delta n_g}$

Since Δn_g is -ve

$$K_P = K_C (RT)^{+\Delta n_g}$$

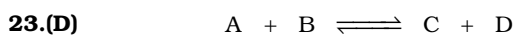
21.(B) Use $K_P = K_C (RT)^{\Delta n_g}$



	1	2	0
Initial			
at eqbm.	1 - x	2 - x	2x

$$50 = \frac{4x^2}{(1-x)(2-x)}$$

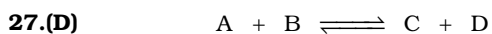
Amount of AB at equilibrium is 2x.



	100	100	0	0
Initial				
At eqbm.	33.33	33.33	66.66	66.66

$K_c = 4$

24.(B) $K_P = \frac{K_C}{(RT)^2}$ Since $\Delta n_g = -2$ **25.(A)** K_C changes with temperature only **26.(A)** $K_P = P_{O_2}$



	a	a	0	0
at t = 0				
t = t _{eq}	$\frac{2a}{3}$	$\frac{2a}{3}$	$\frac{a}{3}$	$\frac{a}{3}$

$$K_C = \frac{1}{4} = 0.25$$

28.(B) [Products] > [Reactants] $\Rightarrow$ K must be greater than 1

29.(C) $\text{P}_4(\text{s}) + 6\text{Cl}_2(\text{g}) \rightleftharpoons 4\text{PCl}_3(\text{g})$

Initial 6 6 0

At equim. 5 0 4

At equim. $[\text{P}_4] > [\text{PCl}_3] > [\text{Cl}_2]$

30.(C) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$

$t = 0$ 1 3 0

$t = t_{\text{eq}}$ $1 - x$ $3 - 3x$ $2x$

$1 - x = 0.6 \quad \Rightarrow \quad x = 0.4$

Total moles = $4 - 2x = 3.2$