Nishant Jindal

Topic	Task	Date
Thermodynamics-1	Class Notes	Thursday, 9 November 2023
	O-I: 6, 10, 14, 20, 23, 24, 30, 31, 34, 36, 38, 42, 44, 46, 50, 52	Friday, 10 November 2023
	S-I: 1, 2, 12, 17, 20, 28, 31, 34, 38, 42	Saturday, 11 November 2023
		Sunday, 12 November 2023
Thermodynamics-2	Class Notes	Monday, 13 November 2023
	O-I: 1, 2, 5, 9, 11, 13, 17, 21, 24, 25, 26, 27, 28, 30, 32, 35, 39, 42, 43, 47, 48, 49, 50	Tuesday, 14 November 2023
Thermochemistry	Class Notes	Wednesday, 15 November 2023
	O-I: 2, 5, 8, 10, 14, 17, 18, 20, 2, 22, 23, 25, 26, 27, 28, 29, 32	Thursday, 16 November 2023
Thermodynamics & Thermochemistry	JEE MAIN Selected PYQs	Friday, 17 November 2023
Mole Concept	Class Notes	Saturday, 18 November 2023
		Sunday, 19 November 2023
	O-I : 3, 9, 12, 19, 21, 25, 34, 38, 40, 43, 45, 48, 51, 52, 53, 55, 58	Monday, 20 November 2023
Concentration Terms	Class Notes	Tuesday, 21 November 2023
	Live Class For Doubts	Wednesday, 22 November 2023
	O-I : 2, 6, 8, 11, 12, 14, 15, 17, 22, 25, 26, 28, 29, 31, 32, 34, 36 **O-II** : 17-24	Thursday, 23 November 2023
	JEE MAIN Selected PYQs	Friday, 24 November 2023
Chemical equilibrium	Class Notes	Saturday, 25 November 2023
		Sunday, 26 November 2023
	O-I: 3, 5, 10, 18, 21, 23, 27, 29, 30, 32, 35, 36, 38, 42, 44, 45, 46, 51, 55, 58, 59, 60, 62, 67, 69, 72, 74, 75, 76, 78	Monday, 27 November 2023

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(9) $\frac{1}{27}$ mol $\times N_A \times 3\, e^-$

(21) $\frac{21 \times 12}{M} \times 100 = 69.98$

(34) (40)

$$\underset{0.2/2}{2Al} + \underset{0.4/3}{3S} \longrightarrow Al_2S_3$$

$\frac{5.4}{27}$ $\quad$ $\frac{12.8}{32}$

0.2 $\quad$ 0.4

0

$\frac{12}{15} \times 100$

$0.1 \times 150 = 15\,gm$

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(45)

$AgNO_3 + NaI \rightarrow AgI + NaNO_3$

2000 mol

$2AgI + Fe \rightarrow FeI_2 + 2Ag$

2000 mol

$2FeI_2 + 3Cl_2 \rightarrow 2FeCl_3 + 2I_2$

1000

1000 mol

2000×170

$= 340\ kg$

$C + O_2 \rightarrow CO + CO_2$

a b

$$\ln K = \left(\frac{\Delta S^\circ}{R}\right) - \left(\frac{\Delta H^\circ}{R}\right)\left(\frac{1}{T}\right)$$

$$\ln \frac{K_2}{K_1} = \frac{\Delta H}{R}\left(\frac{1}{T_1} - \frac{1}{T_2}\right)$$

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(i) 20 gm

(ii) 20 gm.

(iii) 1 lit → 12 mol

1000 ml → 12 mmol

1000 gm → 12 mol

50 gm → $\frac{12}{1000} \times 50$ $\quad \frac{12}{20}$

$\frac{12}{20} \times 40^2 = 24$

(25) 100 ml

$\frac{1 \times 10\text{ml HCl}}{36.5}$

100 ml

$\frac{10\text{ml NaOH} \times 1.5}{40}$

(28) 118% oleum

50 gm oleum + 9 gm H_2O

59 gm H_2SO_4 + 9 gm H_2O

O-II (21)

$P = 715 - 15$

$= 700$ torr

$PV = n_{N_2} RT$

Duma's

$$\frac{n_{N_2} \times 28}{0.30} \times 100$$

Kjeldahl

$N \longrightarrow NH_3 + H_2SO_4$

$2x \quad 2x \quad x$

(3)

1 mol $[MCl_2(L_2)]Cl + AgNO_3 \rightarrow AgCl$

CH_2O ✓

$C_2H_4O_2$ ✓

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

$\frac{1\omega}{16}$

$\frac{1\omega}{16} \times 44$

$$+ CuO \longrightarrow Cu + CO_2 + H_2O + N_2$$

(24)

(24)

eq of H_2SO_4 = eq of NH_3 + eq of NaOH

$50 \times 0.5 = n \times 1 + 30 \times 0.25$

$25 = n + 7.5$

$17.5 =$ mmoles of $NH_3 =$ mmoles of N

$$RT = 0.0821 \times T = 1$$

$$T = \frac{1}{0.0821}$$

$$= 12.19\,K$$

(27)

$$Q = \frac{3^2}{2 \times 1^3} = \frac{9}{2}$$

$$> K_p$$

(32)

$$K_c = [CO_2] = 0.05 = \frac{n}{V}$$

$$n_{CO_2} = 0.05 \times 6.5$$

$$0.05 \times 6.5 \times 100$$

(44) $NH_4HS(s) \longrightarrow NH_3(g) + H_2S(g)$

$P/2 \qquad P/2$

$$K_p = (P/2)^2$$

(38) $1-x \qquad 1-x \qquad x \qquad x$

$x = 1/3$

$$K_c = \frac{x^2}{(1-x)^2} = \frac{1/9}{4/9} = \frac{1}{4}$$

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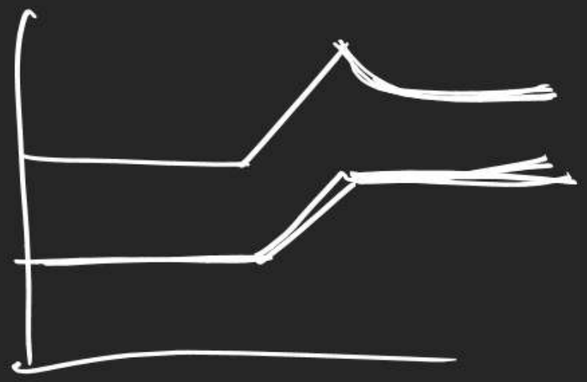
(60)

$$A \longrightarrow B + C$$

$$1-\alpha \quad \alpha \quad \alpha$$

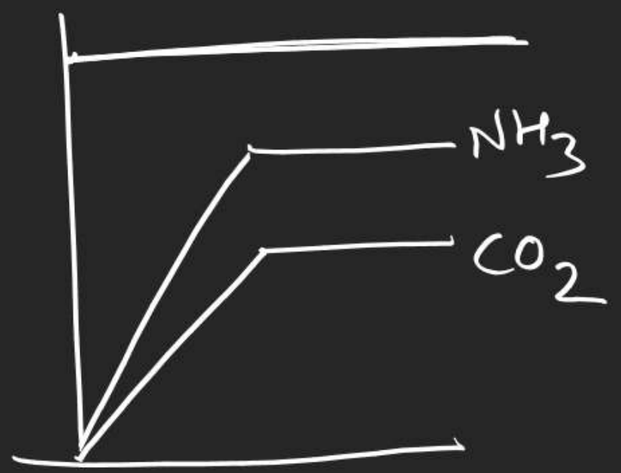
$$K_p = \frac{\alpha^2}{1-\alpha^2} P$$

$$K_p = \frac{(0.5)^2}{1-(0.5)^2} \times 2$$



$$M_{avg} = \frac{M_{PCl_5}}{1+\alpha}$$

$$P M_{avg} = dRT$$



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Ionic equilibrium	Class Notes	Tuesday, 28 November 2023
	Live Class For Doubts	Wednesday, 29 November 2023
	O-I: 1, 3, 7, 10, 12, 14, 16, 17, 18, 20, 21, 23, 26, 27, 28, 32, 35, 37, 38, 42, 44, 49, 52, 54, 55, 58, 60, 61, 45, 66, 68, 70, 72, 75, 77, 78, 79, 50, 84, 85, 86, 90, 93, 94, 96, 98	Thursday, 30 November 2023
		Friday, 1 December 2023
Equilibrium	JEE MAIN Selected PYQs	Saturday, 2 December 2023
Redox		Sunday, 3 December 2023
	Class Notes	Monday, 4 December 2023
	O-I: 5, 6, 7, 8, 9, 10, 18, 19, 20, 21, 29, 30, 31, 32, 35, 37, 39, 40, 43, 45, 46, 48, 50, 52, 55, 57	Tuesday, 5 December 2023
	Live Class For Doubts	Wednesday, 6 December 2023
Electrochemistry	Class Notes	Thursday, 7 December 2023
	O-I: 2, 3, 8, 10, 13, 16, 17, 18, 21, 25, 26, 32, 32, 35, 36, 40, 43, 45, 47, 49, 51, 54, 56, 60, 62, 64, 65, 67, 70, 72, 73, 74, 75 77, 78, 79, 82, 84, 87, 88, 89	Friday, 8 December 2023
	JEE MAIN Selected PYQs	Saturday, 9 December 2023
		Sunday, 10 December 2023
Kinetics	Class Notes	Monday, 11 December 2023
	O-I: 3, 4, 6, 8, 9, 14, 15, 20, 23, 25, 28, 29, 31, 32, 33, 38, 40, 43, 45, 48, 50, 52, 54, 56, 57, 56, 61, 64, 65, 68, 70, 71	Tuesday, 12 December 2023
	Live Class For Doubts	Wednesday, 13 December 2023
	JEE MAIN Selected PYQs	Thursday, 14 December 2023
liquid solution	Class Notes	Friday, 15 December 2023
	O-I:2, 3, 5, 7, 15, 18, 19, 21, 22, 24, 26, 29, 32, 33, 37, 40, 44, 46, 49, 51, 53, 57, 58, 64, 66, 67, 68, 71, 73, 75, 77, 79	Saturday, 16 December 2023
		Sunday, 17 December 2023
	JEE MAIN Selected PYQs	Monday, 18 December 2023
Atomic Structure	Class Notes	Tuesday, 19 December 2023
	Live Class For Doubts	Wednesday, 20 December 2023
	O-I: 2, 4, 7, 9, 11, 14, 15, 18, 19, 25, 27, 28, 31, 33, 34, 37, 40, 42, 46, 47, 50, 51, 54, 58, 60, 61, 63, 64, 66, 67	Thursday, 21 December 2023
	JEE MAIN Selected PYQs	Friday, 22 December 2023