

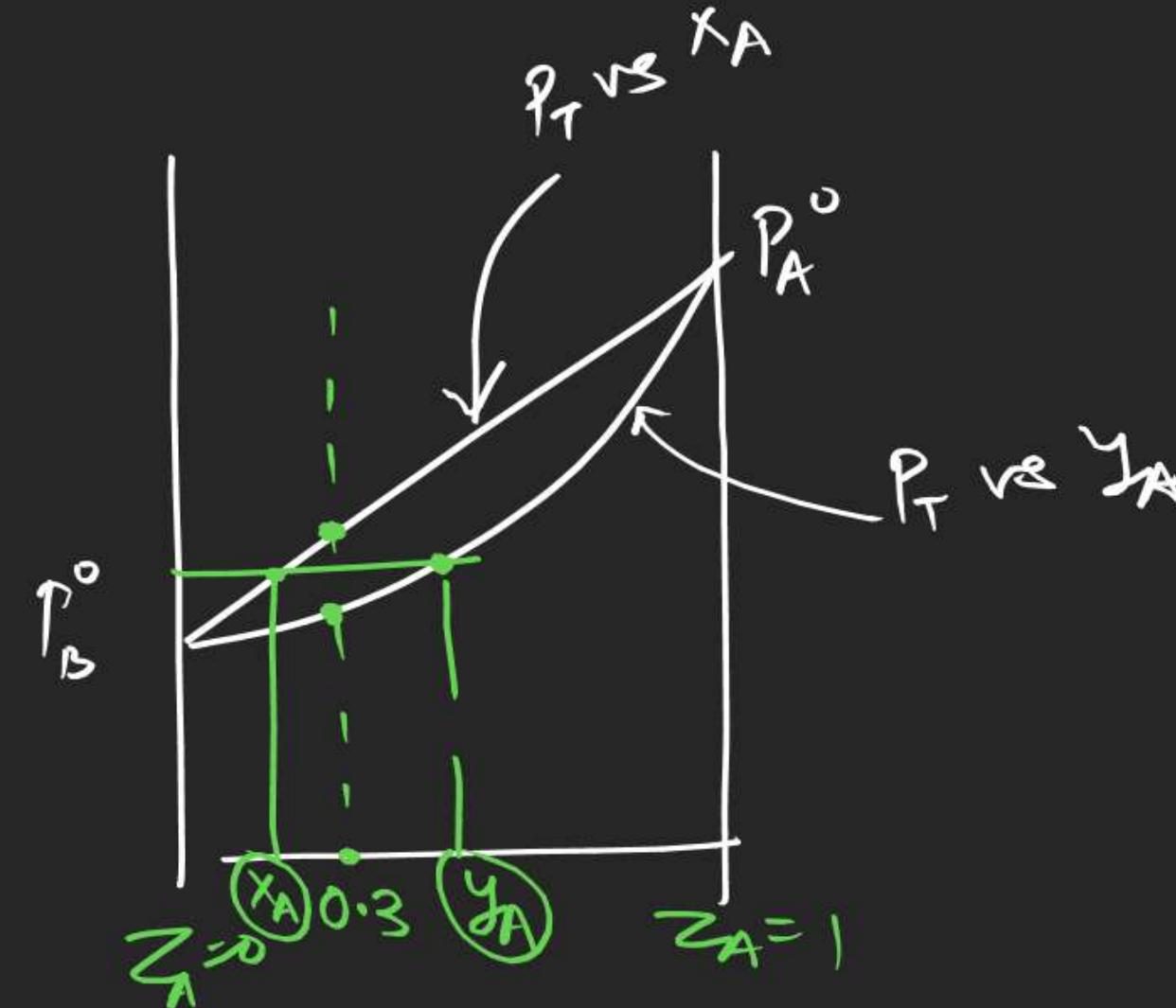
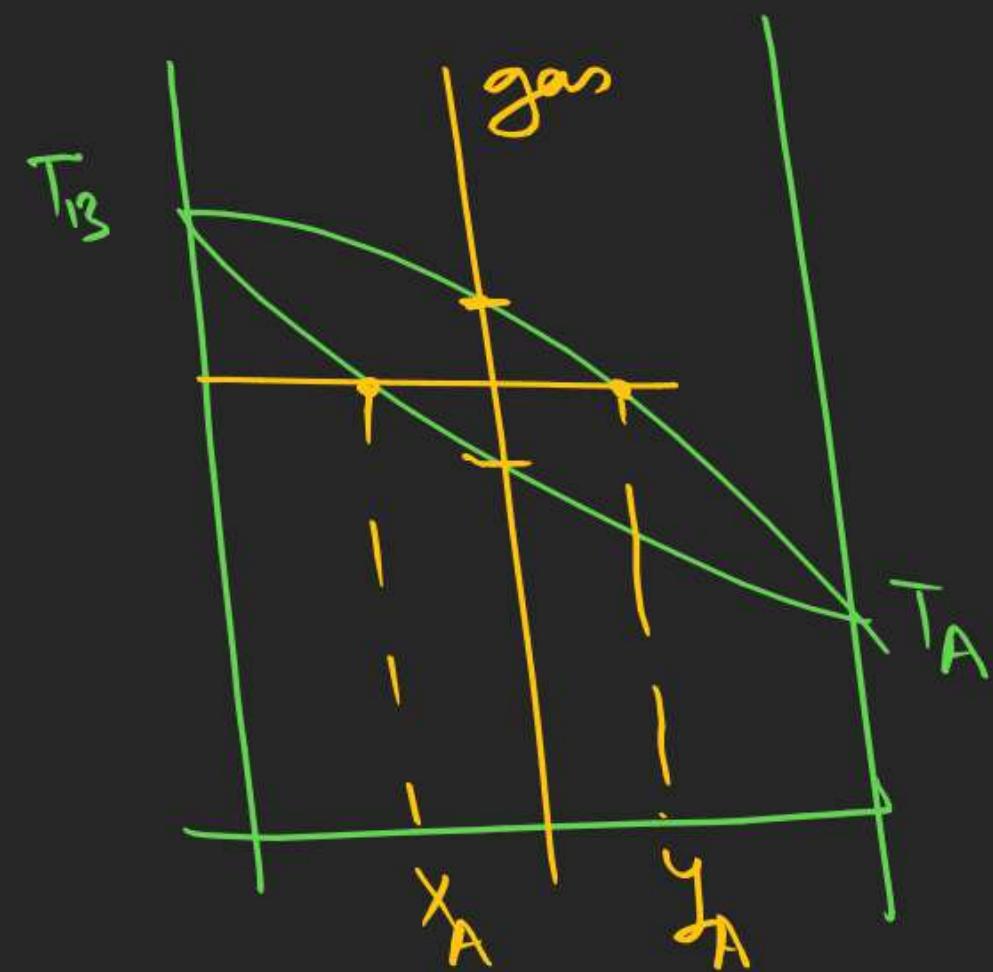
| Topic                            | Task   | Date                        |
|----------------------------------|--|-----------------------------|
| Thermodynamics-1                 | Class Notes  | Thursday, 9 November 2023   |
|                                  | <b>O-I:</b> 6, 10, 14, 20, 23, 24, 30, 31, 34, 36, 38, 42, 44, 46, 50, 52  | Friday, 10 November 2023    |
|                                  | <b>S-I:</b> 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    |
|                                  | <b>O-I:</b> 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 |
|                                  | <b>O-I:</b> 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    |
|                                  | <b>O-I :</b> 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   |
|                                  | <b>Live Class For Doubts</b>   | Wednesday, 22 November 2023 |
|                                  | <b>O-I :</b> 2, 6, 8, 11, 12, 14, 15, 17, 22, 25, 26, 28, 29, 31, 32, 34, 36 <b>O-II :</b> 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    |
|                                  | <b>O-I:</b> 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    |

|                   |  |                             |
|-------------------|--|-----------------------------|
| 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    |

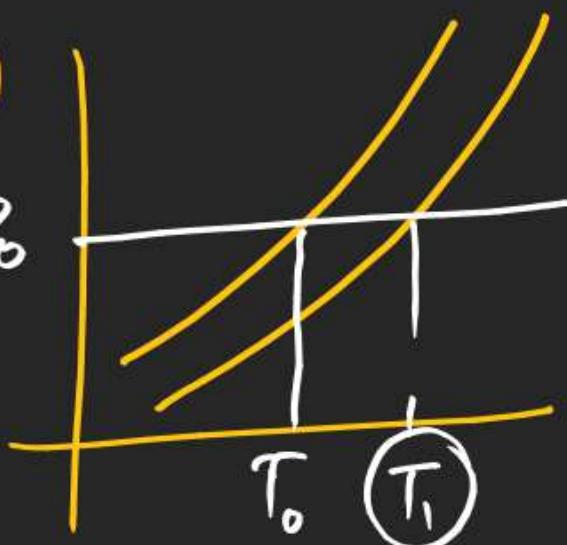


$$P_A = X_A P_A^0 = y_A P_T$$

$$P_B = X_B P_B^0 = y_B P_T$$



$$\frac{P_0 - P_S}{P_0} = \chi_{\text{Solute}} = \frac{n \times i}{n_i + n}$$



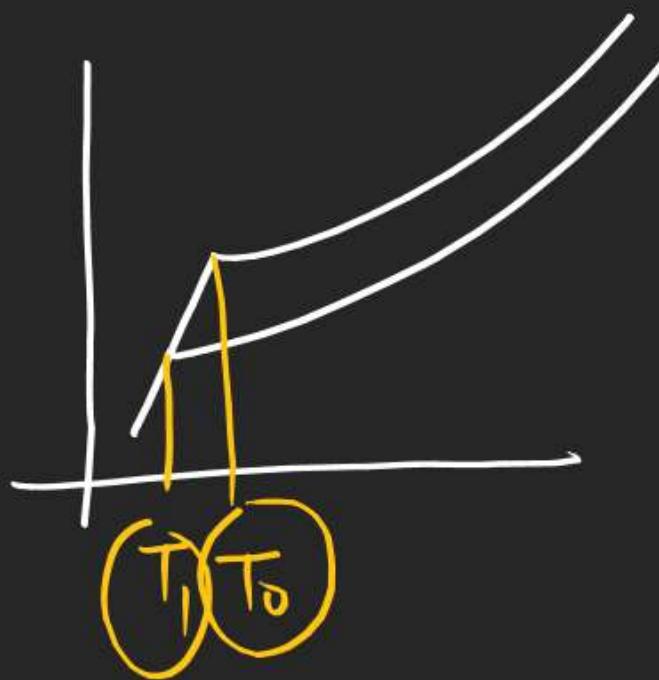
$$\Delta T_b = K_b \times m \times l$$

$$\Delta T_f = K_f \times m \times i$$

$$\pi = C R T \times l$$

$$\pi = h g g$$

$$K_b = \frac{RT_0^2}{1000 L_v}$$

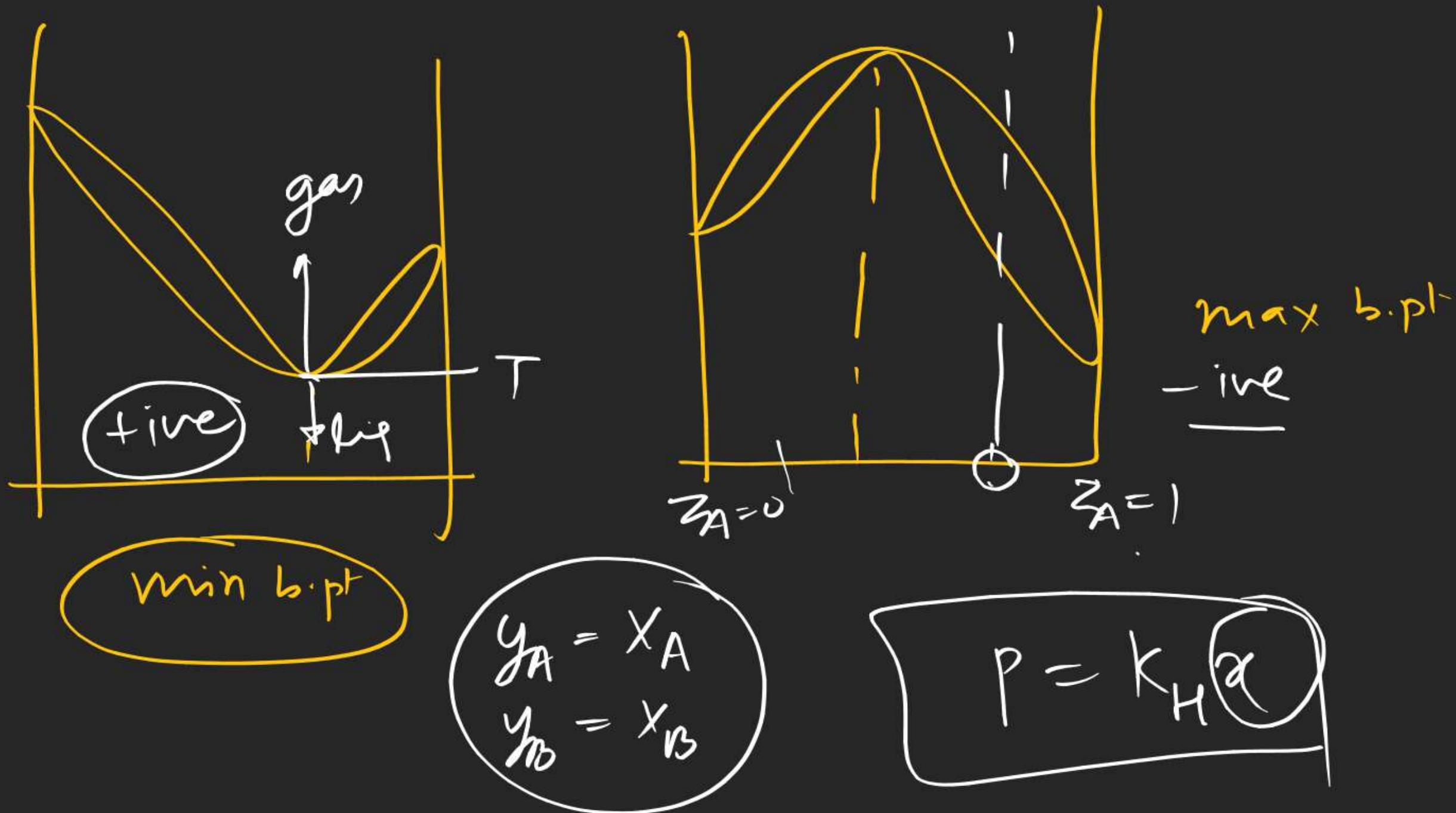


$$i = 1 + (n-1)\alpha$$



$$\eta = \eta_1 + \eta_2$$

| ideal                | -ive                 | +ive                 |
|----------------------|----------------------|----------------------|
| $\Delta H_{mix} = 0$ | $<0$                 | $>0$                 |
| $\Delta V_{mix} = 0$ | $<0$                 | $>0$                 |
| $\Delta S_{mix} > 0$ | $>0$                 | $>0$                 |
| $\Delta S_{sum} = 0$ | $>0$                 | $<0$                 |
| $\Delta G_{mix} < 0$ | $<0$                 | $<0$                 |
|                      | $HCl + H_2O$         | $C_2H_5OH + H_2O$    |
|                      | $MgSO_4 + H_2O$      | $CS_2 + CCl_4$       |
|                      | phenol + aniline     | $(CH_3)_2 + acetone$ |
|                      | $CH_3CO_2 + acetone$ |                      |

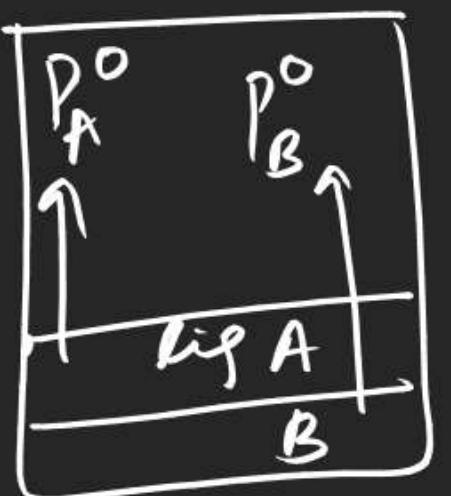


$$\textcircled{19} \quad P_T = X_A P_A^0 + X_B P_B^0$$

$$= (1 - X_B) P_A^0 + X_B P_B^0$$

$$= P_A^0 + X_B (P_B^0 - P_A^0)$$

\textcircled{22}



$$\textcircled{33} \quad \Delta T_f = k_f \times m$$

$$\Delta T_b = k_b \times \frac{m}{2}$$

\textcircled{29}

$$\frac{P_0 - P_S}{P_S} = \frac{n}{N} = \frac{1/M_B}{20/M_A} = \frac{10^{-3}}{9}$$

\textcircled{32}

Molarity = 1

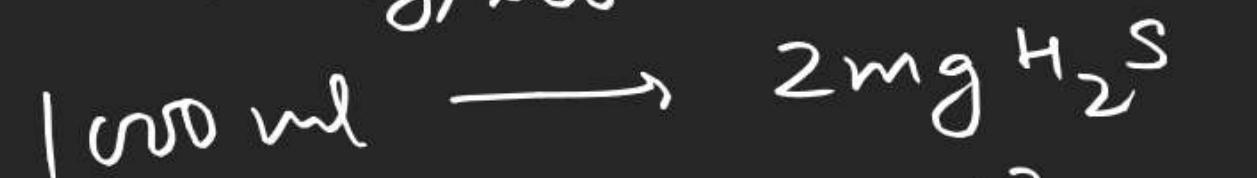
$$m = \frac{1}{1020} \times 1000$$

$$\begin{aligned} 1000 \text{ ml} &\longrightarrow 1 \text{ mol} \\ 1200 \text{ gm soln} &\longrightarrow 1 \times 180 \text{ gm} \\ W_{\text{Solvent}} &= 1020 \end{aligned}$$



$$i = 1 + \left( \frac{1}{n} - 1 \right) \alpha$$

(79) 2 mg/lit



$$\frac{2 \times 10^{-3}}{34} \text{ mol}$$

$$\chi = \frac{\frac{2 \times 10^{-3}}{34}}{\frac{1000}{18}}$$



$$\begin{matrix} 0.1 & 0.1 \\ 0 & 0 \end{matrix}$$

$$\begin{matrix} \times & \frac{0.2}{2} \\ \times & = 0.1 \end{matrix}$$

$$\rho = \frac{6.8 \times 10^3 \times 10^2 \times 2 \times 10^{-3}}{34 \times 1000} \times 10$$

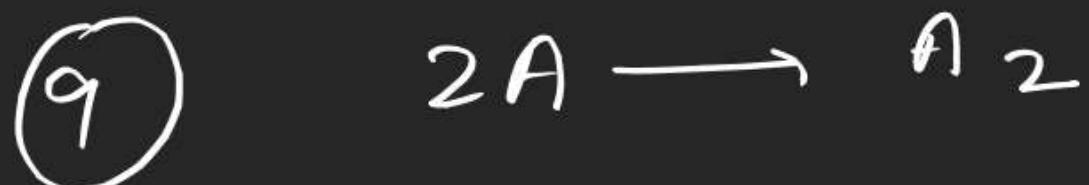
$$i = 1 + (n-1) \alpha$$

$$\textcircled{5} \quad 0.6 = 5 \times \frac{3/M}{100} \times 1000 \quad \textcircled{6}$$

$$\textcircled{4} \quad P_s = P_{0/2} = 23.76/2$$

$$\frac{P_0 - P_s}{23.76} = \frac{\eta}{100/18}$$

$$\Delta T_f = 4 = 1.86 \times \frac{750}{W} \times 1000$$



$$2 = 5 \times \frac{W/122}{30} \times 1000 \times \left[ 1 + \left( \frac{1}{2} - 1 \right)^d \right]$$

$$\underline{\alpha = 0.8}$$

(6)

1000 gm solution

$$1000 \text{ gm solvent} \longrightarrow 0.75 \text{ sucrose}$$

$$0.75 \times 342 = 256.5 \text{ gm}$$

$$W_{\text{solution}} = 1000 + 256.5$$

$$= \underline{\underline{1256.5 \text{ gm}}}$$

$$\eta = 1.86 \times \frac{\left( \frac{0.75}{1256.5} \times 1000 \right)}{W} \times 1000$$

(8)

$$\Delta T_b = K_b \times 1 \times [1 + (5-1)\alpha]$$

$$\Delta T_b = K_b \times \frac{18.1/M}{81.9} \times 1000$$

$$M = 5 \times 10^{-4}$$

$$d = 1.05 \text{ gm/ml}$$

$$18.1 \text{ /w/w}$$

$$100 \text{ gm soln} - 18.1 \text{ gm}$$

$$W_{\text{solvent}} = \underline{81.9 \text{ gm}}$$

$$m =$$

(20)

$$P = K_H \chi$$

$$20 \text{ kPa} = K_H \times \chi$$

$$\frac{mv^2}{r} = \frac{kze^2}{r^2}$$

$$mv_r = \frac{n h}{2\pi}$$

$$r = 0.529 \frac{n^2}{Z} \text{ Å}$$

$$v = 2.188 \times 10^6 \frac{2}{n} \text{ m/sec}$$

$$T.E = -13.6 \frac{Z^2}{n^2} \text{ eV}$$

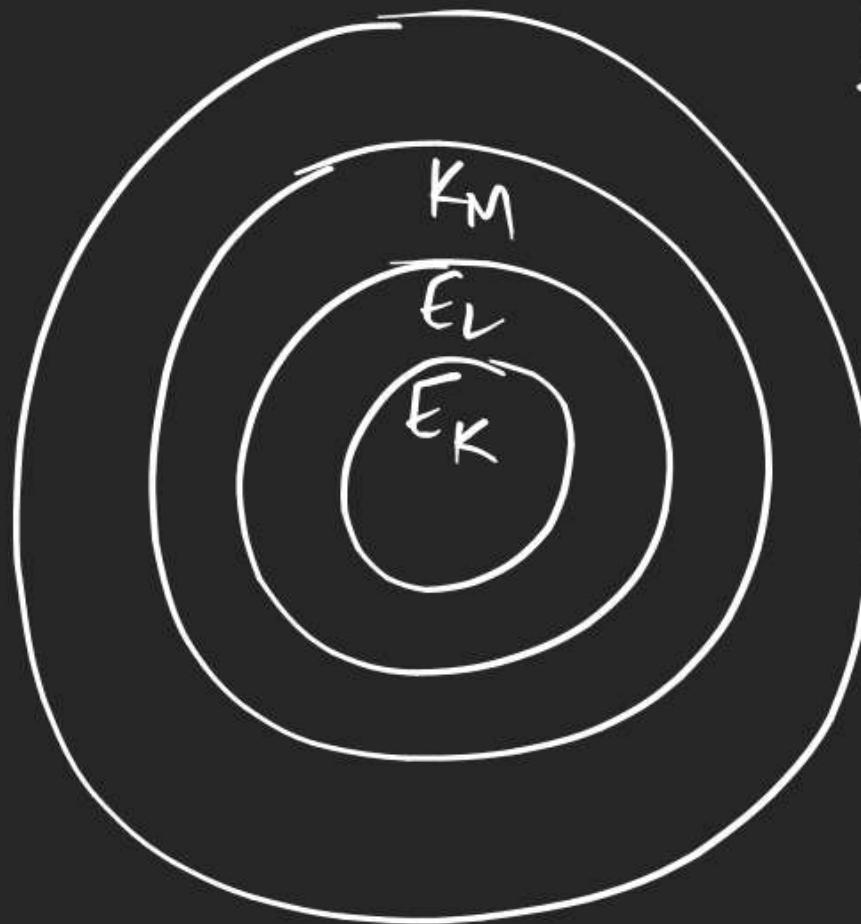
$$[T.E] = KE$$

$$PE = 2 \times T.E.$$

$$\text{Time period} = \frac{2\pi r}{v} \propto \frac{n^3}{Z^2}$$

$$\text{frequency} = \frac{1}{T}$$

$$r = \frac{n^2 h^2}{2\pi^2 K Z e^2 m}$$



$$\frac{hc}{\lambda} = h\nu = 13.6 Z^2 \left[ \frac{1}{n_1^2} - \frac{1}{n_2^2} \right]$$

$$\frac{1}{\lambda} = R_H Z^2 \left[ \frac{1}{n_1^2} - \frac{1}{n_2^2} \right]$$

$$\frac{1}{R_H} = 919 \text{ Å}^0$$

$$R_H = 1097 \text{ nm}^{-1}$$

$$E_K < E_L < E_M$$