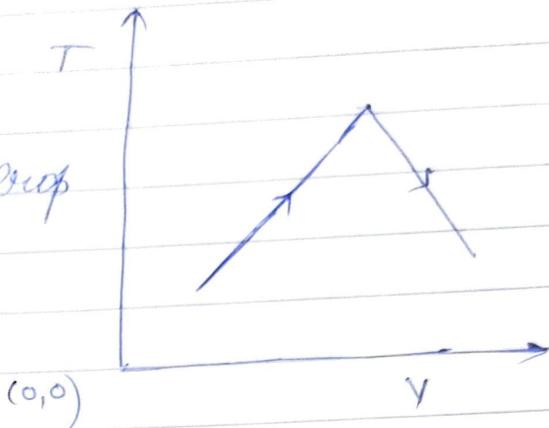


0-1

① for V-T curve

\*  $T \propto n$  are inversely prop

$$\left\{ \begin{array}{l} T \uparrow n \downarrow \\ T \downarrow n \uparrow \end{array} \right\}$$



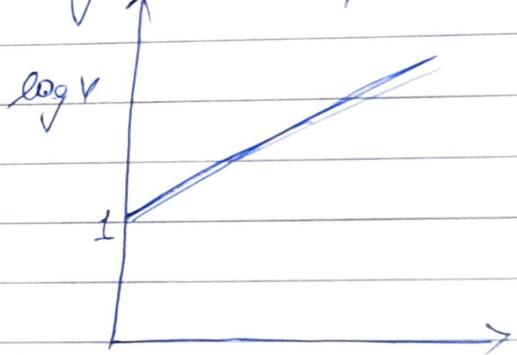
so first decreases then increases.

②  $P = 0.821 \text{ atm}$   $\log V$  vs  $\log T$  is plotted

$$PV = nRT$$

$$\log P + \log V = \log nR + \log T$$

$$\log V = \log \left( \frac{nR}{P} \right) + \log T - \log T$$



refle

$$1 = \log \frac{nR}{P}$$

$$10 = \frac{n \times 0.0821}{0.821}$$

$$(n = 100)$$

$$\begin{aligned} ③ P_1 &= 5 & V_1 &= V & T_1 &= 273 \text{ K} \\ P_2 &=? & V_2 &= \frac{1}{3}V & T_2 &= 819 \text{ K} \end{aligned}$$

Applying the law

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

(3)  $\frac{5 \times V}{273} = \frac{P \times 1 \times V}{819 \times 3}$

∴  $P = 5 \times 3 \times 3$   
= 45 atm

(5)  $T_1 = 273 \text{ K}$   
—  
 $V_1 = 5 \text{ l}^\circ$

$$T_2 = ??$$
  
 $V_2 = 10 \text{ l}^\circ$

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

∴  $\frac{5V}{273} = \frac{10V}{T_2}$

$$T_2 = 2 \times 273$$
  
 $\Rightarrow 546 \text{ K}$

$$(\Rightarrow 273^\circ \text{ C})$$

(4)  $n_1 T_1 = n_2 T_2$

let  $n_1 = A \text{ mole}$

escaped gas  $n_2 = (A - x) \text{ mole}$

so  $n_1 T_1 = n_2 T_2$

$$\Rightarrow A \times 300 = (A - x) 500$$

$$\Rightarrow 300A = 500A - 500x$$

$$200A = 500x$$

$$x = \frac{2A}{5}$$

% dissociation  $\frac{2}{5} \times 100 = 40\%$

⑥ Vapour density = 70

$$\text{Molecular mass} = 2 \times \text{VD}$$

$$\Rightarrow 140$$

But molecular mass is

$$12x + 16x = 140$$

$$28x = 140$$

$$x = 5$$

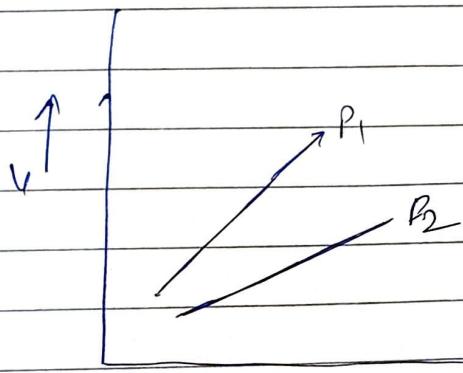
7 consider the const T

on increasing the volume

$$P \downarrow$$

so on increasing volume

$$P_1 < P_2$$



(8)

$$PM = dRT$$

$$80 \cdot \frac{M_1}{d_1} = \frac{M_2}{d_2}$$

$$\Rightarrow \frac{50}{25} = \frac{100}{d_2}$$

$$d_2 = 50$$

$$so \text{ volume} = \frac{100}{50} = 2 \text{ dm}^3$$

$$(9) \quad P = 1 \quad T = 300 \text{ K}, \quad \text{number density } \underline{\underline{n}}$$

$$\begin{aligned} PM &= dRT \\ 1 \times n &= d \times 0.0821 \times 300 \\ d &= \frac{4}{0.0821 \times 300} \end{aligned}$$

 $\Rightarrow$ 

$$PV = nRT$$

$$\text{Number density} = \frac{n}{V} \text{ of atoms}$$

$$\Rightarrow \frac{P}{RT} = \frac{6.023 \times 10^{23}}{\text{mole}} \text{ mole/m}$$

$$\Rightarrow \frac{1}{0.0821 \times 300} \times 6.02 \times 10^{23} = \frac{n}{V}$$

$$\Rightarrow 2.44 \times 10^{25} = \frac{n}{V}$$

(10)

$$n_1 = \frac{10}{m} \quad n_2 = \frac{x}{m} \quad T_1 = T$$

$$P_1 = P \quad P_2 = \frac{P}{2} \quad T_2 = \frac{2}{3} T$$

$$\frac{P_1}{n_1 T_1} = \frac{P_2}{n_2 T_2}$$

s)  $\frac{P}{5 \times 10 \times T} = \frac{P \times 3}{x \times 2 \times 2}$

$$P \propto = 7.5 \text{ gm}$$

∴ The mass of gas escaped is  $[7.5 \text{ gm}]$

11  $d_A \rightarrow 2$  that of  $B$ ,

$M_B$  is twice that of  $A$   
Ratio of pressure of  $A$  and  $B$  will be  $\rightarrow$

$$P_1 M_1 = d_1 R T \quad \rightarrow (i)$$

$$P_2 M_2 = d_2 R T_2 \quad \rightarrow (ii)$$

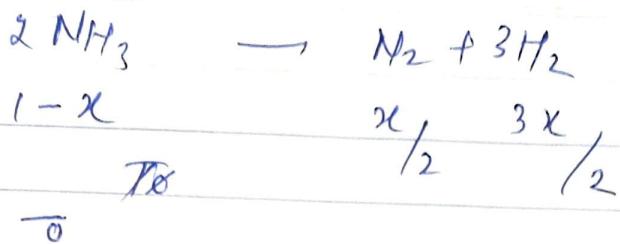
$$\frac{P_1 M_1}{P_2 M_2} = \frac{d_1}{d_2} +$$

$$\frac{P_1}{P_2} = \frac{M_2 \times d_1}{M_1 \times d_2}$$

$$\therefore \frac{3 M_1}{M_1} \times \frac{2 d_1}{d_2}$$

$$\Rightarrow \frac{6}{1} \quad \text{Ratio } [6:1]$$

• 12



∴ total mole formed =  $x$

$$P_1 V_1 = n R T_1$$

$$P_2 V_2 = n R T_2$$

$$\frac{P_1}{P_2} = \frac{x}{2x \times 2T}$$

$$\boxed{\frac{P_2}{P_1} = \frac{4}{1}}$$

• 13 gas A dissociates  $\rightarrow$



$$1-x \quad \frac{3x}{2} \quad \frac{2x}{2}$$

$$\text{Total mole} = 1-x + \frac{3x}{2} + x$$

$$\Rightarrow \boxed{1 + \frac{3}{2}x}$$

$$\Rightarrow 1 + \frac{3}{2} \times 0.4$$

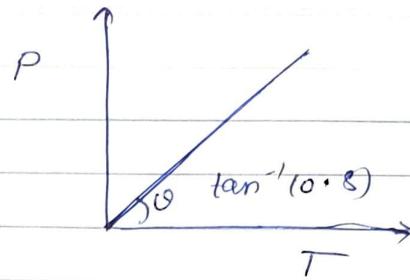
$$\therefore \boxed{1.6}$$

$$PV = nRT$$

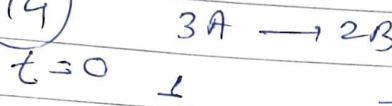
$$\frac{P}{T} = \frac{nR}{V} \Rightarrow \frac{1.6 \times 0.082}{1.6}$$

$$\Rightarrow \boxed{0.8 = \tan \theta}$$

so curve is



(14)



$$1 - \alpha \quad \frac{2\alpha}{3}$$

$$PV = nRT$$

$$\frac{P}{T} = \frac{nR}{V}$$

$$\Rightarrow \tan(42.95) = 0.8 = 1 - \frac{\alpha}{3}$$

$$\frac{\alpha}{3} = 1 - 0.8$$
$$\boxed{\alpha = 0.6}$$

(15)  $n_1 4.0 \text{ gm Argon}$   
 $n_2 = 3.2 \text{ gm }$

$$T_2 = T \text{ K},$$
$$T_2 = (T + 50) \text{ K}$$

$$n_1 T_1 = n_2 T_2$$

$$\Rightarrow 4.0 \times T = 3.2 (T + 50)$$

$$\therefore 4T = 3.2T + 160$$

$$\therefore 0.8T = 160$$
$$\boxed{T = 200 \text{ K}}$$

(16) The total pressure exerted by non-reacting gases is equal to sum of partial pressure of gas was given by Dalton's law of partial pressure

$$P_T = P_A + P_B \dots$$

(17) Dalton's law can't be applied for acid and bases.

It can be applied only for gases  
so  $\text{NH}_3$  and  $\text{HCl}$   $\text{H}^+$  ~~can't~~ /

(18) Equal mass methane & Oxygen  $\text{O}_2$

$$P_1 V_1 = n_1 R T_1 \quad (\text{CH}_4 \text{ or } )$$

$$P_1 = \frac{1 \times RT}{16}$$

$$P_2 = \frac{1}{32} \times RT \quad [\text{O}_2 \text{ or } ]$$

$$\begin{aligned} \text{Total P} &= P_1 + P_2 \Rightarrow \left[ \frac{1}{16} + \frac{1}{32} \right] RT \\ &\Rightarrow \frac{2+1}{32} RT \end{aligned}$$

Ratio of  $P_{\text{O}_2}$  w.r.t total P

$$\Rightarrow \frac{1}{32} \times \frac{32}{3}$$

$$\therefore \boxed{\frac{1}{3} \text{ or } \frac{1}{3}}$$

(19)

Helium &amp; Ozone first

$$1 : 43$$

given ratio of atoms

$$\text{He} \& \text{O}$$

so Ratio becomes

$$3 : 1$$

$$1 : 1$$

Now, the  $P_1$  when the Helium atoms are removed

then pressure will be reduced by

$$\frac{3}{4}$$

$$\Rightarrow 0.75 \text{ atm}$$

so the pressure left  $\Rightarrow 0.25 \text{ atm}$ 

(20)

$$V_1 = 200 \text{ cm}^3 \text{ of } \text{N}_2 \text{ at } 720 \text{ mm}$$

$$V_2 = 400 \text{ cm}^3 \text{ of } \text{O}_2 \text{ at } 750 \text{ mm}$$

final pressure

$$P_1 V_1 + P_2 V_2 = P \times V_f$$

$$720 \times \frac{2}{7} \phi + 750 \times \frac{3}{7} \phi = P \times (200 + 400)$$

$$240 + 250 \times 2 = P$$

XX

$$240 + 500 = P$$

$$\Rightarrow 7$$

$$720 \times 200 + 750 \times 400 = 1000 \times P$$

$$P = \frac{720 \times 200 + 750 \times 400}{1000}$$

$$\Rightarrow 144 + 300$$

$$\Rightarrow \boxed{444 \text{ mm Hg}}$$

(21)

If saturated vapours are compressed slowly to half the initial volume, the vapour pressure will remain same, because it is independent of volume.

$$\underline{22} \quad P_A = x_A \times P_T$$

$$P_B = x_B \times P_T$$

$$P_A = \left( \frac{n_A}{n_A + n_B} \right) \times \frac{RT}{V} (n_A + n_B)$$

$$P_B = \left( \frac{n_B}{n_A + n_B} \right) (n_A + n_B) \frac{RT}{V}$$

$$P_T = P_A + P_B$$

$$\Rightarrow (n_A + n_B) \frac{RT}{V}$$

$$\Rightarrow (1 + 1) \frac{RT}{V}$$

(23)

$$P_1 = 0.7 \quad V_1 = 1 \text{ L}$$

$$P_2 = ?? \quad V_2 = \frac{1}{3} \text{ L}$$

$$P_1 V_1 = P_2 V_2$$

$$0.7 \times 1 = \frac{1}{3} \times P_2$$

$$P_2 = 2.1 + [0.3 \text{ decrease of vapour pressure of water}]$$

$$\boxed{\Rightarrow 2.41}$$

(24)

$\alpha \propto \frac{1}{\sqrt{M}}$  for given atomic weight rate of effusion

$$\text{1) } \alpha_{\text{CO}_2} = \frac{1}{\sqrt{44}} \quad \alpha_{\text{O}_2} = \frac{1}{\sqrt{32}}$$

$$\alpha_{\text{CO}_2} = \frac{1}{\sqrt{44}} \quad \alpha_{\text{CH}_4} = \frac{1}{\sqrt{16}}$$

so,  $\text{CH}_4$  will have highest rate of effusion.

(25)

$$\frac{\alpha_{\text{CH}_4}}{\alpha_x} = \alpha = \sqrt{\frac{M_x}{M_{\text{CH}_4}}}$$

$$\therefore \alpha = \sqrt{\frac{M_x}{16}} \quad \Rightarrow 4 = \frac{M_x}{16}$$

$$M_x = \boxed{64}.$$

(26)  $\frac{\lambda_A}{\lambda_B} = \frac{1}{4}$      $\frac{\lambda_B}{\lambda_C} = \frac{4}{1}$      $\frac{\lambda_B}{\lambda_C} = \frac{1}{3}$      $\frac{\lambda_C}{\lambda_B} = \frac{3}{1}$

$$\frac{\lambda_C}{\lambda_A} \Rightarrow 12 : 1$$

(27)  $\frac{\lambda_x}{\lambda_y} = 3 = \sqrt{\frac{dy}{dx}}$

$$g = \frac{dy}{dx}$$

$$\left[ \frac{dx}{dy} = \frac{1}{g} \right]$$

(28) rate of diffusion

is  $\rightarrow$  directly prop to density  $\rightarrow$  False

$\rightarrow$  directly prop to molecular wt  $\rightarrow$  False

$\rightarrow$  It is inversely prop to square root of molecular wt  $\rightarrow$  True

(29) The gases that will diffuse at the same rate are those gases which have same molecular mass

- a)  $\text{CO}_2$  &  $\text{N}_2\text{O}$   $\rightarrow$  44
- b)  $\text{CO}_2$  &  $\text{N}_2\text{O}_3$   $\rightarrow$  Different
- c)  $\text{CO}_2 \rightarrow 44$        $\text{CO} \rightarrow 14$
- d)  $\text{CO}_2 \rightarrow 44$        $\text{NO} \rightarrow 15$

30) If four tubes are filled with same pressure, the gas with lower molecular weight will be filled first.

so  $H_2$  will be filled first

31) The rate of effusion will be higher if the molecular wt is lower, so the rate of inc & rate of effusion

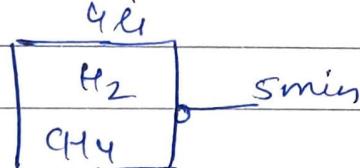
$$5) CO_2 < O_2 < NH_3 < H_2$$

32) The rate of diffusion of Hydrogen is about

$$\frac{r_{H_2}}{r_{He}} = \sqrt{\frac{4}{2}}$$

$\Rightarrow \sqrt{2} \Rightarrow 1.4$  times of that helium

33)

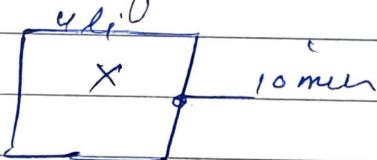


$$\frac{2r_{H_2} + 4r_{CH_4}}{r_{CH_4}} = \sqrt{\frac{M_x}{M_{avg}}}$$

$$\frac{V}{t} \propto \frac{r_x}{V} = \sqrt{\frac{36}{M_{avg}}}$$

$$\frac{10}{5} = \sqrt{\frac{36}{M_{avg}}}$$

$$M_{avg} = 9 \text{ gm/mol}$$



$$\text{Let mol \% of } H_2 = x, \text{ then } CH_4 = 100 - x$$

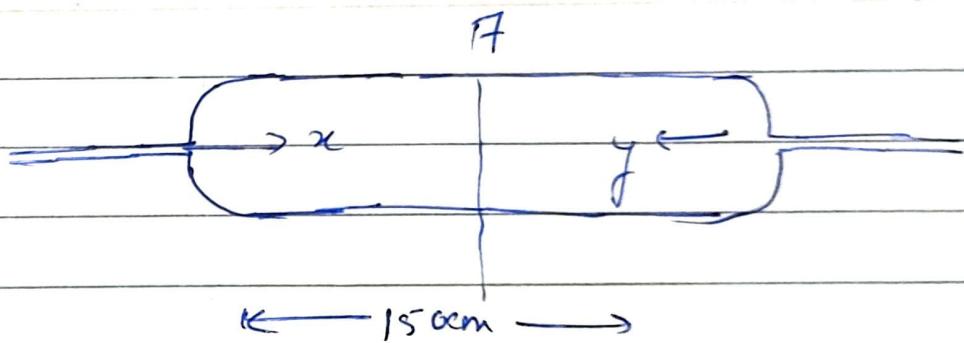
$$9 = \frac{2x + (100 - x) 16}{100}$$

$$x = 50 = \text{mol \% of } H_2 \\ \text{mol \% of } CH_4 = 100 - 50 = 50$$

$$\text{mole ratio} = 1 : 1$$

option [D]

34



let  $y$  travel a distance

$$x \text{ travel} = d - 150$$

$$\frac{x}{y} = \frac{m_x}{m_y} \sqrt{\frac{M_y}{M_x}}$$

$$\frac{d - 150}{d} = \frac{3}{2} \sqrt{\frac{90}{20}} = \frac{3}{2} \times \frac{2}{1} = \frac{3}{1}$$

$$d = \frac{150}{4} \times 1 \cancel{d} = 37.5 \text{ cm}$$

35) The easiest gas to be separated from effusion process will be

H<sub>2</sub> & F<sub>2</sub> with the lowest the MM

$$36) \frac{t_1}{t_2} = \sqrt{\frac{M_1}{M_2}}$$

$$\Rightarrow \frac{10}{t_2} = \sqrt{\frac{4}{16}}$$

$$t_2 = 10 \times \sqrt{4}$$

$\Rightarrow 20 \text{ sec}$

$$37) \frac{\rho_{H_2}}{\rho_{O_2}} = \frac{n_{H_2}}{n_{O_2}} \sqrt{\frac{M_{O_2}}{M_{H_2}}}$$

$$\frac{\rho_{H_2}}{\rho_{O_2}} = \sqrt{\frac{32}{2}} \Rightarrow 4$$

$$3) \frac{n'_{H_2}}{n'_{O_2}} = 4$$

$$\Rightarrow \frac{M_{H_2}}{2 \times M_{O_2}} = 4$$

$$\frac{M_{H_2}}{M_{O_2}} = \frac{4}{16} = \frac{1}{4} \Rightarrow 1:4$$

38)

$$\frac{d_{CO}}{d_{N_2}} = \sqrt{\frac{M_{N_2}}{M_{CO}}} = \sqrt{\frac{28}{28}} = \sqrt{1}$$

b)  $\frac{d_{O_2}}{d_{O_3}} = \sqrt{\frac{48}{32}} = \sqrt{\frac{3}{2}} = \sqrt{1.5}$

c)  $\frac{d_{^{235}U_{f_6}}}{d_{^{238}U_{f_6}}} = \sqrt{\frac{352}{349}} = \sqrt{1.008}$

$$b > c > a \Rightarrow a < c < b$$

[option - B]

POCO

SHOT ON POCO M2 PRO

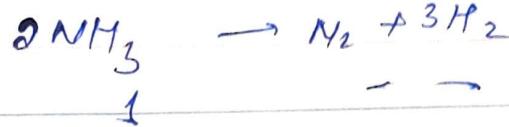
39

$$\frac{M_{\text{max}}}{M_{\text{SO}_2}} = \frac{g}{1}$$

$$\frac{M_{\text{SO}_2}}{M_{\text{avg}}} = \frac{g}{1}$$

$$\frac{16}{M_{\text{avg}}} = \frac{4}{1}$$

$$M_{\text{avg}} = 16 \text{ gm/mol}$$



$$1-x \quad \frac{x}{2} \quad \frac{3x}{2}$$

$$\text{Total} = 1 - x + \frac{x}{2} + \frac{3x}{2} = 1 + x$$

$$M_{\text{avg}} = \frac{\text{Total weight}}{\text{Total moles}}$$

$$16 = \frac{17}{1+x}$$

$$16 + 16x = 17$$

$$x = 1/16$$

$$\% \text{ dissociated} = \frac{1}{16} \times 100$$

$$\Rightarrow 6.25 \%$$

[option (c)]

(40)

Initial mixture mole ratio =  $\frac{4}{1}$

$$\frac{n_{He}}{n_{CH_4}} = \frac{4}{1} \sqrt{\frac{M_{CH_4}}{M_{He}}}$$

$$\Rightarrow \frac{4}{1} \sqrt{\frac{16}{4}}$$

$$\left[ \frac{n_{He}}{n_{CH_4}} \right] = \frac{8}{1}$$

(41)

$$\frac{n_{O_2}}{n_{H_2}} = \frac{n_{O_2}}{n_{H_2}} \sqrt{\frac{M_{H_2}}{M_{O_2}}}$$

$$\Rightarrow \frac{16}{32} \times \frac{2}{2} \sqrt{\frac{2}{32}}$$

$$\Rightarrow \frac{1}{2} \times \sqrt{\frac{1}{16}} = \frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

(42)

$$(\text{mole})_{\text{final}} = (\text{mole})_{\text{initial}} \left( \frac{P}{P_i} \right)^{1/2}$$

$$\Rightarrow \left( \frac{3072 \times 32}{2 \times 20} \right) = \frac{240 \times 32}{2 \times 160} = \left( \frac{32}{20} \right)^{1/2}$$

$$\Rightarrow (1024) = (16)^{1/2}$$

$$\Rightarrow 2^{10} = 2^{2P} \quad 10 = 2P$$

$$P = 5$$

(43)

$$d = 0.9756 \text{ gm/litre}$$

$$\rho M = dRT$$

$$M = \frac{dRT}{P} \Rightarrow \frac{0.9756 \times 0.0821 \times 300}{2} \\ \therefore 12$$

$$\cdot \text{Molar mass} = 12 \quad \text{so} \quad 12 = \frac{16n_1 + 4n_2}{n_1 + n_2}$$

$$\therefore 12n_1 + 12n_2 = 16n_1 + 4n_2$$

$$\therefore 4n_1 = 8n_2$$

$$\frac{n_1}{n_2} = \frac{8}{4} = \frac{2}{1}$$

$$\frac{\nu_{\text{He}}}{\nu_{\text{CH}_4}} = \frac{n_1}{n_2} \sqrt{\frac{M'_2}{m_1}}$$

$$\therefore \frac{\nu_1/t}{\nu_2/t} = \frac{2}{1} \sqrt{\frac{4}{16}}$$

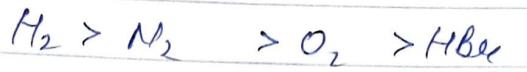
$$\boxed{\frac{\nu_1}{\nu_2} = 1:1}$$

44 The root mean square is inversely proportional to the MM.

As the molar mass higher is the rms

80

the speed will be



(45)

$$u_1 = 2$$

$$u_2 = 3$$

$$u_3 = 4$$

$$u_4 = 5$$

$$U_{\text{max}} = \sqrt{u_1^2 + u_2^2 + u_3^2 + u_4^2}$$

$$\Rightarrow \sqrt{\frac{4+9+16}{4} + 25}$$

$$s) \quad \sqrt{\frac{54}{2}} \text{ cm/s}$$

(46)

$$U_{\text{max}} = \sqrt{\frac{4u_1^2 + 6u_2^2}{10}}$$

$$\Rightarrow (5x)^2 \times 10 = 7^2 \times 4 + 6x^2$$

$$\Rightarrow 250 - 196 = 6x^2$$

$$6x^2 = 54$$

$$\begin{cases} x^2 = 9 \\ x = 3 \end{cases}$$

(47)

$$U_{av_1} = \sqrt{\frac{8RT_1}{\pi m_1}} \quad \text{---(i)}$$

$$U_{av_2} = \sqrt{\frac{8RT_2}{\pi m_2}} \quad \text{---(ii)}$$

Divide (ii) by (i)

$$\frac{0.3}{0.6} = \sqrt{\frac{T_1}{T_2} \times \frac{m_2}{m_1}} \quad (\text{same})$$

$$\therefore \left(\frac{1}{2}\right)^2 = \frac{T_1}{T_2}$$

$$T_2 = 300 \times 4 \quad [= 1200 \text{ K}]$$

(48)

Rms is generally given by

$$(i) \left(\frac{3RT}{M}\right)^{1/2}$$

$$(ii) \left(\frac{3PV}{nMa}\right)^{1/2}$$

$$(iii) \left(\frac{3P}{q}\right)^{1/2}$$

(49)

the gas having the least volume will have the highest Urms

so carbon monoxide will have highest Urms.

$$56) \frac{U_{\text{kinetic}_1}}{U_{\text{kinetic}_2}} = \sqrt{\frac{3RT_1}{m_1} \times \frac{m_2}{3RT_2}}$$

$$2 = \sqrt{\frac{T}{373}}$$

$$T = 4 \times 373 \\ = 1492 \text{ K}$$

(51)

$$\frac{U_{\text{ang}_x}}{U_{\text{ang}_y}} = \sqrt{\frac{8P_x \pi d_y}{\pi d_x \times 8P_y}}$$

$$\Rightarrow \sqrt{\frac{d_y}{d_x}} \quad \therefore \sqrt{\frac{1}{4_y} \times \frac{P_x}{P_y}}$$

$$2 = \sqrt{\frac{1}{2} \frac{P_y}{P_y}}$$

$$5) \boxed{P_x = 8P_y}$$

$$(52) U_{\text{kinetic}_{O_2}} = \sqrt{\frac{2RT}{m}}$$

$$U_{\text{kinetic}_{N_2}} = \sqrt{\frac{3RT}{m}}$$

Both are equal so

$$\sqrt{\frac{2RT}{m}} = \sqrt{\frac{3RT}{m}}, \quad \frac{2\bar{A}_{O_2}}{m_{O_2}} = \frac{3\bar{A}_{N_2}}{m_{N_2}}$$

$$\frac{qT_1}{32} = \frac{3 \times 700}{284}$$

$$qT_1 = 3 \times 25 \times 32$$

$$T_1 = 3 \times 25 \times 16$$

$$\approx [1200 \text{ K}]$$

(53)  $\frac{U_{un1}}{U_{un2}} = \sqrt{\frac{d_2}{d_1}}$

$$\frac{U_{un1}}{U_{un2}} = \sqrt{\frac{1}{16}} = [1:4]$$

(54) — Highest fraction of molecules at 27°C in most probable speed region will be  $\text{CO}_2$

because the gas have highest molecular mass and will have the least effusion & highest mole fraction.

(55) KE is given by

$$K.E. = \frac{3}{2} R T$$

$$\therefore \frac{3}{2} \times 2 \times 300 \\ \therefore [900 \text{ cal}]$$

56)

avg KE of particles per mole is given by

$$KE = \frac{3}{2} RT$$

Per molecule it is given by

$$\Rightarrow \frac{3}{2} \frac{RT}{N_A}$$

$$\Rightarrow \frac{3}{2} \times \frac{8.314 \times 298}{6.023 \times 10^{23}}$$

$$\Rightarrow 6.17 \times 10^{-23}$$

$$\Rightarrow [6.17 \times 10^{-23} \text{ J}]$$

57)

KE is given by  $\frac{3}{2} nRT$

for both the gas

$$\Rightarrow \frac{3}{2} n_1 RT_1 = \frac{3}{2} n_2 RT_2$$

$$\Rightarrow n_1 T_1 = n_2 T_2$$

$$\Rightarrow 0.3 \times T = 0.4 \times 400$$

$$T = \frac{0.4 \times 400}{0.3} \Rightarrow 533 K$$

(58) The avg K.E. of  $\text{CO}_2$  at  $27^\circ\text{C}$  is E

and that of  $\text{N}_2$  at the same temp will also remain same

because K.E. is a function of T and not of molecular mass.

So it will have the same K.E. = E

(59) If the gas expand at same temp the K.E. will remain same bcz K.E. is a function of temperature

(60) Total K.E. is given by

$$\text{K.E.} = \frac{3}{2} n R T$$

s)  $\frac{3}{2} \times \frac{8}{16} \times 2 \times 546$

s)  $\frac{3}{2} \times \frac{1}{2} \times 2 \times 546$

s) 819 calorie

—

(61)  $\text{K.E.} = E = \frac{3}{2} n R T$

$$[PV = nRT]$$

$$E = \frac{3}{2} PV$$

$$P = \frac{2}{3} E$$

$$(V = 1 \text{ liter})$$