

هدى البنك المؤتمت لبحث
الغازات

تتم الطالب ببيتك

C (3)

$$\frac{V_1}{T_1} = \frac{V_2}{T_2} \Rightarrow \frac{8}{(27+273)} = \frac{V_2}{(54+273)}$$

$$\frac{8}{300} = \frac{V_2}{327} \Rightarrow V_2 = \frac{8 \times 327}{300} = 8.72 \text{ L}$$

$$P_1 V_1 = P_2 V_2 \quad (5)$$

$$3.6 \times 10^5 \times 2.4 = 1.2 \times 10^6 V_2$$

$$V_2 = \frac{3.6 \times 10^5 \times 2.4}{1.2 \times 10^6} = 0.72 \text{ m}^3$$

الجواب (B)

$$P_t = P_1 + P_2 = 4 + 6 = 10 \text{ atm} \quad (6)$$

الجواب (C)

$$V = 2 \times 22.4 = 44.8 \text{ L} \quad (7)$$

الجواب (B)

$$\frac{N_1}{T_1} = \frac{N_2}{T_2} \Rightarrow \frac{10}{27+273} = \frac{N_2}{327+273} \quad (8)$$

$$\frac{10}{300} = \frac{N_2}{600} \Rightarrow N_2 = \frac{600 \times 10}{300}$$

$$N_2 = 20 \text{ mol} \quad \text{الجواب (C)}$$

$$d = \frac{PM}{RT} \Rightarrow M = \frac{dRT}{P} \quad (9)$$

$$M = \frac{0.5 \times 0.082 \times (0+273)}{1}$$

$$M = 11.193 \text{ g} \cdot \text{mol}^{-1} \quad (D)$$

$$P_1 V_1 = P_2 V_2 \quad (10)$$

$$5 \times 10^3 \times 3 = 1.5 \times 10^5 V_2$$

$$V_2 = \frac{5 \times 10^3 \times 3}{1.5 \times 10^5} = 0.1 \text{ L} \quad (C)$$

A (3) C (2) B (1)

B (6) C (5) A (4)

C (9) C (8) B (7)

B (12) D (11) B (10)

B (15) D (14) D (13)

A (18) C (17) B (16)

B (21) C (20) C (19)

B (24) B (23) A (22)

D (27) B (26) A (25)

C (29) C (28)

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تتم الطالب ببيتك

$$P_2 = 3 P_1 \quad (1)$$

$$P_1 V_1 = P_2 V_2 \Rightarrow P_1 V_1 = 3 P_1 V_2$$

$$\Rightarrow V_2 = \frac{1}{3} V_1 \quad \text{الجواب: (C)}$$

$$V_2 = 4 V_1 \quad (2)$$

$$P_1 V_1 = P_2 V_2 \Rightarrow P_1 V_1 = P_2 \times 4 V_1$$

$$P_2 = \frac{1}{4} P_1 = \frac{1}{4} (2) = 0.5 \text{ atm} \quad (D)$$

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$$\frac{P_1}{T_1} = \frac{P_2}{T_2} \quad (17)$$

$$\frac{4.1 \times 10^6}{285} = \frac{P_2}{570} \Rightarrow$$

$$P_2 = \frac{4.1 \times 10^6 \times 570}{285} = 8.2 \times 10^6 \text{ Pa} \quad (D)$$

$$d = \frac{PM}{RT} \Rightarrow M = \frac{dRT}{P} \quad (18)$$

$$M = \frac{1.5 \times 0.082 \times 288}{20.5} = 1.728 \text{ g mol}^{-1} \quad (C)$$

قسم الطالب الجيد

$$\frac{P_1}{T_1} = \frac{P_2}{T_2} \Rightarrow \frac{4}{40} = \frac{P_2}{200} \Rightarrow$$

$$P_2 = \frac{4 \times 200}{40} = 20 \text{ m}^3 \quad (D)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT} \quad (2)$$

$$n = \frac{4.1 \times 4}{0.082 \times 400} = 0.5 \text{ mol} \quad (B)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT} \quad (3)$$

$$n = \frac{4100 \times 10^3 \times 10^{-5} \times 100}{0.082 \times 1000} = 50 \text{ mol}$$

$$n = \frac{m}{M} \Rightarrow m = n \times M = 50 \times 2$$

$$m = 100 \text{ g} \quad (B)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT} \quad (11)$$

$$n = \frac{4.1 \times 10^6 \times 10^{-5} \times 2.4}{0.082 \times (327 + 273)} = 2 \text{ mol} \quad (C)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT} \quad (12)$$

$$n = \frac{1 \times 24.6}{0.082 \times 300} = 1 \text{ mol} \quad (C)$$



$$\frac{V_1}{n_1} = \frac{V_2}{n_2} \Rightarrow \frac{24.6}{3} = \frac{V_2}{2}$$

$$V_2 = \frac{24.6 \times 2}{3} = 16.4 \text{ L} \quad (13)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT} \quad (14)$$

$$n = \frac{4.1 \times 10^6 \times 10^{-5} \times 2.4}{0.082 \times 285} = 4.21 \text{ mol} \quad (D)$$

$$P_1 V_1 = P_2 V_2 \quad (15)$$

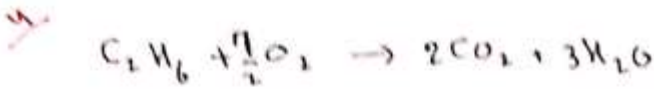
$$4.1 \times 10^6 \times 10^{-5} \times 2.4 = 1.2 \times 10^4 \times 10^{-5} \times V_2$$

$$V_2 = \frac{4.1 \times 10^6 \times 10^{-5} \times 2.4}{1.2 \times 10^4 \times 10^{-5}} = 820 \text{ L} \quad (A)$$

$$\frac{V_1}{T_1} = \frac{V_2}{T_2} \Rightarrow \frac{2.4}{285} = \frac{V_2}{1140} \quad (16)$$

$$V_2 = \frac{2.4 \times 1140}{285} = 9.6 \text{ L} \quad (B)$$

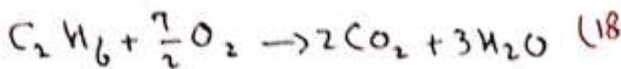
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$$\frac{V_1}{n_1} = \frac{V_2}{n_2} \text{ CO}_2$$

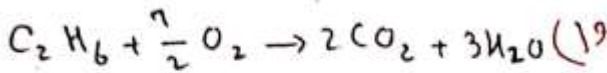
$$\frac{0.2}{1} = \frac{V_2}{2} \Rightarrow V_2 = 0.2 \times 2 = 0.4 \text{ L}$$

الجواب (C)



$$\begin{array}{ccc} 30g & & 2 \times 44g \\ 15g & & mg \end{array}$$

$$m = \frac{2 \times 44 \times 15}{30} = 44g \quad (C)$$



$$\begin{array}{ccc} 30g & \frac{7}{2} \text{ mol} \\ 12g & n \text{ mol} \end{array}$$

$$n_{O_2} = \frac{\frac{7}{2} \times 12}{30} = 1.4 \text{ mol}$$

$$P = \frac{nRT}{V} = \frac{1.4 \times 0.082 \times 300}{0.7}$$

$$P = 49.2 \text{ atm} \quad (D)$$

قسم الطالب طننوت

$$n_A = \frac{m}{M} = \frac{4}{2} = 2 \text{ mol} \quad (1)$$

$$n_B = \frac{m}{M} = \frac{4}{4} = 1 \text{ mol}$$

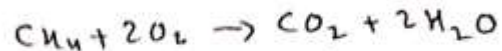
لأنه $A+B \rightarrow AB$ يبقى لنا في التفاعل 1 mol من A

$$P = (n_A) \frac{RT}{V} = (1) \frac{0.082 \times 293}{41}$$

$$P_t = 0.586 \text{ atm} \quad (A)$$

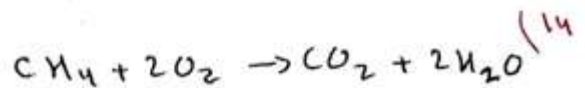
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(13)



$$\begin{array}{ccc} 16g & & 44g \\ 84g & & mg \end{array}$$

$$m = \frac{44 \times 84}{16} = 116g \quad (B)$$



$$\begin{array}{ccc} 16g & 2 \text{ mol} \\ 8g & n \text{ mol} \end{array}$$

$$n = \frac{2 \times 8}{16} = 1 \text{ mol}$$

$$PV = nRT \Rightarrow P = \frac{nRT}{V}$$

$$P = \frac{1 \times 0.082 \times 300}{0.6} = 41 \text{ atm} \quad (C)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT} \quad (15)$$

$$n = \frac{4.1 \times 10}{0.082 \times 400} = 1.25 \text{ mol} \quad (D)$$

$$n = \frac{\text{عدد الجزيئات}}{\text{عدد المولات}} = \frac{12.044 \times 10^{23}}{6.022 \times 10^{23}} = 2 \text{ mol} \quad (16)$$

$$P = \frac{nRT}{V} = \frac{2 \times 0.082 \times 283}{2}$$

$$P = 23.206 \text{ atm} \quad (C)$$

$$n = \frac{m}{M} = \frac{15}{30} = 0.5 \text{ mol} \quad (17)$$

$$V_{C_2H_6} = \frac{nRT}{P} = \frac{0.5 \times 0.082 \times 200}{41}$$

$$V = 0.2 \text{ mol}$$

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$$n_{CH_4} = \frac{m}{M} = \frac{3.2}{16} = 0.2 \text{ mol} \quad (6)$$

$$n_{CO_2} = \frac{m}{M} = \frac{2.2}{44} = 0.05 \text{ mol}$$

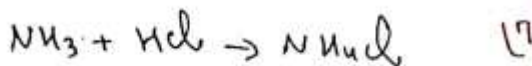
$$P_t = n_t \frac{RT}{V} \Rightarrow 7.2 = n_t \frac{0.082 \times 400}{2.05}$$

$$n_t = \frac{7.2 \times 2.05}{0.082 \times 400} = 0.45 \text{ mol}$$

$$n = n_t - (n_1 + n_2)$$

$$= 0.45 - (0.2 + 0.05) = 0.45 - 0.25$$

$$= 0.2 \text{ mol} \quad (B)$$



$$n_{NH_3} = \frac{m}{M} = \frac{34}{17} = 2 \text{ mol}$$

$$n_{HCl} = \frac{m}{M} = \frac{91.25}{36.5} = 2.5 \text{ mol}$$

منه H_2 في 0.5 mol يتبقى

$$P = \frac{nRT}{V} = \frac{0.5 \times 0.082 \times 300}{4.1}$$

$$P = 3 \text{ atm} \quad (A)$$

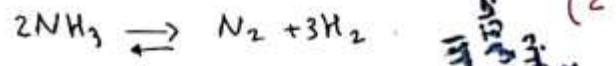
$$n_{H_2} = \frac{PV}{RT} = \frac{4.1 \times 10}{0.082 \times 100} = 5 \text{ mol} \quad (8)$$

كل 100 mol يورث 40 mol و 60 mol N_2
 H_2
 n 5 mol

$$n_{N_2} = \frac{60 \times 5}{40} = 7.5 \text{ mol}$$

$$P_t = (n_1 + n_2) \frac{RT}{V} = (5 + 7.5) \frac{0.082 \times 100}{10}$$

$$P_t = 10.25 \text{ atm} \quad (B)$$

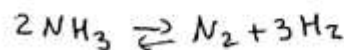


$$\begin{array}{ccc} 2 \text{ mol} & 1 & 3 \\ 0.5 \text{ mol} & n_1 & n_2 \end{array}$$

$$n_{N_2} = \frac{1 \times 0.5}{2} = 0.25 \text{ mol}$$

$$n_{H_2} = \frac{3 \times 0.5}{2} = 0.75 \text{ mol}$$

الجواب (C)



حسب قانون أفوغادورر الثاني:

$$\frac{V_{NH_3}}{n_{NH_3}} = \frac{V_{N_2}}{n_{N_2}} = \frac{V_{H_2}}{n_{H_2}}$$

اعتقاداً على معطيات السؤال (2)

$$\frac{24}{0.5} = \frac{V_{N_2}}{0.25} = \frac{V_{H_2}}{0.75} \Rightarrow$$

$$V_{N_2} = \frac{1}{4} \times 24 = 6 \text{ L}$$

الجواب (C)

$$V_{H_2} = \frac{3}{4} \times 24 = 18 \text{ L}$$

$$n_{H_2} = \frac{PV}{RT} = \frac{20.5 \times 2}{0.082 \times 500} = 1 \text{ mol} \quad (4)$$

كل 100 mol يورث 2 mol و 80 mol NH_3 H_2

$$n_{NH_3} = 1 \text{ mol}$$

$$n_{NH_3} = \frac{80 \times 1}{20} = 4 \text{ mol}$$

$$m_{NH_3} = n \times M = 4 \times 17 = 68 \text{ g} \quad (C)$$

(5) اعتقاداً على معطيات السؤال (4)

$$P_t = (n_1 + n_2) \frac{RT}{V} = (1 + 4) \frac{0.082 \times 500}{2}$$

$$P_t = 102.5 \text{ atm} \quad (D)$$

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$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \quad (12)$$

$$\frac{1200 \times 10^3 \times 10^{-5} \times 41}{600} = \frac{1 \times V_2}{273}$$

$$V_2 = \frac{1200 \times 10^3 \times 10^{-5} \times 41 \times 273}{600} = 233.86 \text{ L}$$

البواب (c)

$$\frac{P_1}{T_1} = \frac{P_2}{T_2} \Rightarrow$$

$$\frac{1200 \times 10^3 \times 10^{-5}}{600} = \frac{100}{T_2} \Rightarrow$$

$$T_2 = \frac{100 \times 600}{1200 \times 10^3 \times 10^{-5}} = 5000 \text{ K}$$

$$t_2 = 5000 - 273 = 4727^\circ \text{C} \quad (D)$$

$$PV = nRT \Rightarrow n = \frac{PV}{RT}$$

$$n = \frac{1200 \times 10^3 \times 10^{-5} \times 41}{0.082 \times 600} = 10 \text{ mol}$$

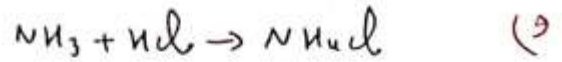
$$m = n \times M = 10 \times 2 = 20 \text{ g} \quad (A)$$

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

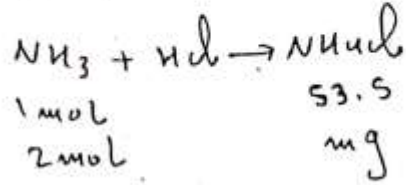
$$\frac{1200 \times 41}{600} = \frac{P_2 \times 205}{300}$$

$$P_2 = \frac{1200 \times 41 \times 300}{600 \times 205} = 120 \text{ kPa}$$

البواب (c)



$$n_{\text{NH}_3} = \frac{m}{M} = \frac{34}{17} = 2 \text{ mol}$$



$$m = \frac{53.5 \times 2}{1} = 107 \text{ g} \quad (A)$$

$$n_{\text{H}_2} = \frac{PV}{RT} = \frac{20.5 \times 4}{0.082 \times 500} \quad (10)$$

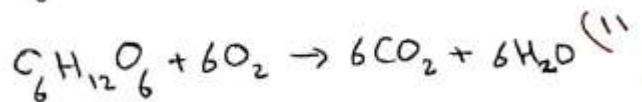
$$n_{\text{H}_2} = 2 \text{ mol}$$

لك 100 mol هيدروجين
 80 mol O₂ , 20 mol H₂
 2 mol

$$n_{\text{O}_2} = \frac{80 \times 2}{20} = 8 \text{ mol}$$

$$P_t = (n_1 + n_2) \frac{RT}{V} = (2+8) \frac{0.082 \times 500}{4}$$

$$P_t = 102.5 \text{ atm}$$



$$n = \frac{m}{M} = \frac{36}{180} = 0.2 \text{ mol} \Rightarrow$$

$$V = \frac{nRT}{P} = \frac{0.2 \times 0.082 \times 200}{0.5} = 6.56 \text{ L}$$

$$\frac{V_{\text{C}_6\text{H}_{12}\text{O}_6}}{n_1} = \frac{V_{\text{CO}_2}}{n_2}$$

$$\frac{6.56}{1} = \frac{V_{\text{CO}_2}}{6} \Rightarrow V = 6 \times 6.56$$

$$V = 39.36 \text{ L} \quad (D)$$

اعطاء في البنك المؤتمت في البحث في الغازات
 3 KPa = 3 x 10^3 Pa
 10^3 Pa = 1 kPa
 10^5 Pa = 1 bar
 10^6 Pa = 1 MPa

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$$n = \frac{\text{عدد الجزيئات}}{\text{عدد أفوكادور}} = \frac{3.011 \times 10^{23}}{6.022 \times 10^{23}} \quad (16)$$

$$n = 0.5 \text{ mol}$$

$$P = \frac{nRT}{V} = \frac{0.5 \times 0.082 \times 600}{41} = 0.6 \text{ atm} \quad \text{البواب (A)}$$

(17)

$$n_{H_2} = \frac{m}{M} = \frac{3}{2} = 1.5 \text{ mol}$$

$$n_{N_2} = \frac{m}{M} = \frac{14}{14} = 1 \text{ mol}$$

$$P_t V = n_t RT \Rightarrow n_t = \frac{P_t V}{RT}$$

$$n_t = \frac{4 \times 41}{0.082 \times 400} = 5 \text{ mol}$$

$$n_{\text{مجموع}} = n_t - (n_1 + n_2) = 5 - (1.5 + 1) = 5 - 2.5 = 2.5 \text{ mol}$$

$$X_i = \frac{n_i}{n_t} = \frac{2.5}{5} = 0.5$$

$$P_i = X_i P_t = 0.5 \times 4 = 2 \text{ atm} \quad \text{البواب (B)}$$

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