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Physical Chemistry_Chpt_One_Properties of Gases

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No. 4



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1st Exam-paper E

Q1: Circle the right answer for all of the following:

(50 points)

باز الحان الغاز دقتانته قطريه

1: If a gas has polar particles then the difference between the volume of this gas is:

Answer: a) $V_{Real} > V_{Perfect}$ b) $V_{Real} < V_{Perfect}$ c) $V_{Real} = V_{Perfect}$ d) $V_{Real} \neq V_{Perfect}$

جم هوئار يشغل

2: A gas occupies 60×10^3 mL at 150°C and 760 mmHg pressure. What would be its volume at STP?

Answer: a) 38.7 mL b) 38.7 dm^3 c) 38.7 L^{-1} d) 38.7 dm^{-3}

3: Calculate the weight of H_2O gas (18 g.mol^{-1}) in a 5 L cylinder at 10×10^2 kPa and 373 K.

Answer: a) 29.40 g mol^{-1} b) 29.40 g c) 29.40 mol d) 29.40 kg

4: Calculate the density of H_2O placed in a 22400 mL cylinder at 10^5 Pa and 0°C .

Answer: a) 0.804 kg L^{-1} b) 0.804 g L^{-1} c) 0.804 g d) 0.804 L^{-1}

الغاز البثقيل

5: According to Graham's law the heaviest gas is?

Answer: a) H_2O b) CH_4 c) NH_3 d) Cl_2

6: A tank contains a certain amount of gas at 10^5 Pa. The gas is transferred to another tank 40 dm^3 with pressure of 200×10^3 Pa. What should be its volume?

Answer: a) 80 L b) 80 Pa L c) 80 Pa dm^3 d) 80 L^{-1}

7: According to Boyle's law the pressure of a gas is inversely proportional with?

Answer: a) p b) T c) R d) V e) n

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8: The difference between real and ideal gas, that the real gas interested in?

Answer: a) V & p b) V & T c) p & n d) T & p

المقارنة بينهم

9: It can follow the direct proportional between temperature and pressure through the law of

Answer: a) Van der Waal b) Graham c) Charles d) Gay-Lussac

تناسب طردي

الضغط والحرارة

10: The behaviour of real gas is ideal when the value of Z is equal to

Answer: a) $V_m < V_m^0$ b) $V_m > V_m^0$ c) $V_m = V_m^0$ d) $V_m \neq V_m^0$

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Q2: The following data have been observed for 800 mg of nitrogen gas at 273 K. Calculate the best value of the molar mass of N_2 .

p/ 10^5 Pa	0.750	0.500	0.200
V/ dm^3	3.0	4.5	7.0

(25 points)

Q3: A perfect gas undergoes isothermal compression, which reduces its volume by 1.80 dm^3 . The p_r and V_r of the gas are 2×10^2 kPa and 2.14 dm^3 , respectively. Calculate the $p_{original}$ of the gas in (i) bar, (ii) torr. (25 points)

غاز مثالي

Q2 / $PV = nRT$

$$(0.75) V = 1 \text{ mol} (0.082) (273)$$

Units: $\frac{\text{atm} \cdot \text{L}}{\text{mol} \cdot \text{K}}$

$$(7.5 \text{ atm}) V = 1 \text{ mol} (0.082) (273)$$

Units: $\frac{\text{atm} \cdot \text{L}}{\text{mol} \cdot \text{K}}$

$$V = \frac{0.082 \text{ L} \cdot 273}{7.5}$$

~~2.9 L~~

2) 2.8 L

3) 1.7 L

Q2 5/25

Q3

Q3 0/25

NO ANSWER
Why?