



Physical Chemistry-Properties of Gases



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1st Exam-paper B

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

(50 degree)

1: Carbon dioxide is classified as a .

Answer: a) toxic gas b) ideal gas c) real gas d) heavy gas

2: A 2 dm³ container contains a certain amount of gas at 0.5 atm pressure. The gas is transferred to another vessel of volume and the pressure is 0.25 bar. What should be it is Volume?

Answer: a) 0.40 atm b) 0.40 dm³ c) 0.4 bar d) 4 bar

3: A gas occupies 400 dm³ at 130 °C and 76 cmHg pressure. What would be it is volume at STP?

Answer: a) 270 L b) 207 dm³ c) 207 m³ d) 204 cm³

4: Calculate the weight of H₂ (2.00 g.mol⁻¹) in a 2 L cylinder at 2.5 atm and 27 °C.

Answer: a) 0.40 mol⁻¹ b) 0.40 g c) 0.40 mol g⁻¹ d) 0.4 g mol⁻¹

5: Calculate the number of moles for CO₂ in a 10 L cylinder at 8 bar and 27 °C.

Answer: a) 3.25 mmol b) 3.00 mol c) 3.00 L d) 2.99 mol

6: According to Graham's law the lightest gas is?

Answer: a) H₂ b) O₂ c) N₂ d) CO₂

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

Answer: a) mol b) T c) R d) V

8: If a gas has Vm ≠ V^om then this means one of the following?

Answer: a) real b) noble c) ideal d) heavy

9: If RT > pV this means the forces dominated are?

Answer: a) attraction b) repulsion c) Van der Waal's d) no one of these

10: According to Gay-Lussac's law the volume of the gas is?

Answer: a) constant b) variable c) equal to zero d) equal to 22.4 L

Q2: Under the same conditions of temperature and pressure, how many times faster will hydrogen effuse compare to carbon dioxide. (25 degree)

NO ANSWER

Q3: Calculate the density of carbon dioxide (44 g mol⁻¹) at STP. (25 degree)

0.25
2

Q2 NO ANSWER

Q2 $\frac{0}{25}$

Q31
Q31

wt% $\frac{d \times T \times R}{m \cdot wt}$

$$J = \frac{m}{V}$$

$$1 = \frac{d \times 373 \times 0.082}{m \cdot wt}$$

$$d = \frac{m \cdot wt}{373 \times 0.082} = 5.23$$

Q3 $\frac{10}{25}$

$$\begin{array}{r} 2.26 \\ \times 0.04 \\ \hline 904 \end{array}$$

$$\begin{array}{r} 273 \\ 27 \\ \hline 300 \end{array}$$

$$PV = nRT$$
$$PV = \frac{wt}{m \cdot wt} RT$$
$$2.5 \times 2 = \frac{wt}{2} \times 0.082 \times 300$$
$$2.26 \cdot wt = 5 \times 2$$
$$wt = \frac{10}{2.26}$$