



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 0/5

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) 4.0 dm³ c) 0.4 bar d) 4 bar 5/5

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 5/5

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 5/5

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 0/5 30
9
150

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

Answer: a) H₂ b) O₂ c) N₂ d) CO₂ 5/5

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 5/5

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

Answer: a) real b) noble c) ideal d) heavy 0/5

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 0/5

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

Answer: a) constant b) variable 5/5 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)

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

~~Q2~~ / NO ANSWER

Q2
25

Q3

~~T = 0°C~~ → 273 K

~~P = 1 atm~~

R = 0.082 ?

~~M = 44 g mol⁻¹~~

مساواة القياسات

المعادلة

$$M = \frac{dRT}{P}$$

$$44 = \frac{d \times 0.082 \times 273}{?}$$

$$d = \frac{44 \times ?}{0.082 \times 273} = \frac{44 \times ?}{22.386}$$

~~d = 1.9655 g/L~~

20
Q3
25