

Physical Chemistry-Properties of Gases



Signature Name of a student 4

University of Mustansiriyah

1st Semester-2021

Department of Chemistry

1st Exam-paper B

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

(50 degree)

رصني غاز الكاربون 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?

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.

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.

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

Answer:

6: According to Graham's law the lightest gas is? 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°m then this means one of the following?

Answer:

(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 ارى معر

d) equal to 22.4 L

Q2: Under the same conditions of temperature and pressure, how many times faster will hydrogen effuse وحت نفس الطرن عاها سرية ٢ compare to carbon dioxide.

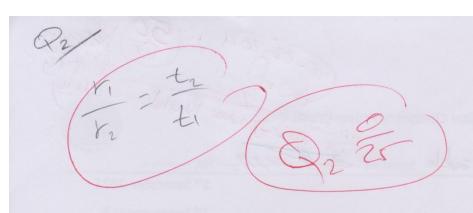
Q3: Calculate the density of carbon dioxide (44 g mol-1) at STP.

(25 degree)

Wed 20/01/2021

Best wishes

Dr Abduljabbar I. R. Rushdi



 $\frac{d}{d} = \frac{PM}{RT} = \frac{124m \times 449 \text{ mot}^{-1}}{0.082 \text{ mot}^{-1} \times 273 \text{ K}} = \frac{1.93 \text{ L}}{0.082 \text{ mot}^{-1} \times 273 \text{ K}} = \frac{1.93 \text{ L}}{25}$