



Physical Chemistry_Chpt_One_Properties of Gases

F2

15/100 Fifteen only

Name of a student _____ Signature _____ No. _____

University of Mustansiriyah

1st Semester-2021

Department of Chemistry

1st Exam-paper D

Q1: Circle the right answer for all of the following: (50 points)

1: According to van der Waal's corrections if $V_{Real} < V_{Perfect}$ of any gas that means the gas has:

- Answer: a) non-polar particles b) polar particles c) small particles d) big particles

2: Calculate the weight of CO_2 gas (44 g.mol^{-1}) in a $0.5 \times 10^4 \text{ mL}$ cylinder at $20 \times 10^2 \text{ kPa}$ and 25°C .

- Answer: a) 180 g mol^{-1} b) 180 g c) 180 mol d) 180 kg

3: Calculate the density of CO_2 placed in a $22.4 \times 10^3 \text{ mL}$ cylinder at $20 \times 10^2 \text{ kPa}$ and 298 K .

- Answer: a) 36.06 kg L^{-1} b) 36.06 g L^{-1} c) 36.06 g d) 36.06 L^{-1}

4: According to Graham's law the heaviest gas has?

- Answer: a) low rate b) high rate c) middle rate d) low density

5: A gas occupies 20 dm^3 at 90°C and 760 torr pressure. What would be its volume at STP?

- Answer: a) 15.04 mL b) 15.04 dm^3 c) 15.04 L^{-1} d) 15.04 dm^3

6: A vessel contains a certain amount of gas at $80 \times 10^5 \text{ Pa}$. The gas is transferred to another tank 20 dm^3 with pressure of $20 \times 10^5 \text{ Pa}$. What should be its volume?

- Answer: a) 0.5 L b) 0.5 Pa L c) 0.5 Pa dm^3 d) 0.5 L^{-1}

7: According to Avogadro's law n is directly proportional with volume at constant?

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

8: Attractive and repulsive forces between particles are present in a?

- Answer: a) perfect gas b) non-ideal gas c) ideal gas d) noble gas

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

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

10: The mol fraction of atmospheric pressure is equal to?

- Answer: a) zero b) one c) two d) three

Q2: The following data have been observed for 10000 mg of CO_2 gas at 273 K . Calculate the best value of the

| molar mass of CO_2 | p/ 10^2 kPa | 1.00 | 2.00 | 3.00 |
|----------------------|-----------------------|------|-------|------|
| V/L | 4.00 | 7.50 | 11.75 | |

Q3: A perfect gas undergoes isothermal expansion, which increases its volume by 2.48 dm^3 . The p_i and V_i of the gas are $2 \times 10^2 \text{ kPa}$ and 2.14 dm^3 , respectively. Calculate the p_f of the gas in (i) bar, (ii) torr. (25 points)

Wed_10/11/2021

Best wishes

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Q3 - No Answer

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Q2 - No Answer