



Physical Chemistry-Properties of Gases



Name of a student

وسام محمد حسين

Signature

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No.

14

University of Mustansiriyah

1st Semester-2021

Department of Chemistry

1st Exam-paper B

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

1: Helium represents a.

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

2: A 0.2 L container contains a certain amount of gas at 1.0 bar pressure. The gas is transferred to another vessel of volume 0.5 dm³. What should be its pressure?

Answer: a) 0.60 atm b) 0.40 dm³ c) 0.4 atm d) 0.4 mmHg *3/5*

3: A gas occupies 299 dm³ at 127 °C and 760 mm pressure. What would be its volume at STP?

Answer: a) 199.8 L b) 199 dm³ c) 200 L d) 204 dm³ *0/5*

4: Calculate the weight of CH₄ (16 g.mol⁻¹) in a 10 L cylinder at 15 atm and 34 °C.

Answer: a) 95.33 g mol⁻¹ b) 95.33 g c) 85.80 mol d) 86.65 g *0/5*

5: Calculate the number of moles for CH₄ in a 12 L cylinder at 14 bar and 28 °C.

Answer: a) 6.8 mol b) 6.9 mol c) 6.5 mol d) 6.7 mol *5/5*

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

Answer: a) H₂ b) O₂ c) N₂ d) CO₂ *5/5*

7: According to the Avogadro's law the amount of a substance is directly proportional with?

Answer: a) p b) T c) R d) V *0/5*

8: The difference between real and ideal gas is one of the following?

Answer: a) p & V b) T & n c) d) attraction forces & volume of a gas *5/5*

9: It can know the molecular mass of an unknown gas by applying one of the following?

Answer: a) Boyle's law b) Graham's law c) Charles's law d) Gay-Lussac's law *0/5*

10: If V_m is bigger than V_m^0 then this means the behaviour of a gas is?

Answer: a) Real b) Ideal c) Real & ideal d) Z = 0 *0/5*

Q2: A gas sample has a mass of 9.98 g. Its volume is 21.6 L at a temperature of 75.46 °C and a pressure of 641 Torr. Calculate its molar mass.

Q3: A 1.3 mole of Ar gas is placed in a container at 27 °C at a pressure of 725 torr. What is the volume of the container in ml?

12/01/2021

Best wishes

Dr Abduljabbar I. R. Rushdi

30/400
12-01-2021
Thirty only
The job
Dr. Abduljabbar I. R. Rushdi

Q1 20/50

Q2 41

$$PV = nRT$$

$$P = \frac{nRT}{V}$$

$$P = \frac{9.98 \times 21.6 \times (75.46\text{C} + 273\text{K})}{\cancel{641} \text{ atm}}$$

$$P = 117.1869$$

5/20
Q2

Q3

$$PV = nRT$$

$$P = \frac{nRT}{V}$$

$$P = \frac{1.3 \text{ mol} \times 0.082 \times (27 + 273)}{725}$$

$$P = 0.0441$$

5/20
Q3