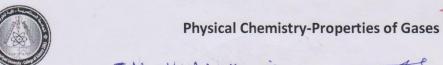
1st Semester-2021 1st Exam-paper B a) Boyle's law (b) Graham's law (c) Charles's law (d) Gay-Lussac's law



Name of a student - Fating Hashim Mounisignature ---

University of Mustansiriyah

**Department of Chemistry** 

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

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 dm<sup>3</sup>. What should be it is pressure?

a) 0.60 atm b) 0.40 dm<sup>3</sup> c) 0.4 atm d) 0.4 mmHg

3: A gas occupies 299 dm<sup>3</sup> at 127 °C and 760 mm pressure. What would be it is volume at STP?

Answer:

a) 199.8 L b) 199 dm<sup>3</sup> c) 200 L d) 204 dm<sup>3</sup>

4: Calculate the weight of CH<sub>4</sub> (16 g.mol<sup>-1</sup>) in a 10 L cylinder at 15 atm and 34%

a) 95.33 g mol<sup>-1</sup> b) 95.33 g c) 85.80 mol d) 86.65 g

5: Calculate the number of moles for CH $_4$  in a 12 L cylinder at 14 bar and 28  $^{\circ}$ C

Answer:

a) 6.8 mol b) 6.9 mol c) 6.5 mol d) 6.7 mol

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

Answer:

a) H<sub>2</sub> b) O<sub>2</sub> c) N<sub>2</sub> d) CO<sub>2</sub>

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

masing ceres! ; (b) in a d 8: The difference between real and ideal gas is one of the following?

Answer:

a) p & V (b) T & n (d) attraction forces & volume of a gas

9: It can know the molecular mass of un known gas by applying one of the following?

Vm 2 (26) 25 6 25 ( 20 ) ( W ) Lat 2 0 ( 15) 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

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 ( ied = - '0) } = (15 = 10) [ 15 2 30 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

Q2/ 
$$m = 9.98 \text{ g}$$
  
 $V = 21.6 \text{ L}$   
 $T = 75.46 \text{ c} \rightarrow T_{k} = 273 + 75.46 \text{ c}$   
 $T_{k} = 348.46 \text{ K}$   
 $P = 641 \text{ Torv} \rightarrow P_{atm} = \frac{1atm * 641 + 96r}{760 + 96r}$   
 $Q295$   
 $P_{atm} = 0.843 \text{ atm}$ 

Q3/ 501/\*n = 1.3 mel T = 27e  $T_{K} = 273e + 27e$  V = 10.953  $V = 11.438 L \rightarrow mL$  V = 6.0 M 4 mL V = 8.0 M 4 mL