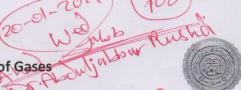


## Physical Chemistry-Properties of Gase



20112 Signature

1st Semester-2021

## University of Mustansiriyah

1st Exam-paper A

Department of Chemistry

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

(50 degrees)

1: A vessel of 100 L capacity contains a certain amount of gas at 50 °C and 0.5 bar pressure. The gas is transferre
to another vessel has a pressure of 5 bar at 50 °C. What should be the volume of the vessel?

Answer:

a) 10 bar

b) 10 dm<sup>3</sup>

(c) 0.1 dm<sup>3</sup>

2: What is the right formula of the Graham's law of effusion?

Answer: a)  $\frac{r_1}{t_2} = (\frac{r_2}{M_1})^{\frac{1}{2}}$ 

3: Calculate Z for a gas if T is 22 °C, V<sub>m</sub> is 5 dm<sup>3</sup> mol<sup>-1</sup> and p is 3 bar.

Answer:

a) 0.62 °C b) 6.2 K c) 0.62 d) 6.2

4: Calculate the molar mass of O<sub>2</sub> (16 g.mol<sup>-1</sup>) in a 4 L cylinder at 9 atm and 281 K.

Answer:

(a) 32 g.mol<sup>-1</sup> b) 32 g

c) 50 g.mol<sup>-1</sup>

5: Calculate the Vom of a gas, if p is 1 atm and temperature is 32 °C.

Answer:

a) 25 K

b) 25 atm

c) 25 L mol-1

(d) 25 mol

6: If the attraction forces are negligible, that means the gas is?

Answer: a) real b) noble c) perfect d) expands

7: According to the Dalton's law the unit of the mole fraction is?

Answer: a) mol

b) dm<sup>3</sup>

c) psi

d) free of units

**8:** What is the partial pressure of a gas in a mixture if the  $X_i$  is 0.1, and under atmospheric pressure?

Answer: a) 760 mmHg b) 10 bar c) 0.1 atm

d) 1 bar/

9: If the value of R is 0.082 then the unit of pressure is?

Answer: a) Pascal

b) mmHg

10: What is the right equation of one of the following?

Answer: a)  $p_r p_c = p$ 

b)  $p_r p = p_c$ 

Q2: Calculate the mass of 335 mL of sulfur dioxide (64 g mol<sup>-1</sup>) measured at 37 °C and 745 mm Hg (25 degrees) pressure.?

Q3: Calculate the volume of 0.25 g of oxygen at 25 °C and 742 mm Hg pressure.

(25 degrees)

Wed 20/01/2021

**Best wishes** 

Dr Abduljabbar I. R. Rushdi

= 7602 => Oa ? = writs M = CKaTM X 335 ML 649/moi x0-082/am/molkx310K (0,25) M = 6-20 Q3/ PV = NRT PV = ~ RT Warm)V = 0.25? x0.082 Liain/molik x 2.98 K (Katm) V = 3-015 mpl X0-082 L-atm/mol. K X298 K (atm) V = 0-36 L-axm (Q3 75 V= 93/6 L