Name of a student -------- عبدالله بشير ظاهر Signature -------------------- No. -- 16

University of Mustansiriyah   **1st Semester-2021**

Department of Chemistry   **1st Exam-paper A**

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

1: A vessel of 50 mL capacity contains a certain amount of gas at 40 ^{o}C and 2 bar pressure. The gas is transferred to another vessel of volume 100 mL at 40 ^{o}C. What should be it is pressure?
<u>Answer:</u> a) 1.0 atm   b) 0.85 mmHg   c) 0.9 cmHg   d) 1 bar   5/5

2: What is the right formula of the Van der Waals equation?
<u>Answer:</u> a) $p = [nRT/(V-nb)] - n(a^2/V^2)$ b) $P = [nRT/(V-nb)] - V(n^2/a^2)$ c) $p = [nRT/(b-nV)] - a(n^2/V^2)$ d) $P = [nRT/(V-nb)] - a(n^2/V^2)$

3: Calculate the temperature of 4.0 mol of a gas occupying 5.0 dm^3 at 3.3 bar?   5/5
<u>Answer:</u> a) 50.3 ^{o}C   b) 48 K   c) 51 ^{o}C   d) 50.3 K

4: Calculate the weight of O_2 (32 g.mol^{-1}) in a 4 L cylinder at 9 atm and 281 K.
<u>Answer:</u> a) 50 kg   b) 50 g   c) 50 K   d) 50 ^{o}C   5/5

5: Calculate the p_C of He gas, if the p_r and p is 0.44 and 1 atm respectively
<u>Answer:</u> a) 2.26 K   b) 2.26 atm   c) 2.26 L   d) 2.26 mol   0/5

6: if the repulsion forces are negligible, that means the gas is?
<u>Answer:</u> a) real   b) noble   c) perfect   d) compressed   0/5

7: According to the Dalton's law total mole fraction is equal to?
<u>Answer:</u> a) 0.10 mol   b) 1.0 mol   c) 0.10   d) 1.0   0/5

8: What is the partial pressure of a gas in a mixture if the X_i is 0.5, and the conditions are at STP?
<u>Answer:</u> a) 1.5 Pa   b) 0.49 bar   c) 0.5 atm   d) 0.5 bar   5/5

9: If the value of is 0.082 then the unit of temperature is?
<u>Answer:</u> a) Kelvin   b) Celsius   c) Fahrenheit   d) no one of these   0/5

10: According to the Avogadro's law the amount of a gas at STP is?
<u>Answer:</u> a) 1.00 mol   b) 2.00 mol   c) 1.00 L   d) 2.00 mol   0/5

Q2: The air inside a flexible 3.5 L container has a pressure of 115 kPa. What should the volume of the container be increased to in order to decrease the pressure to 625 torr?

Q3: A 3 dm^3 container holds 0.5 moles of N_2 gas at 42 ^{o}C. What is the pressure inside the container?

12/01/2021   **Best wishes**   **Dr Abduljabbar I. R. Rushdi**

Q2

$V = 3.5 L$
$KPa = 115$
$P = 625\ torr$

NO ANSWER

Q3

$3000\ ? * 0.5\ ? = ? * 315$

$3dm^3$

$0.5\ moles$

$t(c) = 42\,c$
$t(K) = 42 + 273$
$t(K) = 315$

$= \dfrac{3000 * 0.5\ ?}{315}$

$= \dfrac{1500\ ?}{315}$

$? = 4.76\ ?$

$3000 \times d$

Q3 $\dfrac{10}{25}$

Q2 $\dfrac{10}{25}$