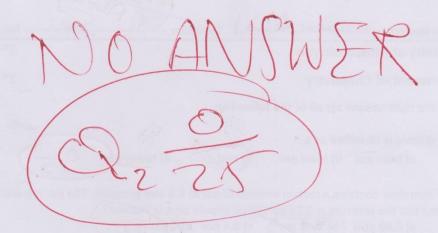


**Physical Chemistry-Properties of Gases** Signature Name of a student --1st Semester-2021 University of Mustansiriyah 1st Exam-paper B Department of Chemistry (50 degree) Q1: Circle the right answer for all of the following: 1: Carbon dioxide is classified as a . d) heavy gas a) toxic gas b) ideal gas Answer: c) real gas 2: A 2 dm<sup>3</sup> container contains a certain amount of gas at 0.5 atm pressure. The gas is transferred to another vessel of volume and the pressure is 0.25 bar. What should be it is Volume? Answer: a) 0.40 atm (b) 1.40 dm<sup>3</sup> c) 0.4 bar d) 4 bar 3: A gas occupies 400 dm<sup>3</sup> at 130 °C and 76 cmHg pressure. What would be it is volume at STP? a) 270 L b) 207 dm<sup>3</sup> c) 207 m<sup>3</sup> d) 204 cm<sup>3</sup> Answer: 4: Calculate the weight of H<sub>2</sub> (2.00 g.mol<sup>-1</sup>) in a 2 L cylinder at 2.5 atm and 27 °C a) 0.40 mol<sup>-1</sup> b) 0.40 g c) 0.40 mol g<sup>-1</sup> d) 0.4 g mol-1 5: Calculate the number of moles for CO<sub>2</sub> in a 10 L cylinder at 8 bar and 27 °C a) 3.25 mmol b) 3.00 mol c) 3.00 L d) 2.99 mol Answer: 6: According to Graham's law the lightest gas is? a) H<sub>2</sub> b) O<sub>2</sub> (c) N<sub>2</sub> d) CO<sub>2</sub> Answer: 7: According to the Boyle's law the pressure of a gas is inversely proportional with? (a) mol b) T c) R d) V Answer: 8: If a gas has Vm ≠ Vom then this means one of the following? Answer: a) real b) noble c) ideal d) heavy 9: If RT > pV this means the forces dominated are? Answer: a) attraction b) repulsion c) Van der Waal's d) no one of these 10: According to Gay-Lussac's law the volume of the gas is? a) constant (b) variable c) equal to zero d) equal to 22.4 L Q2: Under the same conditions of temperature and pressure, how many times faster will hydrogen effuse compare to carbon dioxide. (25 degree)

Q3: Calculate the density of carbon dioxide (44 g mol<sup>-1</sup>) at STP.

(25 degree)



M=449mel = V=1L P=10+m R=0-082 T=273K

 $PV=nRT=7PV=\frac{m}{m}RT$   $|x|=\frac{m}{447}\times0.082\times243?$   $|x|=\frac{m}{447}\times0.082\times243?$  $m = \frac{1}{44} \times 0.082 \times 273$   $m = \frac{1}{44} \times 0.082 \times 273$