AP Chemistry
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Name_____

AP MULTIPLE CHOICE QUESTIONS
CH. 10, SET 1

1984

21. When a sample of oxygen gas in a closed container of constant volume is heated until its absolute temperature is doubled, which of the following is doubled also?

(A) The density of the gas
(B) The pressure of the gas
(C) The average velocity of the gas molecules
(D) The number of molecules per cm^3
(E) The potential energy of the molecules

23. The density of an unknown gas is 4.20 grams per liter at 3.00 atmospheres pressure and 127°C. What is the molecular weight of this gas?

(A) 14.6
(B) 46.0
(C) 88.0
(D) 94.1
(E) 138

39. Equal masses of three different ideal gases, X, Y, and Z are mixed in a sealed, rigid container. If the temperature of the system remains constant, which of the following statements about the partial pressure of gas X is correct?

(A) It is equal to 1/3 the total pressure.
(B) It depends on the intermolecular forces of attraction between molecules X, Y, and Z.
(C) It depends on the relative molecular masses of X, Y, and Z.
(D) It depends on the average distance traveled between molecular collisions.
(E) It can be calculated with knowledge only of the volume of the container.

72. A compound is heated to produce a gas whose molecular weight is to be determined. The gas is collected by displacing water in a water-filled flask inverted in a trough of water. Which of the following is necessary to calculate the molecular weight of the gas but does NOT need to be measured during the experiment?

(A) mass of the compound used in the experiment
(B) temperature of the water in the trough
(C) vapor pressure of the water
(D) barometric pressure
(E) volume of water displaced from the flask

1994

56. It is suggested that SO_2 (molar mass 64 g), which contributes to acid rain, could be removed from a stream of waste gases by bubbling the gases through 0.25 molar KOH thereby producing K_2SO_3. What is the maximum mass of SO_2 that could be removed by 1,000 liters of KOH solution?

(A) 4.0 kg
(B) 8.0 kg
(C) 16 kg
(D) 20. kg
(E) 40. kg

78. When the actual gas volume is <u>greater</u> than the volume predicted by the ideal gas law, the explanation lies in the fact that the ideal gas law does NOT include a factor for molecular

(A) volume
(B) mass
(C) velocity
(D) attractions
(E) shape

50. Two flexible containers for gases are at the same temperature and pressure. One holds 0.50 grams of hydrogen and the other holds 8.0 grams of oxygen. Which of the following statements regarding these gas samples is false?

(A) The volume of the hydrogen container is the same as the volume of the oxygen container.
(B) The number of molecules in the hydrogen container is the same as the number of molecules in the oxygen container.
(C) The density of the hydrogen sample is less than that of the oxygen sample.
(D) The average kinetic energy of the hydrogen molecules is the same as the average kinetic energy of the oxygen molecules.
(E) The average speed of the hydrogen molecules is the same as the average speed of the oxygen molecules.