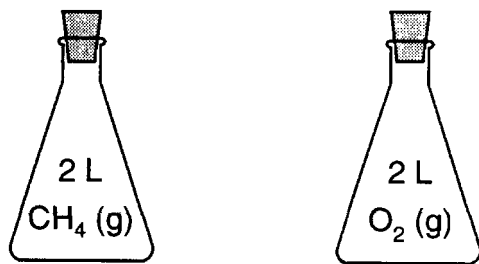


- 1) An assumption of the kinetic theory of gases (the ideal gas model) is that the particles of a gas have
- little attraction for each other and a significant volume
 - little attraction for each other and an insignificant volume
 - strong attraction for each other and a significant volume
 - strong attraction for each other and an insignificant volume
- 2) When a sample of a gas is heated at constant pressure, the average kinetic energy of its molecules
- decreases, and the volume of the gas increases
 - decreases, and the volume of the gas decreases
 - increases, and the volume of the gas increases
 - increases, and the volume of the gas decreases
- 3) A real gas behaves more like an ideal gas when the gas molecules are
- close and have strong attractive forces between them
 - close and have weak attractive forces between them
 - far apart and have strong attractive forces between them
 - far apart and have weak attractive forces between them
- 4) Helium is most likely to behave as an ideal gas when it is under
- high pressure and high temperature
 - high pressure and low temperature
 - low pressure and high temperature
 - low pressure and low temperature
- 5) Each stoppered flask below contains 2 liters of a gas at STP.

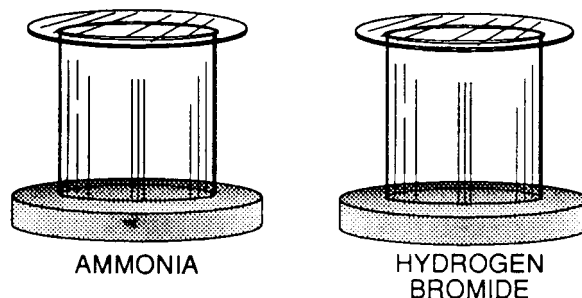


Each gas sample has the same

- | | |
|-------------|-------------------------|
| (A) density | (C) number of molecules |
| (B) mass | (D) number of atoms |

- 6) Which gas will diffuse at the fastest rate under the same conditions of temperature and pressure?
- O_2
 - N_2
 - F_2
 - H_2
- 7) Consider the two gases Kr and Ar. Which gas will effuse from a small hole in a container more rapidly? How many times more rapidly?

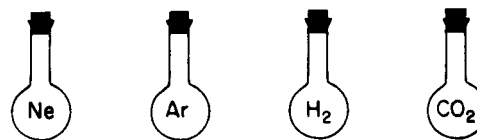
- 8) The diagrams below represent 1-mole samples of ammonia (NH_3) and hydrogen bromide (HBr) gases at STP.



Compared to the ammonia sample, the hydrogen bromide sample has a

- larger mass and fewer molecules
- smaller mass and fewer molecules
- larger mass and an equal number of molecules
- smaller mass and an equal number of molecules

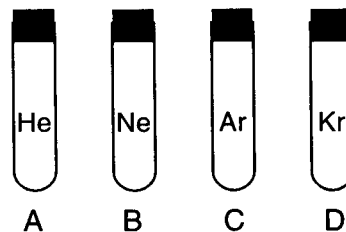
- 9) The diagrams below represent four 500-milliliter flasks. Each flask contains the gas represented by its symbol. All gas samples are at STP.



Each flask contains the same number of

- | | |
|---------------------|-------------------------|
| (A) atoms, only | (C) atoms and molecules |
| (B) molecules, only | |

- 10) The stoppered tubes below, labeled A through D, each contain a different gas.



When the tubes are unstoppered at the same time and under the same conditions of temperature and pressure, from which tube will gas diffuse at the fastest rate?

- | | |
|-------|-------|
| (A) A | (C) C |
| (B) B | (D) D |

- 11) Consider the two gases ammonia (NH_3) and butane (C_4H_{10}). Which gas will effuse from a small hole in a container more rapidly? How many times more rapidly?

Gas Density & Graham's Law

___ 12) Which gas diffuses most rapidly at STP?

- (A) Ne
- (B) Ar
- (C) Cl₂
- (D) F₂

13) Calculate the densities of the following gases at STP: Xe, Kr, NH₃, and C₄H₁₀.

**Gas Density & Graham's Law
Answer Key**

1) B

2) C

3) D

4) C

5) C

6) D

7) Essay

8) C

9) B

10) A

11) Essay

12) A

13) Essay
