

1. The energy in a gas that keeps the molecules of the gas apart is supplied by _____.

- (A) electrical repulsion between the gas molecules
- (B) heat energy
- (C) nuclear energy
- (D) potential energy

2. Electrical repulsion between any two electrical charges falls off by _____ every time the distance between the electrical charges is doubled.

- (A) one-half
- (B) one-quarter
- (C) one-eighth
- (D) one-tenth

3. The average kinetic energy of a gas molecule is measured by the _____.

- (A) pressure of the gas
- (B) number of gas molecules in the gas
- (C) pressure times volume of the gas
- (D) temperature of the gas

4. The total energy of a gas can be calculated from its pressure and volume, or from its _____.

- (A) temperature and moles
- (B) temperature alone
- (C) moles alone
- (D) total potential energy

5. If 1.5 L of a gas at 25°C exerts a pressure of 425 mm Hg, how many moles of the gas are there?

- (A) 0.034 moles
- (B) 0.043 moles
- (C) 0.34 moles
- (D) 0.43 moles

6. Which statement is untrue?

- (A) Density refers to the mass of only a single substance divided by its volume.
- (B) One measure of density is number of particles (e.g., moles) divided by its volume.
- (C) Concentration only refers to one substance mixed with or dissolved in another substance.
- (D) One common measure of concentration compares the moles of solute to the volume of total solution.

7. STP stands for standard temperature (273 Kelvin or 0 degrees Celsius) and pressure (1 atmosphere). What is the volume of 1 mole of a gas at STP?

- (A) 14.4 L
- (B) 22.4 L
- (C) 34.4 L
- (D) 44.4 L

8. The partial pressure of a gas is the pressure that a gas exerts when _____.

- (A) it is one of several gases in a mixture of gases
- (B) its pressure is measured at other than standard temperature
- (C) its pressure is measured at other than 22.4 L
- (D) more or less than a mole of the gas is being measured at standard temperature

9. The kinetic energy of a moving object is equal to _____.

- (A) mv
- (B) mv^2
- (C) $\frac{1}{2}mv^2$
- (D) $2mv^2$

10. In a mixture of equal numbers of large and small gas molecules, the energy of the small gas molecules is _____ the energy of the large gas molecules.

- (A) more than
- (B) less than
- (C) the same as

11. Vapor pressure, the pressure exerted by a liquid when it evaporates in a closed container, _____.

- (A) depends on the temperature but not on the volume of the space above the liquid
- (B) increases as the volume of the liquid exceeds the volume of the gas over the liquid
- (C) is independent of the rate of condensation
- (D) rises when solutes are dissolved in the liquid

12. A gas at 25°C is 50ml in volume. What is its temperature after its volume rises to 75ml under constant pressure?

- (A) 25°C x 75ml/50ml
- (B) 298 °C x 75ml/50ml
- (C) 25°C x 50ml/75ml
- (D) 298 °C x 50ml/75ml