

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Which of the following statements about gases is false? 1) _____
- A) All gases are colorless and odorless at room temperature.
 - B) Gases are highly compressible.
 - C) Gases expand spontaneously to fill the container they are placed in.
 - D) Non-reacting gas mixtures are homogeneous.
 - E) Distances between molecules of gas are very large compared to bond distances within molecules.
- 2) One significant difference between gases and liquids is that _____. 2) _____
- A) a gas may consist of both elements and compounds
 - B) a gas is made up of molecules
 - C) a gas assumes the volume of its container
 - D) gases are always mixtures
 - E) All of the above answers are correct.
- 3) Which of the following equations shows an incorrect relationship between pressures given in terms of different units? 3) _____
- A) $0.760 \text{ atm} = 578 \text{ mm Hg}$
 - B) $1.00 \text{ atm} = 760 \text{ torr}$
 - C) $1.20 \text{ atm} = 122 \text{ kPa}$
 - D) $1.0 \text{ torr} = 2.00 \text{ mm Hg}$
 - E) $152 \text{ mm Hg} = 2.03 \times 10^4 \text{ Pa}$
- 4) Of the following, _____ is a correct statement of Boyle's law. 4) _____
- A) $\frac{P}{V} = \text{constant}$
 - B) $\frac{n}{P} = \text{constant}$
 - C) $PV = \text{constant}$
 - D) $\frac{V}{P} = \text{constant}$
 - E) $\frac{V}{T} = \text{constant}$
- 5) The molar volume of a gas at STP is _____ L. 5) _____
- A) 14.7
 - B) 1.00
 - C) 62.36
 - D) 0.08206
 - E) 22.4
- 6) How many moles of gas are there in a 50.0 L container at 22.0 °C and 825 torr? 6) _____
- A) 18.4
 - B) 2.29×10^4
 - C) 2.23
 - D) 0.603
 - E) 1.70×10^3

- 7) Which of the following is not part of the kinetic-molecular theory? 7) _____
- A) Atoms are neither created nor destroyed by ordinary chemical reactions.
 - B) Attractive and repulsive forces between gas molecules are negligible.
 - C) The volume occupied by all of the gas molecules in a container is negligible compared to the volume of the container.
 - D) Collisions between gas molecules do not result in the loss of energy.
 - E) Gases consist of molecules in continuous, random motion.
- 8) An ideal gas differs from a real gas in that the molecules of an ideal gas _____. 8) _____
- A) have no kinetic energy
 - B) have a molecular weight of zero
 - C) have appreciable molecular volumes
 - D) have no attraction for one another
 - E) have an average molecular mass
- 9) A real gas will behave most like an ideal gas under conditions of _____. 9) _____
- A) STP
 - B) low temperature and low pressure
 - C) high temperature and high pressure
 - D) high temperature and low pressure
 - E) low temperature and high pressure
- 10) The van der Waals equation for real gases recognizes that _____. 10) _____
- A) molar volumes of gases of different types are different
 - B) the non-zero volumes of gas particles effectively decrease the amount of "empty space" between them
 - C) the molecular attractions between particles of gas decreases the pressure exerted by the gas
 - D) gas particles have non-zero volumes and interact with each other
 - E) all of the above statements are true

Answer Key

Testname: UNTITLED1

- 1) A
- 2) C
- 3) D
- 4) C
- 5) E
- 6) C
- 7) A
- 8) D
- 9) D
- 10) E