

Unit 3 MCQ set 1

Multiple Choice 1

Name: _____

1. Which of the following gases experiences the greatest degree of deviation from ideal behavior under high pressures and low temperatures?
(A) CH₄
(B) O₃
(C) N₂
(D) SeO₂

2. Suppose you had 1.0 mol samples the following gases at STP. If the volume of each of the samples of gas was reduced to one tenth of its original size and the temperatures remained the same, which gas would have the lowest pressure?
(A) He
(B) Kr
(C) N₂
(D) NO

3. Real gases behave like ideal gases at higher temperatures and lower pressures because:
(A) Collisions between gas particles are less frequent.
(B) Collisions between gas particles become less elastic.
(C) Intermolecular attractions decrease.
(D) The average distance between gas particles increases.

4. Which of the procedures outlined below can be used to change the boiling point of pure ammonia?

I. Increase the substances elevation by bringing it to the top of a mountain.

II. Add more ammonia to the container.

III. Increase the pressure on the surface of the liquid.

(A) I only
(B) I and II only
(C) I and III only
(D) III only

5. The boiling temperature of Ne is less than that of Kr. Which of the statements below indicates why this is so?
(A) Kr forms stronger dipole-dipole forces than Ne.
(B) Kr forms stronger hydrogen bonds than Ne.
(C) Kr is more polarizable than Ne.
(D) Kr forms stronger dipole induced-dipole bonds than Ne.

6. Which of the following statements best describes the changes that take place as CH_4 evaporates?

(A) Covalent bonds between C and H are broken.
(B) Hydrogen bonds are broken.
(C) Attractions due to London dispersion forces are overcome.
(D) Attractions due to dipole-dipole forces are overcome.

7. Which of the following statements about the solubility of gases in water are true?

I. Solubility decreases as temperature increases.
II. The amount of O_2 that can dissolve in water is directly related to the partial pressure of O_2 (g) on the water's surface.
III. He (g) is more soluble in water than O_2 (g) at STP.

(A) I only
(B) I and II only
(C) III only
(D) I and III only

8. How many grams of KNO_3 (MM=101 g/mol) are needed to make 250 mL of 0.20 M potassium nitrate?

(A) 2.5 g
(B) 5.1 g
(C) 7.5 g
(D) 25 g

9. Which of the following compounds has the greatest solubility in water?

(A) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
(B) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
(C) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
(D) $\text{CH}_3\text{CH}_2\text{OH}$
