

Assessment

Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Which of the following statements regarding Intermolecular Forces is FALSE?
   a. They are strong bonds that form between atoms of molecules.
   b. Substances can form more than one but one will predominate.
   c. They are weaker than the intramolecular forces between atoms.
   d. There is a vague relationship between intermolecular forces and bulk properties.

2. When will ion-dipole interaction most likely to happen?
   a. If repulsion between a dipole and another dipole exists
   b. If there is an attraction between an ion and a polar molecule
   c. When a repulsion between a polar with a nonpolar molecule occurs
   d. When there is an attraction between a polar with another polar molecule

3. Why are dispersion forces high in molecules with a great number of electrons?
   a. The electron distribution of big molecules is easily polarized.
   b. The nucleus in the molecules has greater effective shielding effect.
   c. The electrons move freely around the nucleus resulting to a greater energy
   d. The electrons in the molecules can easily jump from one orbital to another.

4. Ion-dipole forces exist among certain species of substances. Which among the pairs of substances exhibit this type of interaction?
   a. bromide (Br^-) and benzene (C_6H_6)
   b. chloride (Cl^-) and methane (CH_4)
   c. potassium ion (K^+) and water (H_2O)
   d. sodium ion (Na^+) and carbon tetrachloride (CCl_4)

5. What is the distinguishing characteristic of London dispersion forces?
   a. The electron cloud of the atoms is evenly distributed around the nucleus.
   b. There is permanent (-) and (+) ends that participate in electrostatic attractions.
   c. There is an instantaneous dipole that influences neighbouring substances to gain dipoles.
   d. The atoms of two neighbouring molecules participate in give and take of electrons.

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6. How does dipole-dipole interaction happen?
   a. Polar molecules shift electron density that gives rise to neutral substances.
   b. The electron distribution in the polar molecules is distorted that results to (-) and (+) poles.
   c. Polarization of big nonpolar molecules brings about the formation of permanent (+) and (-) charges.
   d. The (-) and (+) ends of one polar molecule align themselves to the (+)and (-) ends of another polar molecule and attract each other.

7. What is the role of cation during ion-dipole interactions?
   a. It causes repulsion of charges among the molecules.
   b. It distorts the electron distribution in the dipole.
   c. It is attracted to the (-) pole of the permanent dipole.
   d. It hastens formation of (+) ions that are attracted to the permanent dipole.

8. Which condition permits H-bonding to form?
   a. If there is an unshared pair of electrons in the central atom
   b. If the interacting substances have central atoms with O, N, F as attached atoms
   c. When the substances involved are polar and have molecules with H-atoms attached to O, N, F
   d. When the substances involved are polar and have molecules with C-atoms attached to O, N, F

9. How is instantaneous dipole best described?
   a. It arises from the high polarization of the atoms or molecules.
   b. It is a permanent dipole induced by polar molecules to ions.
   c. It is the strongest attractive force between and among molecules.
   d. It results to the formation of temporary dipoles induced to atoms or molecules.

What Intermolecular forces are present in the following species?

	LDF	Dipole-Dipole	Hydrogen Bonding

10) CH_4

11) CH_3COOH

12) O_3

13) N_2

14) NH_3

15) PCl_5

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