



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.

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