

CHEMBUDDY CHAPTER 4
4.4 INTERMOLECULAR FORCES



CHOOSE THE CORRECT ANSWER

| NO | QUESTION | ANSWER | | | | | | | | | | | | | | | |
|----|--|---|-----------|----------------------|----|-----|---|----|---------|--|----|-----------------|--|----|-------------|--|---------------------------------|
| 1 | <p>Which one of the following pairs exhibits the same hybrid orbitals of central atom?</p> <p>A. PCl_3 and NH_3</p> <p>B. PCl_3 and BCl_3</p> <p>C. NCl_3 and AlCl_3</p> <p>D. BeCl_2 and H_2O</p> | <p>A B</p> <p>C D</p> | | | | | | | | | | | | | | | |
| 2 | <p>In hybridisation process of ICl_3 molecule, _____ electron/electrons in 5p orbital excited to 5d orbitals before it form _____ hybrid orbital.</p> <p>A. 3, sp^3d C. 1, sp^3d</p> <p>B. 1, sp^3 D. 3, sp^3</p> | <p>A B</p> <p>C D</p> | | | | | | | | | | | | | | | |
| 3 | <p>i. During melting, the intermolecular forces are overcome by heat supplied. Choose the incorrect pair.</p> <table border="1"> <thead> <tr> <th></th><th>Substance</th><th>Force being overcome</th></tr> </thead> <tbody> <tr> <td>A.</td><td>Ice</td><td>hydrogen bonds between H_2O molecules</td></tr> <tr> <td>B.</td><td>Sulphur</td><td>van der Waal's forces between S_8 molecules</td></tr> <tr> <td>C.</td><td>Sodium chloride</td><td>ionic bond between opposite charged ions</td></tr> <tr> <td>D.</td><td>Naphthalene</td><td>Van der Waals forces between naphthalene molecules</td></tr> </tbody> </table> | | Substance | Force being overcome | A. | Ice | hydrogen bonds between H_2O molecules | B. | Sulphur | van der Waal's forces between S_8 molecules | C. | Sodium chloride | ionic bond between opposite charged ions | D. | Naphthalene | Van der Waals forces between naphthalene molecules | <p>A B</p> <p>C D</p> |
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| 4 | <p>Between ethanol, C_2H_5OH, and water, H_2O, which one have higher boiling point? Explain.</p> <p>A. Ethanol has higher boiling point than water because it has greater molar mass.</p> <p>B. Ethanol has lower boiling point than water because it cannot form hydrogen bond between molecules.</p> <p>C. Water has higher boiling point than ethanol because water can form more intermolecular hydrogen bond.</p> <p>D. The boiling point of both are not much different because both molecules can form hydrogen bond.</p> | <p>A B</p> <p>C D</p> |
| 5 | <p>Hydrogen fluoride has higher boiling point than ammonia. Choose the most accurate statement to explain this.</p> <p>A. Fluorine is less electronegative than nitrogen. Thus, hydrogen bond is stronger.</p> <p>B. Fluorine is more electronegative than nitrogen. Thus, hydrogen bond is stronger.</p> <p>C. Hydrogen fluoride forms more hydrogen bonds per molecule than ammonia can form.</p> <p>D. The fluorine-hydrogen bond is stronger than the nitrogen-hydrogen bond.</p> | <p>A B</p> <p>C D</p> |
| 6 | <p>The following statement explain why water is denser than ice except:</p> <p>A. Each water molecule in ice is tetrahedrally hydrogen bonded to four other water molecules.</p> <p>B. In ice, water molecules in an open structure.</p> <p>C. At lower temperature, water molecules are far apart.</p> <p>D. There are large spaces within ice.</p> | <p>A B</p> <p>C D</p> |

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| 7 | <p>The conduction of electricity in metallic bonding is due to presence of</p> <p>A. proton.</p> <p>B. lattice.</p> <p>C. delocalised electron.</p> <p>D. nucleus.</p> | <p>A B</p> <p>C D</p> |
| 8 | <p>Because of the mobility of the delocalised valence electrons, metals are</p> <p>A. not able to be deformed without breaking.</p> <p>B. not able to be drawn into wire.</p> <p>C. bad electrical conductor.</p> <p>D. able to transfer heat.</p> | <p>A B</p> <p>C D</p> |
| 9 | <p>Factor(s) that influence(s) the values of boiling points of simple covalent molecule with comparable relative molecular mass is (are).</p> <p>I: molecular geometry</p> <p>II: resultant of dipole moment</p> <p>III: types of intermolecular forces</p> <p>A. I only C. II and III</p> <p>B. I and II D. I,II and III</p> | <p>A B</p> <p>C D</p> |
| 10 | <p>Boiling point of halogen increases down a group because</p> <p>A. Atomic size increases down a group.</p> <p>B. Screening effect decreases down a group.</p> <p>C. Number of proton increase, electron closer to nucleus.</p> <p>D. Molecular size increases down a group.</p> | <p>A B</p> <p>C D</p> |