DPP-1 (Solutions)

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1 **(A)**

On time average the molecule is non-polar but at the particular moment, it may act as a dipole which is equally probable in all directions.

2 **(B)**

In contrast, BF_3 is a stronger Lewis acid than BMe_3 toward weak bases like CO. This is the reason that BF_3 has lower boiling point that BME_3

3 **(B)**

Due to London dispersion force.

4 **(A)**

Statement-1 is true, Statement-2 is true and Statement2 is the correct explanation for Statement-1.

Due to the London-dispersion forces, non-polar molecules have some polar character. So, for time average the molecule is non polar but at a particular moment it may act as a dipole which is equally probable in all directions.

5 **(D)**

Statement -1 CCl_4> $SiCl_4$ due to steric repulsion in $SiCl_4$ by 4 chlorine atoms.

In $SiCl_4$ the bonding is between 3p of Si and 3p of chlorine. But in CCl_4 the bonding is 2p of carbon and 3p of chlorine. The CCl_4 molecule are smaller and could get closer to one another. To leads to a compact structure. So large Intermolecular force of attraction

$CCl_4(Bpt) > SiCl_4(Bpt)$

6 **(C)**

The correct options are

London force exist in all kind of molecules whether it is polar or nonpolar.

7 **(ABC)**

London dispersion depends on molecular weight, number of polarisable electron, molecular size.

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8 **(ABC)**

Kessom Force -> dipole -dipole

Hydrogen Bonding -> Dipole- Dipole

(Depends on mass)

Solubility in option (D) incorrect due to polar solvent.

In option C , “Like dissolves like”.

9 **(B)**

Ion-dipole interaction

10 **(B)**

Dipole moment is directly proportional to dipole- dipole interaction.

For option D, Boiling point depends on mass due to hydrides. So, for the hydrides of carbon family it increases down the group.

11 **(D)**

Instantaneous dipole - induced dipole interaction

A gas can be liquified only if it has significant intermolecular forces of attraction.

Eg: Xe is a non polar gas so an instantaneous dipole is created in one molecules which induces dipole in other Xe molecule which is responsible for the liquefaction of Xe. Due to increases size and vander Waal force of Xe, it is easy to liquify at low temperatures.