

Only one correct

1. BF_3 and BCl_3 are gaseous, BBr_3 is volatile liquid while BI_3 is solid. It is due to
(A) increased number of electrons, enhance the polarisability of the molecules.
(B) increased number of electrons, diminish the polarisability of the molecules.
(C) decreased number of electrons, enhance the polarisability of the molecules.
(D) decreased number of electrons, diminish the polarisability of the molecules.
2. Which of the following option is CORRECT about 1,2-dichloroethene
(A) cis > trans (B.P.) (B) cis < trans (M.P.)
(C) cis > trans (solubility) (D) all of these
3. Which of the following force of attraction is observed in H_3O^+
(A) dipole-dipole (B) ion-dipole
(C) H-bonding (D) all of these
4. **Statement-1:** He and Ne do not form clathrate with phenol due to their small size
Statement-2: Ne can form clathrate with hydroquinone
(A) Statement-1 is true, statement- 2 is true and statement- 2 is correct explanation for statement-1.
(B) Statement-1 is true, statement-2 is true and statement-2 is NOT the correct explanation for statement-1.
(C) Statement-1 is true, statement-2 is false.
(D) Statement-1 is false, statement-2 is true.
5. The stability sequence of $\text{I}_3^- > \text{Br}_3^- > \text{Cl}_3^-$ can be explained by
(A) Keesom force
(B) Debye force
(C) instantaneous dipole-induced dipole
(D) ion-induced dipole
6. **Statement 1:** CF_4 has lower boiling point than OF_2 .
Statement 2 : Lower boiling point of CF_4 arises from its zero dipole moment
(A) Statement-1 is true, statement- 2 is true and statement- 2 is correct explanation for statement- 1.
(B) Statement-1 is true, statement-2 is true and statement-2 is NOT the correct explanation for statement-1.
(C) Statement-1 is true, statement- 2 is false.
(D) Statement-1 is false, statement-2 is true.

Multiple Choice

7. Select the correct statement(s)
- (A) Ortho-xylene has higher boiling point than para-xylene
(B) Nitro-alkanes show higher B.P. as compared to alkanes of comparable molecular mass.
(C) London forces are present in both NF_3 and in NH_3 .
(D) London force is purely attractive not repulsive in nature.
8. The explanation of various intermolecular forces indicates
- (A) the unusual (anomalous) behaviour of H_2O , NH_3 and HF in terms of the relationship between molecular weight and boiling points is due to London forces.
(B) ion-dipole forces account for the solvation energy which plays an important role in dissolving of ionic solids.
(C) for non-polar molecules in the liquid state, an important force acting is magnetic attraction
(D) London forces are dominating in non-polar molecules
9. Which of the following statement is **CORRECT**?
- (A) In CHCl_3 molecule both dipole forces as well as London forces exist.
(B) In H_2O molecule both hydrogen bonds as well as London forces are present.
(C) In CCl_4 only London forces exist.
(D) In salicylaldehyde both hydrogen bonds as well as London forces are present.
10. Consider the following statements
- I. Dispersion forces exist between all atoms, molecules and ions.
II. The extent of ion induced dipole interaction depends on the charge on ion.
III. Dry ice is held together by a network of $\text{C} = \text{O}$ bonds.
IV. Among the hydrides of second period, decreasing order of boiling points is $\text{HF} > \text{H}_2\text{O} > \text{NH}_3 > \text{CH}_4$
- INCORRECT** statement(s) out of the above will be
- (A) III (B) IV (C) II (D) I

ANSWER KEY

1. A 2. D 3. D 4. B 5. D 6. A 7. ABCD
8. BD 9. ABCD 10. AB

A