

3) The order of covalent nature for aluminium halides is $\text{AlF}_3 < \text{AlCl}_3 < \text{AlBr}_3 < \text{AlI}_3$. The best explanation according to Fajan's rules is:

A) Al^{3+} is larger in size and hence it has greater polarizing power.

B) The polarizability of halide ions increases with increase in their size and hence the covalent nature also increases.

C) The polarizability of halide ions decreases with increase in their size and hence the covalent nature decreases.

D) The given order of covalent nature is due to greater polarizing power of Al^{3+} ion.

Answer: B

4) The correct order of covalent nature of alkali metal chlorides is:

A) $\text{LiCl} < \text{NaCl} < \text{KCl} < \text{RbCl} < \text{CsCl}$

B) $\text{CsCl} < \text{NaCl} < \text{KCl} < \text{RbCl} < \text{LiCl}$

C) $\text{LiCl} > \text{NaCl} > \text{KCl} > \text{RbCl} > \text{CsCl}$

D) $\text{LiCl} = \text{NaCl} = \text{KCl} = \text{RbCl} < \text{CsCl}$

Answer: C

Explanation: The covalent nature decreases with increase in the size of cation since the polarizing power decreases with increase in the size.

5) Polarization is the distortion of the shape of an anion by an adjacently placed cation. Which of the following statements is correct: [NCERT 1982]

A) Maximum polarization is brought about by a cation of high charge

B) A large cation is likely to bring about a large degree of polarization

C) Minimum polarization is brought about by a cation of low radius

D) A small anion is likely to undergo a large degree of polarization

Answer: A - From Fajan's rules

6) Which of the following has a high polarising power? [CET Pune 1998]

A) Mg^{2+}

B) Al^{3+}

C) Na^+

D) Ca^{2+}

Answer: B

Explanation: According to Fajan's rules, the greater the charge the greater is the polarizing power of cation.