
1. The correct order of strengths of back-bonding and lewis acidic strengths in Boron trihalides respectively is:
 - A.** $BF_3 < BCl_3 < BBr_3$ and $BF_3 < BCl_3 < BBr_3$
 - B.** $BF_3 > BCl_3 > BBr_3$ and $BF_3 > BCl_3 > BBr_3$
 - C.** $BF_3 > BCl_3 > BBr_3$ and $BF_3 < BCl_3 < BBr_3$
 - D.** $BF_3 < BCl_3 < BBr_3$ and $BF_3 > BCl_3 > BBr_3$
2. For BF_3 molecule, which of the following is true?
 - A.** B atom is sp^2 hybridized
 - B.** There is a $p\pi-p\pi$ back bonding in this molecule
 - C.** Observed $B-F$ bond length is found to be less than the expected bond length
 - D.** All of these
3. If the $B-F$ bond length in BF_3 is 1.30 \AA , then the $B-F$ bond length in $Me_3N \cdot BF_3$ is:
 - A.** 1.30 \AA
 - B.** 1.28 \AA
 - C.** 1.25 \AA
 - D.** 1.35 \AA

4. In the case of alkali metal halides, the covalent character decreases in the order:

- A.** $MF > MCl > MBr > MI$
- B.** $MF > MCl > MI > MBr$
- C.** $MI > MBr > MCl > MF$
- D.** $MCl > MI > MBr > MF$

5. $AlCl_3$ is covalent while AlF_3 is ionic. This can be justified on the basis of:

- A.** Valence-bond theory
- B.** Fajan's rule
- C.** Molecular-orbital theory
- D.** Hydration energy