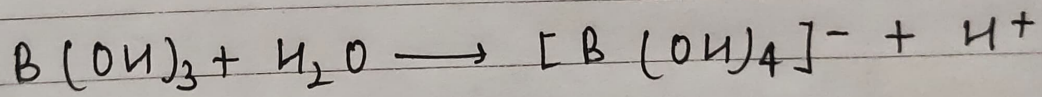
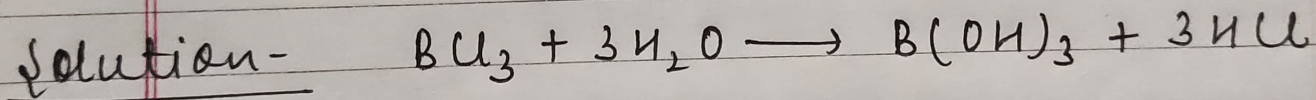


DATE: / /

Ques-3 When  $\text{BCl}_3$  is treated with water, it hydrolyses and forms  $[\text{B}(\text{OH})_4]^-$  only whereas  $\text{AlCl}_3$  in acidified aqueous solutions form  $[\text{Al}(\text{H}_2\text{O})_6]^{3+}$ . Explain what is the hybridisation of boron and aluminium in these species?



$\text{B}(\text{OH})_3$  due to its incomplete octet accepts an electron pair (as  $\text{OH}^-$ ) to give  $[\text{B}(\text{OH})_4]^-$ . Boron in this ion involves one 2s orbital and three 2p orbitals. Thus hybridization of B in  $[\text{B}(\text{OH})_4]^-$  is  $sp^3$ .