

Board – CBSE

Class – 11<sup>th</sup>

Topic – Some p-Block Elements

1. Discuss the pattern of variation in the oxidation states of (i) B to Tl (ii) C to Pb.
2. How can you explain higher stability of  $\text{BCl}_3$  as compared to  $\text{TlCl}_3$ ?
3. Consider the compounds  $\text{BCl}_3$  and  $\text{CCl}_4$ . How will they 'behave with water justify?
4. Is boric acid a protonic acid? Explain.
5. Explain what happens when boric acid is heated.
6. Write the resonance structure of  $\text{CO}_3^{2-}$  and  $\text{HCO}_3^-$ .
7. Rationalise the given statements and give chemical reactions:
  - (a) Lead (II) chloride reacts with  $\text{Cl}_2$  to give  $\text{PbCl}_4$ .
  - (b) Lead (IV) chloride is highly unstable towards heat.
  - (c) Lead is known not to form an iodide  $\text{PbI}_4$ .
8. Aluminium trifluoride is insoluble in anhydrous HF but dissolves on addition of NaF. Aluminium trifluoride precipitates out of the resulting solution when gaseous  $\text{BF}_3$  is bubbled through. Give reason.
9. Explain structures of diborane and boric acid.
10. What happens when
  - (a) Borax is heated strongly
  - (b) Boric acid is added to water
  - (c) Aluminium is treated with dilute NaOH
  - (d)  $\text{BF}_3$  is reacted with ammonia?
11. What are allotropes? Sketch the structure of two allotropes of carbon namely diamond and graphite. What is the impact of structure on physical properties of two allotropes?
12. Why do boron halides form addition compounds with  $\text{NH}_3$ ?
13. Out of  $\text{CCl}_4$  and  $\text{SiCl}_4$  which one react with water and why?
14. Describe two similarities and two dissimilarities between B and Al.
15. (a) What is general formula of silicones?  
(b) How are linear silicones obtained?
16. Give reason why boron and aluminium tend to form covalent compounds.