

P-Block

Group 13 \rightarrow Boron Family

- Q1. What is inert pair effect?
(Observed at in Gr 13, 14, 15; Period 5 and 6)
- Q2. Arrange Gr-13 elements in order of increasing I.E.s.
- Q3. Boron always forms covalent compounds
- Q4. In trivalent state, the halides of Group 13 elements can act as Lewis acids. Explain.
- Q5. Arrange the foll. in order of increasing strength of Lewis acid, explain.
 BBr_3 , BCl_3 , BF_3 .
- Q6. Arrange in increasing order of basic strength. Explain.
i) B_2O_3 , Al_2O_3 , Ga_2O_3 , In_2O_3 , Tl_2O_3 .
ii) $B(OH)_3$, $Al(OH)_3$, $Ga(OH)_3$, $In(OH)_3$, $Tl(OH)_3$.
- Q7. Aq. soln. of Boric acid is weakly acidic. Explain.
- Q8. i) $B_2O_3 + NaOH \rightarrow$
ii) $Al_2O_3 + H_2SO_3 \rightarrow$
iii) $Al_2O_3 + NaOH \rightarrow$
- Q9. What happens when B reacts with i) H_2SO_4 . ii) HNO_3 .
Write the eqⁿ.
- Q10. What happens when Al is treated with
i) HCl
ii) dil. H_2SO_4
iii) conc. H_2SO_4 .
Write the eqⁿ.
- Q11. i) $B + NaOH \rightarrow$
ii) $NaOH + Al + H_2O \rightarrow$
- Q12. BCl_3 undergoes complete hydrolysis but BF_3 undergoes partial hydrolysis. Explain.

Q13. $AlCl_3$ exists in dimeric form. Explain and draw the structure.

Q14. Arrange Group 13 elements in order of reducing strength.

Q15. What is the structural unit of all Boron isotopes?

Q16. Which metal is used in thermite welding?

Q17. What is ammanal?

Q18. Which metals are present in the following alloys?

i) Magnesium

ii) Duralumin

iii) ~~Aluminum~~ Al Bronze.

Q19. Write diff. b/w B and Al.

Q20. What is Borax? Write the formula. How can it be prepared from

i) Colemanite

ii) Boric acid.

Q21. Write eqⁿ.

Q22. Borax on hydrolysis gives alkaline soln, explain.

Q23. What happens when Borax is Δ .

Q24. What is the colour of Borax bead in reducing flame.

Q25. For the metals

i) Cobalt

ii) Copper

iii) Iron

iv) Chromium

v) Manganese

vi) Nickel.

Q26. Write the reactions.

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Q24. How can boric acid be prepared from borax and colemanite write proper eqⁿ.

Q25. Write the hydrolysed product of Boron trihalide, Boron tri-

Write eqⁿ.

Q26. What is the Δ effect on boric acid.

Q27. Boric acid is weak monobasic acid. Explain.

Q28. Draw the structure of boric acid.

Q29. What is obtained when diborane is hydrolysed?

Q30. What is inorganic benzene? Draw the structure and also write the formula.

Q31. Draw the structure of diborane & mention the diff. types of H_2 .

Q32. What is the formulae of Potash alum?

Q33. What happens when Potash alum is treated with $NaOH$?

Q34. What is burnt alum?