

21/10/2024

Chemistry Assignment

The p block elements (Group 15-18)

1. How many P–P bonds present in cyclotrimetaphosphoric acid $(\text{HPO}_3)_3$?
 2. What happens when conc. H_2SO_4 is slowly added to cane sugar?
 3. In interhalogen compounds of the type AB_5 and AB_7 , B is invariably fluorine. Why?
 4. Why are the elements of Group 18 known as noble gases?
 5. How many oxidation states are shown by nitrogen?
 6. H_2S is less acidic than H_2Te . Give reason.
 7. What is the composition of bleaching powder?
 8. How will you prepare xenon oxytetrafluoride?
 9. What happens when (give balanced chemical equation only):
 - (a) ammonia is treated with sodium hypochlorite.
 - (b) phosphine burns in chlorine.
 10. Give four uses of bleaching powder.
 11. ClF_3 exists but FCl_3 does not. Why?
 12. Draw the structures of the following molecules:
 - (i) SF_4 , (ii) XeF_4
 13. PCl_5 exists as $[\text{PCl}_6]^- [\text{PCl}_4]^+$ but PBr_5 exists as $[\text{PBr}_4]^- [\text{Br}]^+$. Explain.
 14. Why are oxygen-fluorine binary compounds called Oxygen fluoride? Give the preparation of chlorine dioxide, ClO_2 .
 15. Why halogens are strong oxidising agents?
 16. Give an equation in which the xenon fluoride act as a
 - (i) fluoride donor, (i) fluoride acceptor.
 17. Why does a nitric acid bottle appear yellow?
 18. Compare : Maximum covalency of oxygen and sulphur.
- OR
- Compare: Structures of pentoxides of nitrogen and phosphorus.
19. Why $(\text{CH}_3)_3\text{N}$ is pyramidal, whereas $(\text{SiH}_3)_3\text{N}$ is planar?
 20. Why halogens are coloured?
 21. Give reasons for the following:
 - (i) Noble gases are mostly inert.
 - (ii) Noble gases form compounds with fluorine and oxygen only.
 - (iii) Neon is generally used for warning signals.
 22. Account for the following:
 - (i) NH_3 has higher boiling point than PH_3 .
 - (i) H_3PO_3 is diprotic acid.