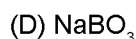
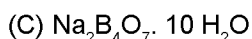
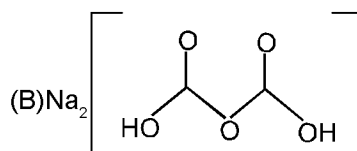
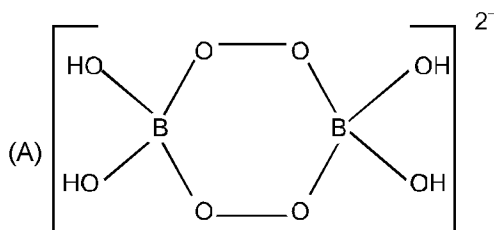


Topic : p-block (Boron and Carbon family)

Type of Questions

Type of Questions	M.M., Min.
Single choice Objective ('-1' negative marking) Q.1 to Q.9	[27, 27]
Comprehension ('-1' negative marking) Q.10 to Q. 13	[12, 12]
Match the Following (no negative marking) Q. 14	[8, 10]

- Which metal container is used for contains concentrated HNO_3 .
(A) Al (B) Cr (C) Fe (D) Sn
- Which of the following compounds does not undergo hydrolysis completely
(A) BF_3 (B) BCl_3 (C) BBr_3 (D) All
- Which is not correct about the alums
(A) They are used as mordants (B) They are used as coagulants
(C) Their aq. solutions all acidic (D) $(\text{NH}_4)\text{SO}_4 \cdot \text{FeSO}_4 \cdot 6\text{H}_2\text{O}$ is not an alum
- The correct order of basic strength will be
(A) $\text{BN} > \text{AlN}$ (B) $\text{AlN} > \text{GaN}$ (C) $\text{BN} > \text{GaN}$ (D) $\text{Mg}_3\text{N}_2 > \text{AlN}$
- H_2O_2 can react with aq. NaBO_2 to produce.



- Which of the following species does not exist
(A) TlI_3 (B) TlBr_3 (C) $[\text{CO}_4]^{4-}$ (D) PbBr_4
- Which of the following will produced metal oxide on heating?
(A) NaHCO_3 (B) $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ (C) Na_2CO_3 (D) $\text{Al}_2(\text{CO}_3)_3$
- General formula of boranes can be
(A) $\text{B}_n\text{H}_{2n+n}$ (B) B_nH_{n+4} (C) B_nH_{n+6} (D) $\text{B}_n\text{H}_{2n+4}$
- Which of the following is correct about $\text{Al}_2(\text{CH}_3)_6$
(A) each 'B' atom is sp^3 hybridised
(B) It consists of two-"3 centre 2 electron bonds"
(C) The two bridging C-atoms are in the plane of the molecules
(D) all the above are correct

Comprehension # (Q. 10 to 13)

The highest oxidation state of p-block element is equal to the group number minus 10. Moving down the group, the oxidation state two less than the highest group oxidation state becomes more stable in groups 13 to 16 due to inert pair effect.

10. Which of the following statement is incorrect ?
(A) PbI_4 does not exist.
(B) Boron shows +3 oxidation state.
(C) $TiCl_3$ does not undergo disproportionation reaction.
(D) In thallium +3 oxidation state is more stable than +1.
11. The strongest reducing agent among the following is :
(A) Ge (II) chloride (B) Sn (II) chloride (C) Pb (II) chloride (D) None
12. The strongest oxidising agent among the following is :
(A) Pb (IV) oxide (B) Si (II) oxide (C) Sn (II) oxide (D) Ge (II) oxide
13. Which of the following compound exist at room temperature
(A) BiF_5 (B) $MnCl_7$ (C) $Tl(CH_3)_3$ (D) $BiCl_5$
14. Match the Column :
- | Column-I | Column-II |
|-------------------------------|-------------------------------------|
| (A) $B_3O_3H_3$ | (p) Six members ring |
| (B) $B_3N_3H_6$ | (q) Eight members ring |
| (C) $Na_2B_4O_7 \cdot 10H_2O$ | (r) Hetero atomic ring |
| (D) P_4O_{10} | (s) Oxygen atom not present in ring |
| | (t) Even number atoms ring |

Answer Key

DPP No. # 64

- | | | | | |
|--|---------|---------|---------|---------|
| 1. (A) | 2. (A) | 3. (D) | 4. (D) | 5. (A) |
| 6. (CD) | 7. (BD) | 8. (BC) | 9. (AB) | 10. (D) |
| 11. (A) | 12. (A) | 13. (A) | | |
| 14. (A - p,t,r); (B - p,s,t,r) ; (C- p,q,r,t) ; (D- p,q,r,t) | | | | |



Hints & Solutions

PHYSICAL / INORGANIC CHEMISTRY

DPP No. # 64

1. Aluminium becomes passive due to formation of Al_2O_3 .
2. BF_3 undergoes only partial hydrolysis, due to reaction of produced HF with H_3BO_3 .
6. $[\text{CO}_4]^{-4}$ & PbBr_4 does not exist.
9. 'A' and 'B' are correct on the basis of structure of $\text{Al}_2(\text{CH}_3)_6$.
10. The more stable oxidation state of thallium is +1 on account of inert pair effect.
11. The stable oxidation state of germanium is +3 ; so it has tendency to oxidise to +3 from +2.
12. The stable oxidation state of lead is +2 on account of inert pair effect ; so it has tendency to reduce to +2 from +4.

