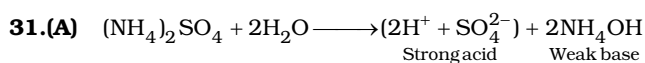


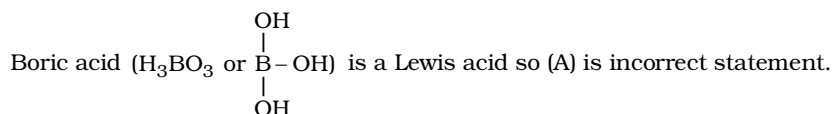
**Daily Tutorial Sheet 3**

**JEE Main (Archive)**



$(\text{NH}_4)_2\text{SO}_4$  on hydrolysis produces strong acid  $\text{H}_2\text{SO}_4$ , which increases the acidity of the soil.

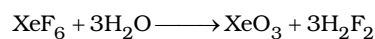
**32.(C)** The correct formula of inorganic benzene is  $\text{B}_3\text{N}_3\text{H}_6$  so (D) is incorrect statement.



The coordination number exhibited by beryllium is 4 and not 6 so statement (B) is incorrect.

Both  $\text{BeCl}_2$  and  $\text{AlCl}_3$  exhibits bridged structures in solid state so (C) is correct statement.

**33.(A)** The reaction is not feasible because  $\text{XeF}_6$  formed will further produce  $\text{XeO}_3$  by getting hydrolysed.



**34.(C)** In group 15 hydrides, the basic character decreases on going down the group due to decrease in the availability of the lone pair of electrons because of the increase in size of elements from N to Bi. Thus, correct order of basicity is  $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3$ .

**35.(A)** Thermal stability decreases gradually from  $\text{NH}_3$  to  $\text{BiH}_3$ . So the stability also decreases.

	<b>NH<sub>3</sub></b>	<b>PH<sub>3</sub></b>	<b>AsH<sub>3</sub></b>	<b>SbH<sub>3</sub></b>	<b>BiH<sub>3</sub></b>
Decomposition Temperature	1300°C	440°C	280°C	150°C	Room temp.

The size of the central atom increases from N to Bi therefore, the tendency to form a stable covalent bond with small atom like hydrogen decreases and therefore, stability decreases.

**36.(D)** Sulphur exhibits -2, +2, +4, +6 oxidation states but +4 and +6 are more common.

**37.(A)** Boron cannot form  $\text{BF}_6^{3-}$  due to non-availability of d-orbitals.

**38.(C)** All the numbers form volatile halides of the type  $\text{AX}_3$ . All halides are pyramidal in shape. The bond angle decrease on moving down the group due to decrease in bond pair-bond pair repulsion.

$\text{NCl}_3$	$\text{PCl}_3$	$\text{AsCl}_3$
107°	94°	92°

**39.(A)** All the statements are correct.

**40.(D)** No. of O-atoms (i.e., oxidation state)  $\propto$  Acidic strength. Hence, the decreasing order of acidic strength will be  $\text{HClO}_4 > \text{HClO}_3 > \text{HClO}_2 > \text{HOCl}$

**41.(A)** Nitric oxide is paramagnetic in the gaseous state because of the presence of one unpaired electron in its outermost shell. The electronic configuration of NO is  $\sigma_{1s}^2 \sigma_{1s}^{*2} \sigma_{2s}^2 \sigma_{2s}^{*2} \sigma_{2p_z}^2 \pi_{2p_x}^2 \pi_{2p_y}^1 = \pi_{2p_y}^{*1} \pi_{2p_x}^2$

**42.(B)**  $\text{CsI}_3$  dissociation as  $\text{CsI}_3 \rightarrow \text{Cs}^+ + \text{I}_3^-$

**43.(B)** Interhalogen compounds are generally more reactive than the halogens (except  $\text{F}_2$ )

- 44.(C)** Dinitrogen and dioxygen combine to form nitric oxide when the mixture is heated to  $2273 - 3273$  K in an electric arc.
- 45.(C)** Fluorine is the most electronegative element and has least tendency to form double bonds.