46.(A) $X_2O_3, X_2(SO_4)_3$ and XPO_4 suggest the + 3 oxidation state of X. Hence, the formula of its chloride is XCl_3.

47.(C) $Cl_2 + H_2O \rightarrow \underset{\text{Hydrochloric acid}}{HCl} + \underset{\text{Hypochlorus acid}}{HOCl}$

48.(B) Xe. As we move down the group, the melting and boiling points show a regular increase due to corresponding increase in the magnitude of their van der waal forces of attraction as the size of the atom increases.

49.(A) $4Zn + 10HNO_{3(dil.)} \longrightarrow 4Zn(NO_3)_2 + N_2O + 5H_2O$

$Zn + 4HNO_{3(conc.)} \longrightarrow Zn(NO_3)_2 + 2NO_2 + 2H_2O$

50.(A)

Name	Formula	Oxidation
Orthophosphorous acid	H_3PO_3	+3
Pyrophosphorous acid	$H_4P_2O_5$	+3
Hypophosphoric acid	$H_4P_2O_6$	+4
Pyrophosphoric acid	$H_4P_2O_7$	+5

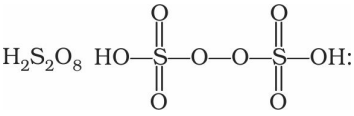
51.(C) Fluorine is the most electronegative element and it shows only –1 oxidation state.

52.(A) Sulphur have puckered S_8 rings with crown conformation and Engel's Sulphur contains S_6 rings arranged in a chair conformation.

53.(A) When Cl_2 gas reacts with cold and aqueous NaOH, chloride (Cl) and hypochlorite (ClO^-) ions are formed

$$\underset{\text{(dil.)}}{Cl_2 + 2NaOH} \xrightarrow{\text{Cold}} \underset{\substack{\text{(Sodium}\\\text{chloride)}}}{NaCl} + \underset{\substack{\text{(Sodium}\\\text{hypochlorite)}}}{NaOCl} + H_2O$$

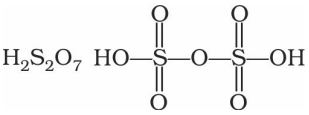
54.(A) Peroxodisulphuric acid :



No. of S = O bonds = 4

No. of S – OH bonds = 2

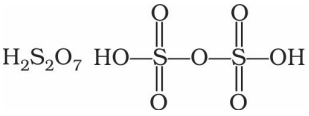
Pyrosulphuric acid:

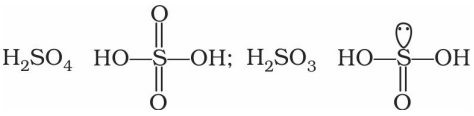


No. of S = O bonds = 4

No. of S – OH bonds = 2

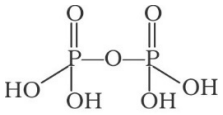
55.(D)





56.(D) $XeF_6 + H_2O \longrightarrow \underset{X}{XeOF_4} + 2HF$

$2XeF_6 + SiO_2 \longrightarrow \underset{X}{2XeOF_4} + SiF_4$

57.(D) 

$(H_4P_2O_7)$

Oxidation state of P : $2x + 4(+1) + 7(-2) = 0$

Thus, $x = +5$

In this structure, four P—OH groups are present.

58.(D) $Ba(N_3)_2 \xrightarrow{\Delta} Ba + 3N_2$

$(NH_4)_2Cr_2O_7 \xrightarrow{\Delta} N_2 + 4H_2O + Cr_2O_3$

$NH_4NO_2 \xrightarrow{\Delta} N_2 + 2H_2O$

$(NH_4)_2SO_4 \xrightarrow{\Delta} 2NH_3 + H_2SO_4$

59.(B) Partial hydrolysis of XeF_6 gives $XeOF_4$(X) and XeO_2F_2(Y) :

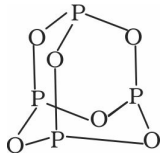
$XeF_6 + H_2O \rightarrow \underset{(X)}{XeOF_4} + 2HF$

$XeF_6 + 2H_2O \rightarrow \underset{(Y)}{XeO_2F_2} + 4HF$

Let, oxidation states of Xe in $XeOF_4$ and XeO_2F_2 be a and b respectively.

$XeOF_4 : a + (-2) + 4 \times (-1) = 0 \Rightarrow a = +6$

$XeO_2F_2 : b + 2 \times (-2) + 2 \times (-1) = 0 \Rightarrow b = +6$

60.(B) Structure of P_4O_6 is : 

Total P — O bonds = 12