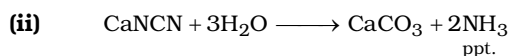
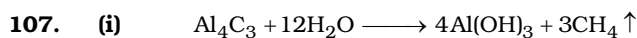
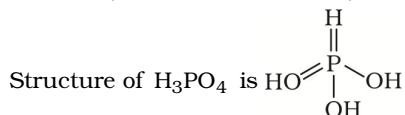
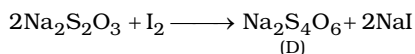
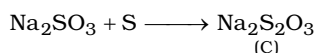
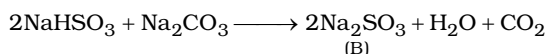
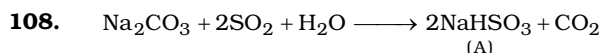
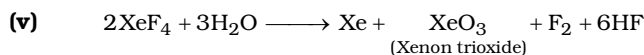
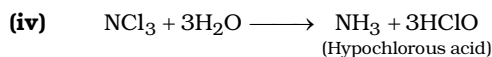
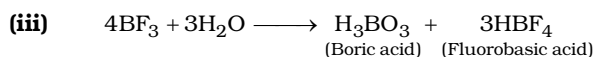
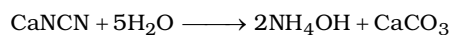
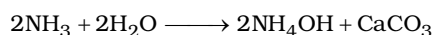


Since it has only two  $-\text{OH}$  groups so it is dibasic.

In it, the oxidation state of P is +3 whereas P can also have an oxidation state of +5, so  $\text{H}_3\text{PO}_3$  can be oxidised (from +3 to +5 state). Since it can be oxidised so it is a reducing agent.



Ammonia ( $\text{NH}_3$ ) formed when dissolved in water yields  $\text{NH}_4\text{OH}$ .



Oxidation states of S :

In A it is +4  $(1 + 1 + x - 6 = 0 \text{ or } x = +4)$

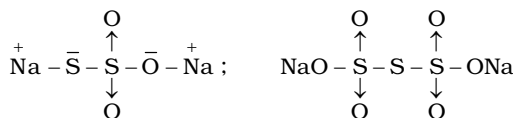
In B it is +4  $(2 \times 1 + x - 6 = 0 \text{ or } x = +4)$

In C it is +2  $(2 \times 1 + 2x - 6 = 0 \text{ or } x = +2)$

In D it is +2.5  $(2 \times 1 + 4x - 12 = 0 \text{ or } x = +2.5)$

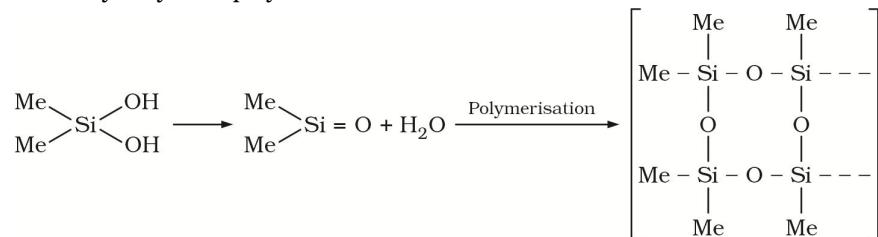
**Note :** The values of oxidation states of S in C and D gives are average values.

Structures of  $\text{Na}_2\text{S}_2\text{O}_3$  and  $\text{Na}_2\text{S}_4\text{O}_6$  may be drawn as

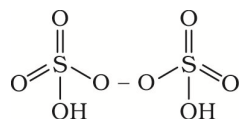


**109.(C)** It appears at the first sight that  $\text{Me}_2\text{SiCl}_2$  on hydrolysis will produce  $\text{Me}_2\text{Si}(\text{OH})_2$  which ultimately upon loss of water, will form  $\text{Me}_2\text{Si} = \text{O}$ .

But silicon atom, because of its very large size in comparison to oxygen, is unable to form  $\pi$  - bond. Thus, the product of hydrolysis is polymeric in nature.



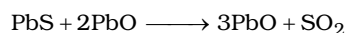
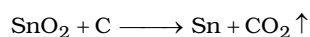
**110.(C)** From amongst the given oxyacids of S only  $\text{H}_2\text{S}_2\text{O}_8$  has O – O linkage.  $\text{H}_2\text{S}_2\text{O}_8$  is known as Marshall's acid.



The other acid of S having O – O linkage is  $\text{H}_2\text{SO}_5$  known as Caro's acid.

**111.(B)** In  $\text{XeOF}_4$ , Xe is  $\text{sp}^3\text{d}^2$  hybridised and has one lone pair of electrons.

**112.(B)** Tin can be extracted only by carbon reduction method, while lead can be extracted by self as well as carbon reduction method.



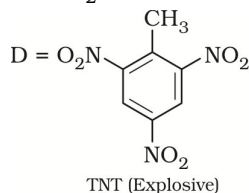
**113.(B)**  $\text{NO}(\text{g}) + \text{NO}_2(\text{g}) \xrightarrow{-30^\circ\text{C}} \text{N}_2\text{O}_3$   
(blue liquid)

**114.(C)** Because the ignition temperature of black phosphorous is highest among various allotropes of phosphorus, so black phosphorus is most stable.

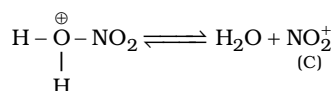
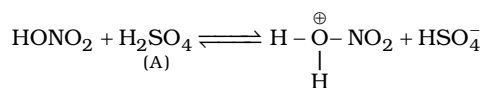
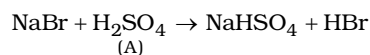
**115.** A = concentrated  $\text{H}_2\text{SO}_4$ ,

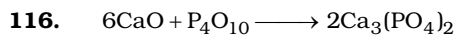
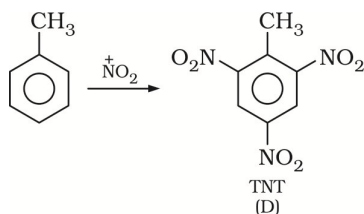
B =  $\text{Br}_2$

C =  $\text{NO}_2^+$  (intermediate)



Reactions involved are :



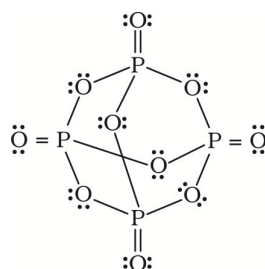


Number of moles of  $\text{P}_4\text{O}_{10} = \frac{852}{284} = 3$  [Mol. wt. of  $\text{P}_4\text{O}_{10} = 284$ ]

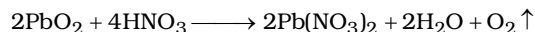
Number of moles of  $\text{CaO}$  for 3 moles of  $\text{P}_4\text{O}_{10} = 3 \times 6 = 18$

Weight of  $\text{CaO} = 18 \times 56 \text{ g}$  [Mol. wt. of  $\text{CaO} = 56$ ]

$= 1008 \text{ g}$



**117.(B)**  $\text{PbO}_2$  is a powerful oxidizing agent and liberate  $\text{O}_2$  when treated with acids.



**118.(B)** cis-1, 2-diol forms chetaled complex ion with the product,  $[\text{B}(\text{OH})_4]^-$  causing the reaction to proceed in forward direction.

**119. [A-q] [B-s] [C-p] [D-r]**

**(A)**  $\text{Bi}^{3+}$  hydrolysis to yield  $\text{BiO}^+$  ion

**(B)**  $\text{AlO}_2^-$  on dilution yields a white ppt. of  $\text{Al}(\text{OH})_3$

**(C)** When heated  $(\text{SiO}_4)^{4-}$  changed to  $(\text{Si}_2\text{O}_7)^{6-}$

**(D)** When acidified  $(\text{B}_4\text{O}_7)^{2-}$  gives  $\text{B}(\text{OH})_3$  (or  $\text{H}_3\text{BO}_3$ )

**120.(D)** In  $\text{P}_4$ , the P-P linkage is formed by  $\text{sp}^3 - \text{sp}^3$  hybridised orbital overlapping. So the percentage of p-character will be 75%.

