

## FlexiPrep

### Chemistry 12 Chapter 7 Exemplar Solutions the P Block Elements Part 5 (For CBSE, ICSE, IAS, NET, NRA 2022)

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#### Question 53:

Name three oxyacid's of nitrogen. Write the disproportionation reaction of that oxoacid of nitrogen in which nitrogen is in +3 oxidation state.

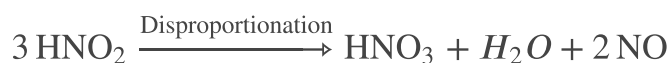
#### Answer:

Three oxoacids of nitrogen are

(i)  $\text{HNO}_2$  , Nitrous acid

(ii)  $\text{HNO}_3$  , Nitric acid

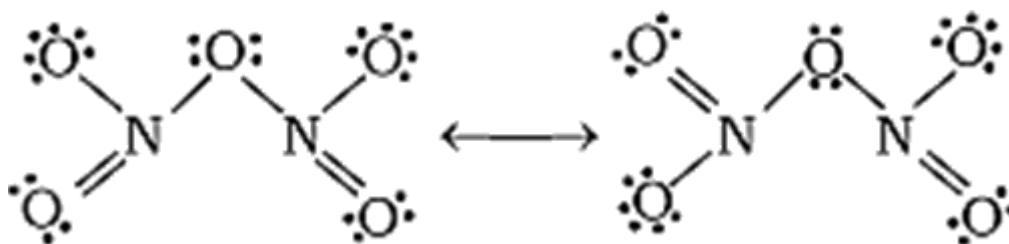
(iii) Hyponitrous acid,  $\text{H}_2\text{N}_2\text{O}_2$



#### Question 54:

Nitric acid forms an oxide of nitrogen on reaction with  $\text{P}_4\text{O}_{10}$  . Write the reaction involved. Also write the resonating structures of the oxide of nitrogen formed.

#### Answer:



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#### Question 55:

Phosphorus has three allotropic forms — (i) white phosphorus (ii) red phosphorus and (iii) black phosphorus. Write the difference between white and red phosphorus on the basis of their structure and reactivity.

**Answer:**

(a) • Structures (See NCERT textbook for Class XII)

- White phosphorus is discrete tetrahedral molecule. Thus it has tetrahedral structure with six  $P-P$  bonds.
- Red phosphorus has polymeric structure in which  $P_4$  tetrahedra are linked together through  $P-P$  bonds to form chain.

(b) Reactivity

White phosphorus is much more reactive than red phosphorus. This is because in white phosphorus there is angular strain in  $P_4$  molecules because the bond angles are only of  $60^\circ$ .

**Question 56:**

Give an example to show the effect of concentration of nitric acid on the formation of oxidation product.

**Answer:**

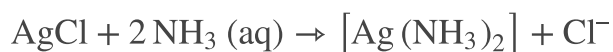
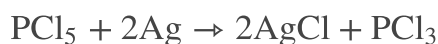
Dilute and concentrated nitric acid give different oxidation products on reaction with copper metal.



**Question 57:**

$\text{PCl}_5$  reacts with finely divided silver on heating and a white silver salt is obtained, which dissolves on adding excess aqueous  $\text{NH}_3$  solution. Write the reactions involved to explain what happens.

**Answer:**



(soluble complex)

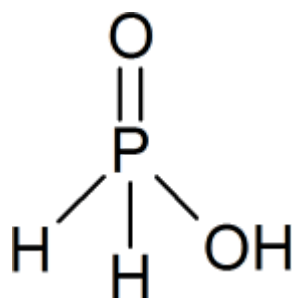
**Question 58:**

Phosphorus forms a number of oxoacids. Out of these oxoacids phosphinic acid has strong reducing property. Write its structure and also write a reaction showing its reducing

behaviour.

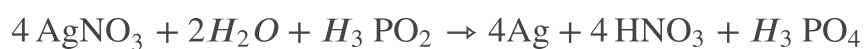
**Answer:**

Structure of phosphinic acid (Hypophosphorous acid) is as follows:



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Reducing behaviour of phosphinic acid is observable in the reaction with silver nitrate given below:



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