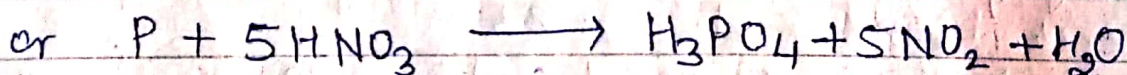
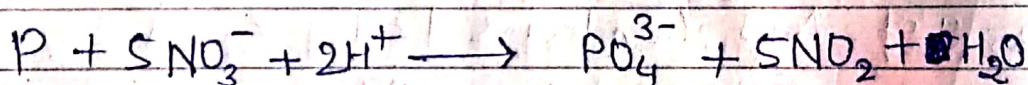
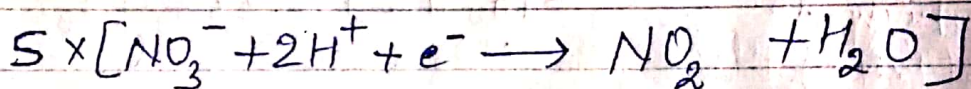
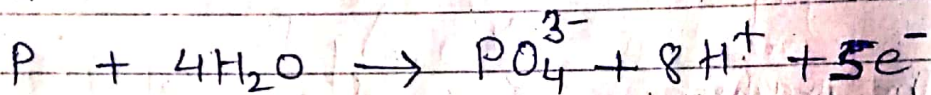
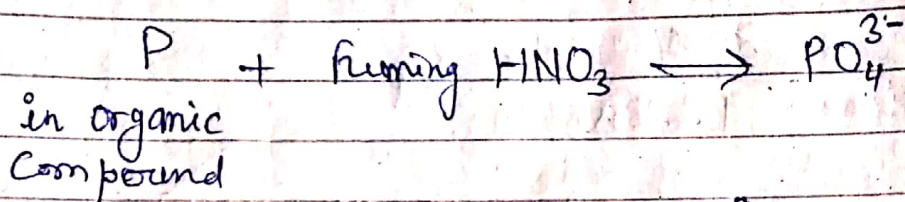
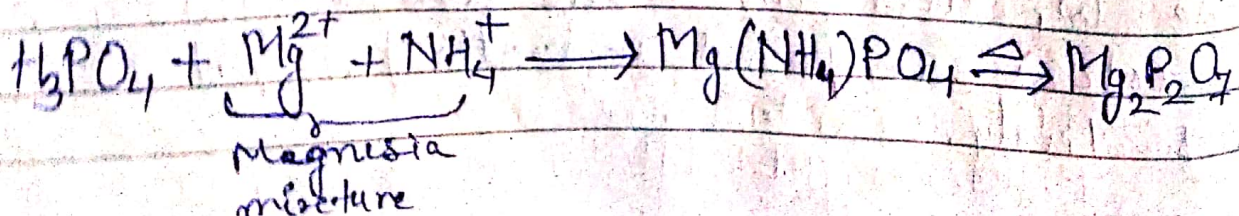


Topic: - Estimation of phosphorous in organic compound by Carius method

In this method, a known weight (W<sub>1</sub>) of the organic compound is heated with fuming HNO<sub>3</sub> acid in a hard glass sealed tube called Carius tube, where P in the organic compound is oxidised to phosphate.

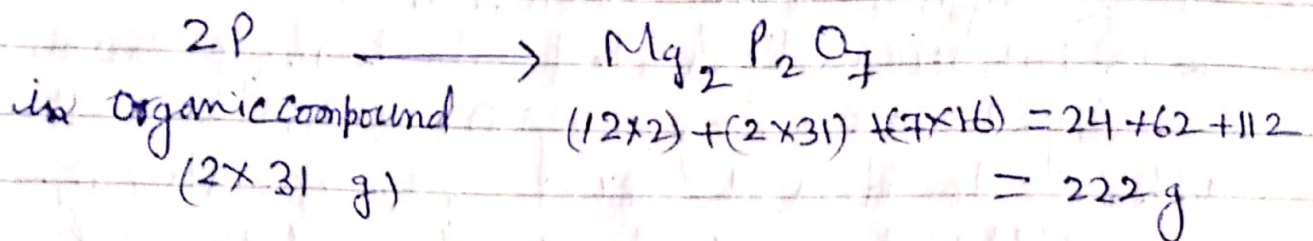


The tube is cooled and the sealed end is cut off and contents are transferred into a beaker. The solution in the beaker is treated with magnesia mixture (MgSO<sub>4</sub> + NH<sub>4</sub>OH + NH<sub>4</sub>Cl). The precipitate obtained of magnesium ammonium phosphate is filtered, washed, dried, ignited and then weighed upto constant weight.



From the weight of  $Mg_2P_2O_7$  & wt of organic compound, the percentage of phosphorus is calculated.

Let the amount (wt) of organic compound =  $w_1$  g  
the wt of  $Mg_2P_2O_7$  =  $w_2$  (g)



$\therefore$  222 g of  $Mg_2P_2O_7$  contains 62 g of P

$\therefore$   $w_2$  g of  $Mg_2P_2O_7$  contains  $\frac{62}{222} \times w_2$  g of P

Now

Since,

$w_1$  g of organic compound contains  $\frac{62 \times w_2}{222}$  g of P

therefore

100 g of organic compound contains

$$\frac{62 \times w_2}{222} \times \frac{100}{w_1} \text{ g of P}$$

$\therefore$  % of phosphorus in the organic compound

is 
$$\frac{62 \times 100 \times w_2}{222 \times w_1} \%$$