

Class: 12
Subject: Chemistry
Topic: P block elements
No. of Questions: 27

1. How red phosphorous can be obtained?
2. How arsenic is used in preventing wooden article?
3. Trisilyl amine, $N(\text{SiH}_3)_3$ is planar whereas trimethyl amines $N(\text{CH}_3)_3$ is pyramidal. Explain.
4. Give the reasoning for decrease in bond angle in the hydrides of group 15 down the group.
Hydride : $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3$
H - M - H angle : $107^\circ > 92^\circ > 90^\circ$
5. Why b.p of hydrides of group 15 increases top to bottom (PH_3 to BiH_3)?
6. Phosphorus can form PCl_5 but nitrogen cannot form NCl_5 why?
7. Why NCl_3 cannot be hydrolysed?
8. Why the hexahalides with Cl, Br and I are not formed by group 16 elements?
9. Write the following oxides in their decreasing bond angle.
 OF_2 , Cl_2O , Br_2O
10. Why fluorine form only hypohalous acid (HOF) but chlorine and higher halogens forms a series of oxyacids?
11. Name one non - metal which is liquid at room temperature.
12. Why fluorine can be obtained by electrolysis method?
13. How is dinitrogen prepared in the laboratory?
14. Complete the following equations:
(i) $(\text{NH}_4)_2\text{Cr}_2\text{O}_7 \xrightarrow{\text{Heat}}$
(ii) $2\text{NH}_3 + \text{A} \longrightarrow \text{B} + 3\text{Cu} + 3\text{H}_2\text{O}$
15. How is dioxygen prepared in the laboratory?

16. What happens when (give chemical equation)?
 - (i) Mixture of ammonia and oxygen is passed platinum gauge at 1100K.
 - (ii) A mixture of dinitrogen and dioxygen is subjected to an electric discharge.
17. Write the Lewis structures of N_2O , NO_2 and N_2O_5 .
18. Give the structure of nitric acid in
 - (i) the vapour phase
 - (ii) aqueous solution
19. Complete and balance the following equations:
 - (i) $CS_2(\ell) + O_2(g) \longrightarrow$
 - (ii) $P_4(s) + O_2(g) \longrightarrow$
20. Explain the oxidizing properties of ozone.
21. How is ozone estimated quantitatively?
22. NO_2 is coloured and readily dimerises. Why?
23. Write the balanced chemical equation for the reaction of Cl_2 with hot and concentrated $NaOH$. Is this reaction a disproportionation reaction? Justify:
24. With what neutral molecule is ClO^- isoelectronic? Is that molecule a Lewis base?
25.
 - (i) How is $XeOF_4$ prepared?
 - (ii) When HCl reacts with finely powdered iron, it forms ferrous chloride and not ferric chloride. Why?
26. Account for the following.
 - (i) Noble gas form compounds with F_2 & O_2 only.
 - (ii) Sulphur shows paramagnetic behavior.
27. Arrange the following in the increasing order of the property mentioned.
 - (i) $HOCl$, $HClO_2$, $HClO_3$, $HClO_4$ (Acidic strength)
 - (ii) As_2O_3 , ClO_2 , GeO_3 , Ga_2O_3 (Acidity)
 - (iii) NH_3 , PH_3 , AsH_3 , SbH_3 (HEH bond angle)