

Now answer the following questions :

1. Why the first ionization enthalpy(I_1) of 15- group elements are higher than that of 16- group elements?
2. Why N_2 is diatomic gas while other elements of group-15 are solids at room temperature?
3. Why nitrogen can not form pentahalides but phosphorus can?
4. Why nitrogen is inert at room temperature?
5. Explain the anomalous behavior of nitrogen.
6. Which of the following is more covalent : PCl_5 or PCl_3 ?
7. Why 15- Group elements (nitrogen family) called as pnicogens?
(Ans : The name is derived from the Greek word “pnicomigs” meaning suffocation.)
8. NCl_3 is an endothermic compound while NF_3 is an exothermic compound why?
9. Why hydrides of 15- group elements generally basic in nature?
10. Explain, NH_3 is more basic than PH_3 .

Or

NH_3 has a higher proton affinity than PH_3 .

11. Tendency to form pentahalides decreases down the group-15 of the periodic table. Account for this observation.
12. Give reasons for the following :
(i) all bonds in PCl_5 are not equal.

(ii) Phosphorus is much more reactive than nitrogen.

(iii) Nitric oxide becomes brown when released in air.

13. Why bismuth is a strong oxidizing agent in the pentavalent state?

14. White phosphorus is more reactive than red phosphorus why?

15. Why NO_2 dimerises?