



# CHEMISTRY

## BOOKS - JEEVITH PUBLICATIONS CHEMISTRY (KANNADA ENGLISH)

### THE 'P'-BLOCK ELEMENTS

#### EXERCISE

1. Give four anomalous properties of nitrogen.



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2. Though nitrogen exhibit +5 oxidation state, it does not form pentahalide. Why?



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3.  $PH_3$  has lower boiling point than  $NH_3$  Why?



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4. Why pentahalides more covalent than trihalides ?



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5. Why is  $\text{BiH}_3$  the strongest reducing agent among all the hydrides of group 15 elements ?



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6. Name the gas liberated when aqueous solution of ammonium chloride is mixed with sodium nitrite . Give equation.



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7. What happens when ammonium dichromate crystals are heated ? Give equation.



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8. How pure nitrogen gas is prepared ? Give equation .



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9. How ammonia is manufactured by Haber's process ?



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**10.** Why does ammonia act as a Lewis base ?

Given an example.



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**11.** Explain the manufacture of nitric acid by

Ostwald's process.



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12. What is the action of Cone.  $HNO_3$  and dil  $HNO_3$  on copper turnings .



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13. What is the action of Cone.  $HNO_3$  and dil  $HNO_3$  on zinc metal.



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**14.** Name the gas liberated when zinc reacts with dil  $HNO_3$  .



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**15.** Name the metals which do not react with Conc.  $HNO_3$  give reason.



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**16.** Give two differences between white phosphorus and red phosphorus.



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**17.** How is phosphine prepared from calcium phosphide ?



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18. How phosphine is prepared in the laboratory ?



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19. Show that  $PH_3$  is basic in nature.



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20. Give reason:  $PH_3$  has lower melting point than  $NH_3$



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21. Give reason:

Nitrogen is less reactive at room temperature.



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22. Which allotropic form of phosphorus has discrete tetrahedral P molecules ?



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23. Bond angle in  $\text{PH}_4^+$  is higher than that in  $\text{PH}_3$ .

Why?



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24. Name the acid obtained when  $\text{PCl}_5$  undergoes hydrolysis, Give equation.



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25. White phosphorous is heated with excess of dry chlorine to get X. X on hydrolysis finally forms an oxoacid of phosphorous Y. What are X and Y?

What is the basicity of the acid ?



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26. Are all the five bonds of  $PCl_5$  equivalent ?

Justify your answer.



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27. Write the structure for the following oxoacids of phosphorus.

(i) Hypophosphorous acid (ii)

Orthophosphorous acid

(iii) Orthophosphoric acid

(iv) Pyrophosphoric acid



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28. How do you account of the reducing behaviour for  $H_3PO_2$  ?



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29. Mention any two reasons for the anomalous behaviour of oxygen.



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30.  $H_2S$  is less acidic than  $H_2Te$ . Give reason.



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**31.** Among the following which one is more acidic ? Give reason.

$H_2O$ ,  $H_2S$ ,  $H_2Se$  and  $H_2Te$



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**32.** Why is  $H_2O$  a liquid and  $H_2S$  a gas?



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**33.** Give an example for amphoteric oxide.





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**34.** Describe the preparation of Ozonised oxygen with an equation. Name the ozonised product obtained when the ozone reacts with lead-sulphide.



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**35.** Give two examples to show that ozone is an oxidising agent.





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**36.** Write the equation for the action of ozone with lead sulphide.



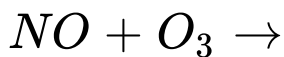
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**37.** Mention the allotropic form of sulphur which is more stable above 369 k and below 369 k



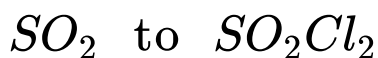
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**38.** Complete the following equation



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**39.** Give the conversation of (i)



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**40.** Give the conversation of (i)  $SO_2$  to  $SO_3$



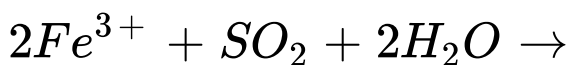
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41. Given two examples to show that moist  $SO_2$  is a reducing agent.



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42. Complete the following equation.



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**43.** Give the structure for

(a) Sulphurous acid

(b) Sulphuric acid

(c) Peroxydisulphuric acid

(d) Pyrosulphuric acid (Oleum).



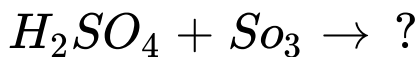
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**44.** How is Cone.  $H_2SO_4$  manufactured by contact process ?



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**45.** Complete the following equation.



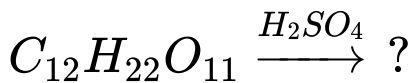
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**46.** Show that Conc.  $H_2SO_4$  is a dehydrating agent.



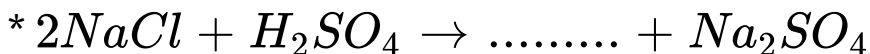
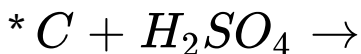
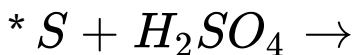
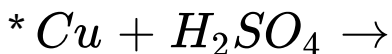
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47. Complete the following equation.



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48. Complete the following equation and balance .





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**49.** Given two anomalous properties of fluorine



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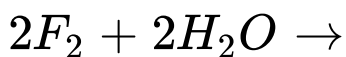
**50.** Fluorine exhibits only - 1 oxidation state , whereas other halogens exhibit +1, + 3, + 5 and + 7 oxidation states . Explain.



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51. Complete the following equations .



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52. Complete the following equations.



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**53.** Give three methods of preparation of chlorine gas.



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**54.** Name the gas liberated when concentrated HCl is heated with  $MnO_2$ . Give the equation for the reaction. Name the reagent used to obtain bleaching powder from chlorine.



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**55.** How is chlorine prepared in the laboratory using  $KMnO_4$  ?



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**56.** How chlorine gas is manufactured by Deacon's process ?



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**57.** Give three examples to show that chlorine has affinity towards hydrogen.



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**58.** How excess of ammonia reacts with chlorine .



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**59.** How excess of chlorine reacts with ammonia.



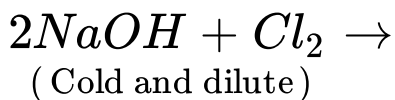
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**60.** How conc and dilute sodium hydroxide (alkali) reacts with chlorine.



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**61.** Complete the following reactions.



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**62.** How hot and concentrated sodium hydroxide reacts with chlorine gas ?



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**63.** Give the reaction of chlorine with slaked lime.



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**64.** Give the composition of bleaching powder.



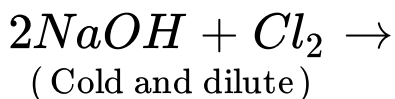
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**65.** Given three examples to show that chlorine is an oxidising agent.



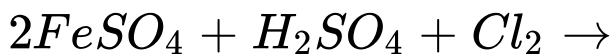
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66. Complete the following reactions.



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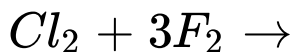
67. Complete the following reactions.



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**68.** Complete the following reactions.



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**69.** Complete the equation



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70. Which halogen has highest electron affinity or electron gain enthalpy ?



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71. Show that chlorine is a bleaching agent.



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72. What is an aqua regia ? Give its one use.



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73. Give the structure of ( a ) Hypochlorous acid ( b ) chlorous acid ( c ) chloric acid ( d ) perchloric acid.



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74. Which is the strongest acid among the hydrogen halides? Give one reason

[X=F,Cl,Br,I]



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**77.** Interhalogen compounds are more reactive than halogens. Give reason.



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**78.** Why are the elements of Group - 18 known as noble gases?



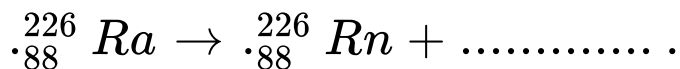
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**79.** What is the commercial sources of helium?



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80. Complete the following equation.



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81. Noble gases have vary low boiling point.

Why?



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**82.** Give reason for chemical inertness of noble gases.



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**83.** Name the noble gas which does not have general noble gas configuration .



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**84.** Name the noble gas obtained as a decay product of  $^{226}\text{Rn}$ .



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**85.** Complete the following equation.



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**86.** Write the general electronic configuration of noble gases.





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