CHEMISTRY

BOOKS - SHARAM PUBLICATION

GROUP 17 ELEMENTS (HALOGEN FAMILY)

Exercise

1. Pick up the correct statement out of the following.

A. Electron gain enthalpy of fluorine is smaller than bromine

B. Bond dissociation energy of I_2 more than F_2

C. Bromine is a volatile liquid.

D. The colour of halogen becomes deeper from F_2 to I_2.

Answer:

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2. Which of the following pairs will give chlorine gas most quickly upon reaction ?

A. HCl and $KMnO_4$

B. $NaCl$ and H_3PO_4

C. $NaCl$ and MnO_2

D. $CaCl_2$ and Br_2

Answer:

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3. The hybridisation in ICl_7 is :

A. Sp^3d^3

B. d^2Sp^3

C. Sp^3d

D. Sp^3

Answer:

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4. Fluorine is a stronger oxidising agent than chlorine in aqueous solution. This is attributed to many factors except:

A. Heat of dissociation

B. Electron affinity

C. Ionisation enthalpy

D. Heat of hydration

Answer:

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5. The increasing order of acid strength $HClO_4$,$HClO_3$, $HClO_2$ HClO is

A. $HClO < HClO_2 < HClO_3$ lt HClO_4`

B. $HClO_4 < HClO < HClO_2 < HClO_3$

C. $HClO_2 < HClO_3 < HClO_4 < HClO$

D. $HClO_4 < HClO_3 < HClO_2 < HClO$

Answer:

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6. The correct order of thermal stability of hydrogen halides (HX) IS :

A. $HI > HBr > HCl > HF$

B. $HF > HCl > HBr > HI$

C. $HCl < HF > HBr < HI$

D. $HI > HCl < HF > HBr$

Answer:

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7. The number of lone pairs of electrons present in Central atom of ClF_3 is :

A. 0

B. 1

C. 2

D. 3

Answer:

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8. Which of the following order is not in accordance with the property stated against each ?

A. $HI > HBr > HCl > HF$ (Acidic property in water)

B. $F_2 > Cl_2 > Br_2 > I_2$ (Electronegativity)

C. $F_2 > Cl_2 > Br_2 > I_2$ (Bond dissociation energy)

D. $F_2 > Cl_2 > Br_2 > I_2$ (Oxidising power)

Answer:

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9. Structure of IF_5 is

A. Linear

B. Pentagonal bipyramids

C. Bent T shaped

D. Square pyramidal

Answer:

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10. Which of the following has the highest reducing power?

A. HCl

B. HI

C. HBr

D. HF

Answer:

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11. Oxidising action increases from left to right in the following order

A. $Cl < Br < I < F$

B. $Cl < I < Br < F$

C. $I < F < Cl < Br$

D. $I < Br < Cl < F$

Answer:

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12. Among the following which is strongest oxidising agent ?

A. Cl_2

B. F_2

C. Br

D. I_2

Answer:

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13. The structure of IF_7 is :

A. Square pyramidal

B. Trigonal bipyramidal

C. Pentagonal bipyramidal

D. Octahedral

Answer:

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14. Bleaching powder is prepared from the reaction of :

A. Slacked lime and chlorine

B. Quick lime and Chlorine

C. Burnt lime and chlorine

D. Calcium and Chlorine

Answer:

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15. The stability of inter halogen compounds follow the order :

A. $IF_3 > BrF_3 > ClF_3$

B. $BrF_3 > IF_3 > ClF_3$

C. $ClF_3 > BrF_3 > IF_3$

D. $ClF_3 > IF_3 > BrF_3$

Answer:

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16. Which of the following statement is true ?

A. If aqueous solution HF is stronger than HCl

B. $HClO_4$ is a weak acid than $HClO_3$

C. HNO_3 is a stronger acid than HNO_2

D. H_3PO_3 is stronger acid than H_2SO_4

Answer:

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17. The halogen that is most readily reduced is:

A. Chlorine

B. Bromine

C. Iodine

D. Fluorine

Answer:

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18. Sea weeds are important source of

A. Fe

B. I_2

C. Cl_2

D. Br_2

Answer:

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19. Fluorine does not show positive oxidation state due to absence of

A. p - orbital

B. d- orbital

C. s- orbital

D. none

Answer:

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20. Which halogen shows only one oxidation state ?

A. F

B. Cl

C. Br

D. I

Answer:

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21. Bleaching powder is

A. $CaCl_3$

B. $CaClO$

C. $CaOCl_2$

D. $Ca(Ocl)_2$

Answer:

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22. Freon gas contains :

A. Fluorine

B. Chlorine, argon and nitrogen

C. Fuorine, Chlorine and carbon

D. Bromine, nitrogen, chlorine

Answer:

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23. Which of the following oxyacides of chlorine possesses least oxidising nature

A. $HOCl$

B. $HClO_2$

C. $HClO_3$

D. $HClO_4$

Answer:

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24. Carbon monoxide reacts with chlorine in diffused sunlight producing :

A. Laughing gas

B. Phosgene gas

C. Mustard gas

D. Carbonic acid gas

Answer:

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25. Chlorine acts as a reducing agent only in the presence of :

A. dry gas

B. moisture

C. sunlight

D. pure O_2

Answer:

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26. Fluorine is the best oxidising agent because it has

A. highest electron affinity

B. highest reduction potential

C. highest oxidation potential

D. lowest oxidation affinity

Answer:

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27. When cold $NaOH$ reacts with Cl_2, which of the following is formed ?

A. $NaClO_2$

B. $NaClO$

C. $NaClO_3$

D. None

Answer:

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28. Chlorine gas can be dried by passing over:

A. CaO

B. $NaOH$

C. KOH

D. Conc. H_2SO_4

Answer:

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29. When Chlorine is passed over dried dry slaked lime at room temperature , the main reaction product is :

A. $Ca(ClO_2)_2$

B. $CaCl_2$

C. $CaOCl_2$

D. $Ca(OCl_2)_2$

Answer:

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30. Which of the following acid is weakest?

A. HCl

B. $HClO_3$

C. $HClO_2$

D. $HClO$

Answer:

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31. Which one is the anhydride of $HClO_4$

A. Cl_2O

B. ClO_2

C. Cl_2O_6

D. Cl_2O_7

Answer:

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32. Identify the strongest acid.

A. HF

B. HCl

C. HBr

D. HI

Answer:

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33. Halogen having highest bond energy

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer:

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34. Which arrangement for the three halogens Cl, Br and I is correct in the order of their increasing electron affinity :

A. $Cl < Br < I$

B. $I < Br < Cl$

C. $Br < Cl < I$

D. $I < Cl < Br$

Answer:

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35. Fluorine is better oxidising agent than bromine, it is due to :

A. small size of fluorine

B. more electron repulsion in fluorine

C. more electronegativity of fluorine

D. non- metallic behaviour of fluorine

Answer:

36. Most electropositive halogen is:

A. F

B. Cl

C. Br

D. I

Answer:

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37. Which of the following pairs is not correctly matched:

A. A halogen which is liquid at room temperature - Bromine

B. The most electro negative halogen - Fluorine

C. The strongest oxidising halogen - Iodine

D. The most reactive halogen - Fluorine`

Answer:

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38. Sodium chloride when heated with Conc. H_2SO_4 and solid potassium dichromate gives :

A. Chromyl chloride

B. Chromic chloride

C. Chromous chloride

D. None

Answer:

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39. Which of the following is the most volatile compound ?

A. HF

B. HCl

C. HBr

D. HI

Answer:

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40. HF is a weak acid but HCl is a strong acid because:

A. HF is less ionic than HCl

B. HF attacks glass but HCl does not

C. Bond energy of HF is higher than HCl

D. Electron affinity of fluorine is lower than chlorine

Answer:

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41. A greenish-yellow coloured gas is liberated on heating a mixture of two substances which are:

A. $KBr + HCl$

B. $KI + HCl$

C. $MnO_2 + HCl$

D. $NaCl + H_2SO_4$

Answer:

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42. The chemical name of bleaching powder is:

A. Calcium chloro hypochlorite

B. Calcium hypoclorite

C. Calcium chlorate

D. Calcium perchlorate

Answer:

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43. Inter halogen compounds are :

A. Ionic compounds

B. Co -ordinate compounds

C. Molecular compounds

D. Covalent compounds

Answer:

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44. What is an antichlore?

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45. Which of the following has highest affinity for hydrogen:

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer:

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46. Freon is :

A. CCl_2F_2

B. CF_4

C. $CClF_3$

D. None

Answer:

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47. Which forms maximum compounds with xenon ?

A. F

B. Ca

C. N

D. O

Answer:

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48. Swimming pools are disinfected by bubbling through water in controlled quantity of:

A. Br_2

B. Cl_2

C. Oxygen enriched air

D. N_2

Answer:

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49. With excess of chlorine ammonia forms

A. NCl_3

B. $NOCl_2$

C. N_2

D. NH_4Cl

Answer:

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50. In ordinary Cl_2 gas Cl^{35} andCl^{37} are in the ratio:

A. $1:3$

B. $3:1$

C. $1:1$

D. $1:2$

Answer:

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51. Why fluorine does exist in only oxidation state of -1 ?

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52. Which halogen acid is weakest of all ?

A. HI

B. HF

C. HCl

D. HBr

Answer:

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53. Write the name of two oxoacids of iodine.

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54. Which halogen does not form oxyacid ?

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55. Which compound is produced by the reaction of chlorine with sulphur dioxide ?

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56. Write the product formed when ammonia reacts with excess of chlorine.

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57. Which has highest electron affinity?

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58. Which factor is responsible to make electron affinity of fluorine to be less than that of chlorine ?

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59. What is the trend of oxidising power from fluorine to iodine ?

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60. Explain what happens when HCl gas is passed through concentrated NaCl solution?

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61. Which of the hydrogen halides more acidic ?

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62. Which halogen does not exhibit the oxidation state of +1?

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63. Write the order of increase of oxidising power of halogens.

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64. Which of the following elements does not show positive oxidation state? Oxygen, sulphur, fluorine, chlorine.

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65. What is the role of MnO_2 in the preparation of Cl_2 from HCI?

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66. Which hydracid of halogen has the highest bond energy?

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67. What is the physical state of bromine at room temperature ?

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68. Which element of Gr 17 shows hydrogen bonding ?

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69. HF is less volatile than HCl. Explain.

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70. Which halogen acid is the strongest acid ?

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71. Why OF_2 should be called oxygen difluoride and not fluorine oxide ?

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72. Write one oxyacid of chlorine having +7 oxidation state.

Watch Video Solution

73. HF is a liquid whereas HCl is a gas. Explain.

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74. Why is Cl_2 a gas but I_2 is a solid ?

Watch Video Solution

75. Which halogen on reaction with water librates oxygen gas.

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76. Fill in the blanks : The halogen having metallic lustre is .....

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77. Fill in the blanks : The oxidation state of chlorine in chlorous acid is .....

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78. Fill in the blanks : Among all halogen acid ..... Is the weakest reducing agent.

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79. Fill in the blanks : A halogens combine with another halogen to form ..... Compound.

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80. Fill in the blanks : The ratio of HNO_3 and HCl in aquaregia is .....

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81. Bleaching action of chlorine is due to:

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82. Fill in the blanks : Cl_2 reacts with cold $NaOH$ to give .....

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83. Fill in the blanks : The halogen acid whose boiling point is high .....

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84. Which halogen does not exhibit the oxidation state of +1?

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85. Which halogen does not form oxyacid ?

Watch Video Solution

86. Fill in the blanks : The strongest reducing agent among all the halide ions is .....

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87. Fill in the blanks : Between F_2 and Cl_2 ..... Has lower bond dissociation energy.

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88. Fill in the blanks : Equimolecular amount of I_2 and Cl_2 react to form .....

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89. Fill in the blanks : Equal volume of Cl_2 and F_2 gas combine at 473 K to form .....

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90. Fill in the blanks : The weakest acid among all the oxyacids of chlorine is .....

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91. Fill in the blanks : The halogen with highest ionisation potential is .....

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92. Fill in the blanks : ..... is called super halogen because of its high .....

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93. Fill in the blanks : Of all the halogens only ..... Forms polyhalide ions.

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94. Fill in the blanks : Chlorine reacts with dry SO_2 to form .....

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95. Fill in the blanks : ..... Is the radio active halogen.

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96. Fill in the blanks : Chlorine is liberated from hydrocloric acid in cold by the action of .....

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97. Fill in the blanks : Halogen extracted from sea weed is .....

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98. Fill in the blanks : In the oxo acids of halogens, hydrogen is present in ..... Group.

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99. Fill in the blanks : Among halogens , ... is least reactive.

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100. Fill in the blanks : The reactivity of halogens ..... With increase in atomic number.

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101. Electron affinity of flourine is less than that of chlorine Why ?

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102. Why is the bond dissociation energy of F_2 less than that of Cl_2 ?

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103. Why 'F' does not exhibit any positive oxidation state ?

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104. Why is F_2 stronger oxidising agent than Cl_2 ?

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105. In aqueous solution HF is weaker acid than HCl ?

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106. Arrange $HClO_4$. $HClO_3$, $HClO_2$ and $HClO$ in the order of oxidising power.

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107. Explain that bleaching action of CL_2 is permanent, while that of SO_2 is temporary.

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108. What are interhalogen compounds ? Why are these more reactive than halogens ?

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109. How are interhalogen compounds formed ? Give general formula.

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110. Fluorine never acts as the central atom in polyatomic interhalogen compounds.

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111. Fluorine exhibits only -1 oxidation state, while iodine exhibits oxidation states of -1,+1,+3,+5 and+7. This is due to :

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112. What is the action of Cl_2 with ammonia ?

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113. Why is ICl more reactive than I_2?

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114. HF is a liquid whereas HCl is a gas. Explain.

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115. Why is iodine solid, but other halogens are not ?

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116. Write two characterstic properties of interhalogen compounds.

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117. What happens when chlorine is passed through acidified $FeSO_4$ solution ?

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118. What happens when Cl_2 gas is passed through dry slaked lime?

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119. Why ClF_3 exists, whereas FCl_3 does not exist explain?

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120. PCl_5 is known but PI_5 is not known. Why ?

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121. How can you prepare CI_2 from HCl and HCI from Cl_2 ?

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122. Why HCl cannot be dries over P_2O_5 ?

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123. Why is boiling point of HF abnormally high ?

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124. Why is fluorine most reactive of all the four common halogens ?

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125. Iodine forms I_3^- but F_2 does not form $F_3^- ion$. Why ?

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126. Write a note on interhalogen compounds.

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127. Write the structure of oxoacids of chlorine.

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128. Give two general methods of preparation of Chlorine. How does it react with

Dry slaked lime

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129. Give two general methods of preparation of Chlorine. How does it react with

Excess ammonia

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130. Give two general methods of preparation of Chlorine. How does it react with

Hot $NaOH$ solution

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131. Give one method of preparation of hydro chloric acid.Why this gas is not dried over quick lime ? How does it react with

acidified KM_nO_4 solution.

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132. Give one method of preparation of hydrochloric acid.Why this gas is not dried over quick lime ? How does it react with Ozone

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133. Give one method of preparation of hydro chloric acid.Why this gas is not dried over

quick lime ? How does it react with

MnO_3

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134. Give a comparative account of group 17 elements of periodic table.

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