



# CHEMISTRY

## BOOKS - S DINESH & CO CHEMISTRY (HINGLISH)

### THE HALOGEN FAMILY

MCQ

1. The general electronic configuration of the outermost orbit in halogen is

A.  $s^2p^6$

B.  $s^2p^5$

C.  $s^2p^4$

D.  $s^2p^3$

**Answer: B**



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2. Halogen family forms one of the most homogeneous group of the periodic table because

A. All elements in this group have different properties

- B. There is close resemblance of the properties among various elements of this group
- C. All the elements of this group are highly reactive
- D. Their salts are found in rocky terrains

**Answer: B**



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3. The element belonging to Group 17 which sublimes is
- A. Fluorine
- B. Chlorine
- C. Iodine

D. Bromine

**Answer: C**



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4. The ionic character in H-X bond is highest in

A. HBr

B. HF

C. HCl

D. HI

**Answer: B**



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5. Which of the following has the highest bond energy?

A. Fluorine

B. Bromine

C. Iodine

D. Chlorine.

**Answer: D**



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6. A halogen atom combines with another non-metal to form a compound with slight metallic lustre. The halogen atom is

A. F

B. Br

C. Cl

D. I

**Answer: D**



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7. When chlorine is bubbled through aqueous solution of potassium iodide, iodine gas is liberated because

- A. chlorine is more electropositive
- B. chlorine has higher electron affinity
- C. chlorine is more powerful oxidant than iodine
- D. none of the above.

**Answer: C**



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8. Which of the following has maximum solubility in water?

A. F

B. Br

C. Cl

D. I.

**Answer: A**



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9. Which of the following is called oxymuriatic acid ?



A. HCl

B. HBr

C.  $Cl_2$

D.  $Br_2$

**Answer: C**



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**10.** Which of the following is reduced most readily?

A. Iodine

B. Chlorine

C. Fluorine

D. Bromine

**Answer: C**



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**11.** The high oxidising power of fluorine is due to

A. high electron affinity

B. high heat of dissociation and low heat of hydration

C. high heat of hydration and low heat of dissociation

D. high heat of hydration and high heat of dissociation.

**Answer: C**



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**12. Why are halogens coloured?**

- A. absorption of U.V. light
- B. absorption of I. R. light
- C. absorption of visible light
- D. None of these.

**Answer: C**



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**13.** Which of the following will displace the halogen from a solution of halide ?

- A. Chlorine is added to sodium fluoride solution
- B. Bromine is added to sodium iodide solution
- C. Bromine is added to sodium chloride solution
- D. Chlorine is added to potassium chloride solution

**Answer: B**



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14. Who discovered bromine ?

A. Scheele

B. Courtois

C. Ballard

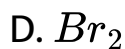
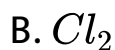
D. None of the above.

**Answer: C**



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15. Which of the halogen exists as liquid at ordinary temperature ?



**Answer: D**



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16. Which of the following describes the halogen element?

A. They are monoatomic and form ion of the type



B. They are diatomic and form ion of type  $X^+$

C. They are diatomic and form ion of the type  $X^-$

D. They are polyatomic and form ion of the type

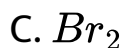


**Answer: C**



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17. Which of the following has least bond dissociation energy ?



**Answer: D**



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18. Which of the following halogens is the weakest oxidising agent ?



A.  $Cl_2$

B.  $F_2$

C.  $I_2$

D.  $Br_2$

**Answer: C**



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**19.** At the standard state conditions, the  $\Delta H_f^\circ$  of which halogen is taken to be zero ?

A.  $Cl_2$  (s)

B.  $I_2$  (g)

C.  $Br_2(l)$

D.  $Br(g)$

**Answer: C**



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**20.** Which of the following halogens has a tendency to exist as positively charged ions ?

A. Iodine

B. Bromine

C. Chlorine

D. Fluorine

**Answer: A**



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21. A reddish brown element  $X$  can't displace a halogen from its silver halide  $Y$ . This halide is insoluble in water. The  $X$  belongs to a group whose salts are found in sea water.  $X$  and  $Y$  respectively are

A.  $Br_2, AgCl$

B.  $Na, AgCl$

C.  $Br_2, AgF$

D.  $Se, AgBr$

**Answer: A**



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**22. Which of the following is a false statement ?**

A. Halogens are strong oxidising agents

B. Halogens show only one oxidation state of  $-1$

C.  $HF$  molecules form intermolecular hydrogen bonding

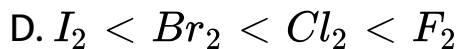
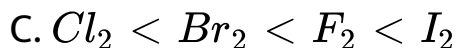
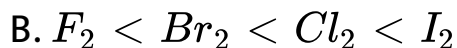
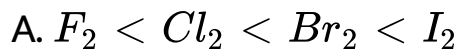
D. Fluorine is highly reactive.

**Answer: B**



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23. The correct order of increasing oxidising power



Answer: D



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24. Fluorine is more reactive than chlorine because

- A. fluorine has lower bond energy
- B. fluorine has a greater ionisation potential
- C. the covalent bond in fluorine molecule is weaker
- D. fluorine has no available d-orbitals.

**Answer: A**

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25. The low bond energy of fluorine molecule is best explained by

- A. the high electronegativity of fluorination
- B. the small size of fluorine

C. the attainment of noble gas configuration by  
fluorine

D. repulsion by lone pairs on fluorine.

**Answer: D**



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**26.** Which member of the halogen family (X) does not show oxidation state of +1?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine.

**Answer: A**



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27. Fluorine is stronger oxidising agent. This is attributed to many factors except

A. Heat of dissociation

B. Reduction potential

C. Ionisation potential

D. Heat of hydration.

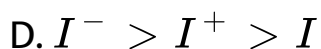
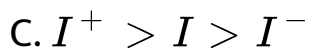
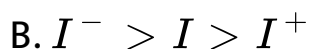
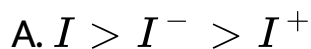


**Answer: C**



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**28.** Which one of the following is correct order of the size of iodine species ?



**Answer: B**



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29. Halogens are all coloured because

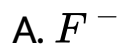
- A. In their molecules the outer electrons are excited to higher energy levels by absorption of visible light
- B. Their atoms absorb energy causing the excitation of outer electron to higher energy level
- C. Their atoms have higher electronegativity
- D. Their atoms have high electron affinity

**Answer: A**



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30. Which of the following has the highest heat of hydration ?

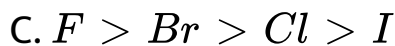
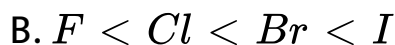
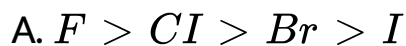


**Answer: A**



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31. The correct order of electronegativity among halogens is:



**Answer: A**



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32. Halogen atoms have

- A. High ionisation energy, high electron affinity and low electronegativity
- B. High Ionisation energy, high electronegativity and high electron affinity
- C. High Ionisation energy, low electron affinity and high electronegativity
- D. Low Ionisation energy, high electron affinity and high electronegativity.

**Answer: B**



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33. The tendency to form the anion  $X^-$  is greatest with

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine.

**Answer: B**



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34. The order of electron affinity of halogens is

A.  $F > Cl > Br > I$

B.  $Cl > Br > F > I$

C.  $Cl > F > Br > I$

D.  $I > Br > Cl > F$

**Answer: C**



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**35.** Fluorine does not exhibit variable oxidation states due to

A. its high electronegativity

B. smallest size of its atom

C. low bond dissociation energy

D. non availability of vacant d-orbitals.

**Answer: D**



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**36.** At ordinary temperature and pressure, chlorine is because a gas, bromine is a liquid and iodine is a solid because

A. Among them chlorine is the lightest and iodine is the heaviest

B. chlorine has lowest specific heat



C. chlorine molecule is least stable

D. intermolecular forces are the weakest in chlorine  
and strongest in iodine

**Answer: D**



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**37. Covalent bonding of halogen is always**

A.  $\pi$  bonding

B.  $\delta$  bonding

C.  $\sigma$  bonding

D. None of these

**Answer: C**



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**38.** The common positive oxidation states exhibited by the halogens are

A. +2, +4, +6

B. -1, +1, +3, +5

C. +1, +2, +3

D. +1 to +7.

**Answer: B**



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39. Which halogen does not show +7 oxidation state?

A. Chlorine

B. Bromine

C. Iodine

D. Fluorine

**Answer: D**



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40. Which radical can bring about the highest oxidation state of a transition metal ?



**Answer: C**



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41. Which of the elements of group 17 is radioactive ?

A. Chlorine

B. Bromine

C. Iodine

D. Astatine

**Answer: D**



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**42.** Fluorine differs from rest of the halogens due to

A. Its high electronegativity

B. Smallest size and lack of d-orbitals

C. Low bond dissociation energy

D. All the above A, B and C.

**Answer: C**

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**43.** Astatine is the element below iodine in the group 17 of the periodic table. Which of the following statement is not true for Astatine?

- A. It is less electronegative than iodine
- B. It will exhibit only - 1 oxidation state
- C. It is composed of diatomic molecules

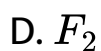
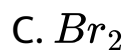
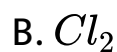
D. Intermolecular forces are stronger as compared to iodine.

**Answer: B**



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**44.** Super halogen is



**Answer: D**

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**45.** An easy way of obtaining  $Cl_2$  gas in the laboratory is :

- A. by heating NaCl and conc.  $H_2SO_4$
- B. by heating NaCl and  $MnO_2$
- C. by mixing HCl and  $KMnO_4$
- D. by passing  $F_2$  through NaCl solution.

**Answer: C**

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46. When a mixture of NaCl and KCl is heated with conc.  $H_2SO_4$  and  $K_2CrO_7$ . The red gas obtained is

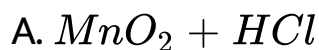
- A. Chromic chloride
- B. Chromyl chloride
- C. Chromium(III) sulphate
- D. Chromic anhydride

**Answer: B**

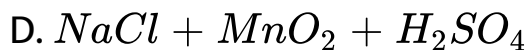


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47. The heating of which of the following gives pure chlorine



B. Bleaching powder + HCl



**Answer: C**



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48. Chlorine gas is dried over

A. quick lime

B. caustic soda

C. caustic potash sticks

D. conc. sulphuric acid

**Answer: D**



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**49.** Which of the following reagent on treatment with KI gives iodine ?

A.  $ZnSO_4$

B.  $FeSO_4$

C.  $CuSO_4$

D.  $NiSO_4$

**Answer: C**



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**50.** The catalyst used in Deacon's process is :

A.  $CuCl_2$

B. Cu

C.  $CuSO_4$

D. CuS

**Answer: A**

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**51.** The manufacture of fluorine is done by

- A. heating anhydrous HF and  $MnO_2$
- B. electrolysis of aqueous HF
- C. electrolysis of anhydrous HF mixed with  $KHF_2$
- D. heating a mixture of KF,  $MnO_2$  and conc.  $H_2SO_4$

**Answer: C**

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52. Which halogen oxidises water to liberate oxygen exothermally?

A. Fluorine

B. Chlorine

C. Bromine

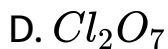
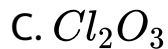
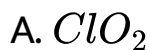
D. Iodine

**Answer: A**



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53. The anhydride of perchloric acid is



**Answer: D**



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**54.** The shape of  $IF_5$  molecule is

A. Pentagonal planar

B. Trigonal bipyramidal

C. Square pyramidal

D. Dodecahedron.

**Answer: C**



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55. Which out of the following interhalogen compounds is T-shaped ?





**Answer: A**



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**56.** In which of the following compounds the halogen is  $sp^3d$  hybridised ?



**Answer: B**



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57. In the oxyacids of chlorine  $Cl - O$  bond contains

A.  $d\pi - d\pi$  bonding

B.  $p\pi - d\pi$  bonding

C.  $p\pi - p\pi$  bonding

D. None of the above

**Answer: B**



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58. In dilute aqueous solution HF is a weaker acid than HI, because

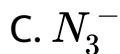
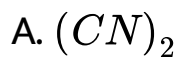
- A. H-F bond energy is greater than HI bond energy
- B. The hydration energy of  $F^-$  is higher than that of  $I^-$
- C. Of the presence of hydrogen bonds in HF
- D. Fluorine is a stronger base as compared to iodine.

**Answer: A**



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59. Which of the following is a pseudohalide ion ?



D. Both (A) and (B).

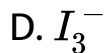
**Answer: C**



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60. Which one of the following is a pseudohalide ?





**Answer: A**



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**61. Boiling points of the hydrogen halides**

A. Increase regularly in order of relative molecular mass

B. Decrease sharply from HF to HCl and then increases

C. Decrease regularly in order of relative molecular mass

D. Increase sharply from HF to HCl and then decrease regularly with increase of relative molecular mass.

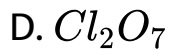
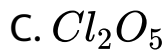
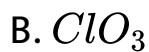
**Answer: B**



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**62.** The highest oxidation state is shown by chlorine in which of the following oxide ?

A.  $ClO_2$

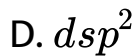
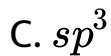
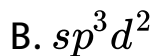
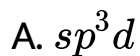


**Answer: D**



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**63.** The hybrid state of Br in  $BrF_5$  is



**Answer: B**



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**64.** The order HF <math>I\_t</math> HCl <math>I\_t</math> HBr <math>I\_t</math> HI corresponds to which of the following properties

- A. Bond length
- B. Thermal stability
- C. ionic character
- D. Dipole moment.

**Answer: A**



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65. The high reactivity of fluorine is due to

- A. weakness of F-F bond
- B. very high oxidising power of fluorine
- C. high electronegativity of fluorine
- D. all the three reasons (A), (B) and (C).

**Answer: D**



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66. Bleaching powder is an example of

- A. A double salt
- B. A complex salt
- C. An acidic salt
- D. A mixed salt

**Answer: D**



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**67.** Dilute solution of HF cannot be concentrated beyond 36% by distilling only because :

- A. HF is non volatile
- B. HF forms a constant boiling mixture

C. HF is least acidic

D. It is bad conductor.

**Answer: B**



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**68.** Which of the following is known as spirit of salt?

A. HBr

B. HI

C.  $H_2SO_4$

D. HCl

**Answer: C**



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**69.** Which of the following interhalogens can not exist ?

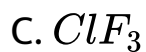


**Answer: B**



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70. Which of the following interhalogens does not exist ?



**Answer: B**



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71. Which of the following compounds has square pyramidal geometry ?



**Answer: A**



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72. Among the fluorides given below which will further react with  $F_2$

A. NaF

B.  $CaF_2$

C.  $IF_5$

D.  $SF_6$

**Answer: C**



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73. Iodine stains on clothes can be removed by

A. NaCl

B. NaBr

C. KI

D.  $Na_2S_2O_3$

**Answer: D**



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74. The increasing order of reducing power of the halogen acids is

A. HF lt HCl lt HBr lt HI

B. HI lt HBr lt HCl lt HF



C. HBr lt HCl lt HF lt HI

D. HCl lt HBr lt HF lt HI

**Answer: A**



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**75.** Which of the following is not an oxyacid of chlorine ?

A. HCl

B.  $HClO_5$

C.  $HClO_2$

D.  $HClO_3$

**Answer: B**



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**76.** The compound which gives chlorine like smell is :

A.  $CHCl_3$

B. Chloretone

C.  $CaOCl_2$

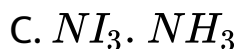
D. None

**Answer: C**



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77. Iodine flakes when rubbed with liquor ammonia give dark brown ppt. of



**Answer: C**



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78. Fluorine reacts with cold dilute NaOH to give

A. NaF and  $O_2$

B. NaF and  $OF_2$

C. NaF and  $H_2O_2$

D. NaF,  $H_2O_2$  and  $F_2O$ .

**Answer: B**

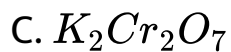


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79. HBr and HI can reduce sulphuric acid, HCl can be reduced  $KMnO_4$  and HF can reduce.....

A.  $H_2SO_4$

B.  $KMnO_4$



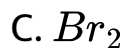
D. None

**Answer: D**



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**80.** Which of the following is the strongest reducing agent?



**Answer: D**



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**81.** The solubility of iodine in water may be increased by adding

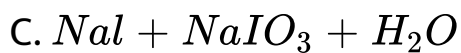
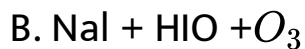
- A. Chloroform
- B. Potassium iodide
- C. Carbon disulphide
- D. Sodium thiosulphate.

**Answer: B**



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82. Iodine reacts with hot conc. solution of NaOH to give

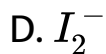
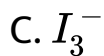


**Answer: C**



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83. The deep colour produced when iodine dissolves in potassium iodide solution is due to the presence of



**Answer: C**



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84. The numerous interhalogen compounds are



A. Fluorides

B. Chlorides

C. Bromides

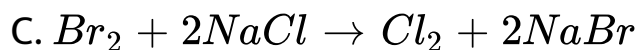
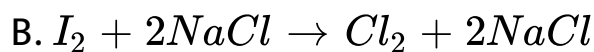
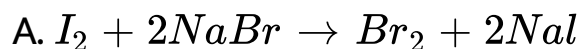
D. Iodides.

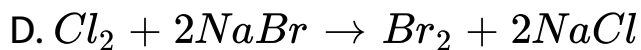
**Answer: A**



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**85.** Which of the following reactions is possible ?





**Answer: D**



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**86.** Chlorine reacts with sodium hydroxide under various conditions to give

A. Sodium hypochlorite

B. Sodium chlorate

C. Sodium chloride

D. None of the above.

**Answer: C**



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**87.** Which element would readily replace oxygen from an oxide ?

A. Fluorine

B. Chlorine

C. Nitrogen

D. Sulphur.

**Answer: A**



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**88.** Which of the following hydrohalic acids has the highest value of dipole moment?

A. HF

B. HCl

C. HBr

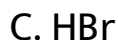
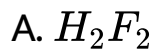
D. HI

**Answer: A**



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89. Bad conductor of electricity is



Answer: A



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90. Which one of the hydracid does not form any precipitate with  $AgNO_3$ ?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**91.** Which of the following has maximum vapour pressure?

A. HCl

B. HBr

C. HI

D. HF

**Answer: A**



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**92.** Which of the following halides is not oxidised by  $MnO_2$  ?

A.  $F^-$

B.  $Cl^-$

C.  $Br^-$

D.  $I^-$

**Answer: A**



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**93.** Which of the hydrogen halide is liquid at  $25^{\circ}C$  ?

A. HF

B. HCl

C. HBr

D. none of these

**Answer: D**



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94. Identify the false statement about bleaching powder

A. Amount of  $Cl_2$  liberated when it is treated with excess of dilute acid is known as available chlorine.

B. Bleaching powder is priced according to its crystal size

C. Good quality bleaching powder contains 35-38% available chlorine.

D. When stored for longer periods it changes as it changes to calcium chlorate and calcium chloride (A oxidation).

**Answer: B**



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**95.** Among the halogens, fluorine differs considerably from the other members. The hydrides of halogens also differ in their properties.

Which of the following halogens do not form polyhalide ?

A. Fluorine

B. Chlorine

C. Bromine

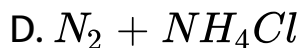
D. Iodine.

**Answer: A**



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**96.** Chlorine reacts with excess of ammonia to form.



**Answer: D**



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97. When chlorine reacts with turpentine oil, the product formed is

- A. carbon
- B. carbon and HCl
- C. turpentine chloride
- D. None of these.

**Answer: B**



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98. Which of the following does not form inter halogen compounds ?

A. N

B. Cl

C. Br

D. All.

**Answer: A**



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99. Which of the following statement is true regarding electrolysis of molten  $ICl$  ?

- A.  $I_2$  is liberated at the cathode
- B.  $Cl_2$  is liberated at the cathode
- C.  $I_2$  is liberated at the anode
- D. Both  $I_2$  and  $Cl_2$  are liberated at the anode.

**Answer: A**



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**100.** The solubility of the halogen in water increases by addition of its salt. To which halogen does this statement apply

A. Fluorine

B. Iodine

C. Chlorine

D. Bromine.

**Answer: B**



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**101.** Which of the following properties does correspond to the order?

HI < HBr < HCl < HF

- A. Thermal stability
- B. Reducing power
- C. Ionic character
- D. Dipole moment.

**Answer: B**



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**102.** The least soluble halogen in water is

A. Fluorine

B. Iodine

C. Chlorine

D. Bromine

**Answer: B**



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**103.** Halogens combine among themselves to form covalent compounds which are called

- A. Pseudohalides
- B. Interhalogen compounds
- C. Polyhalides
- D. None of these

**Answer: B**

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**104.** Fluorine as compared to air is

- A. lighter
- B. heavier
- C. the same vapour density

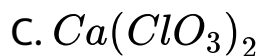
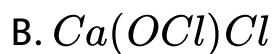
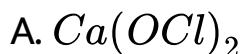
D. none of these

**Answer: B**



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**105.** Slaked lime reacts with chlorine to form



**Answer: B**



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**106.** The acid which cannot be kept in glass bottles

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**107.** The colour of the iodine solution is discharged by shaking with

- A. sodium sulphate
- B. sodium sulphide
- C. aqueous sulphur dioxide
- D. sodium bromide.

**Answer: C**



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**108.** If  $Cl_2$  gas is passed into aqueous solution of KI containing some  $CCl_4$  and the mixture is shaken:

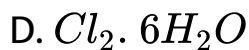
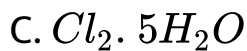
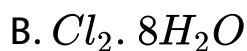
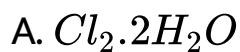
- A. upper layer becomes violet
- B. homogeneous violet layer is formed
- C. orange colour appears
- D. lower layer becomes violet.

**Answer: D**



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109. When chlorine water is slowly cooled, we get greenish yellow crystals of



**Answer: B**



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110. Chlorine is mixed with drinking water so that

- A. Dirt is removed
- B. Water becomes colourless
- C. Bacteria are killed
- D. Suspended impurities get removed.

**Answer: C**



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**111.** Iodine is liberated from sodium iodate by reacting with





C.  $\text{NaHSO}_3$

D. HCl

**Answer: C**



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**112.** Which of the following is generally bleached by bleaching powder ?

A. Straw

B. Ivory

C. Roll of cotton

D. Silk

**Answer: C**



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**113.** Passage of  $CO_2$  through suspension of bleaching powder produces

- A. Calcium chloride
- B. Chlorine gas
- C. Nothing but simple absorption of  $CO_2$  occurs
- D.  $CO_2$  escapes out as such.

**Answer: B**



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114. Iodine gives blue colour with

A.  $Cl_2$

B.  $F_2$

C. Starch solution

D.  $FeCl_2$  solution

**Answer: C**



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115. Which of the following aqueous solution is colourless but gives yellow precipitate on adding lead acetate to it

A.  $K_2Cr_2O_4$  soln

B. KI soln.

C.  $AgNO_3$  soln

D. NaCl soln.

**Answer: B**



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**116.** Bromine can be liberated from potassium bromide solution by the action of

- A. Iodine solution
- B. Chlorine water
- C. Sodium chloride
- D. Potassium iodide.

**Answer: B**



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117. Fluorine can be prepared by each of the following methods except

A. Whytlaw-Gray's method

B. Dennis method

C. Moissan method

D. Parke's method

**Answer: D**



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118. On boiling an aqueous solution of  $KClO_3$  with iodine, the following product is obtained



**Answer: A**



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**119.** which of the following halogen is solid at room temperature?

A. Chlorine

B. Bromine

C. Fluorine

D. Iodine.

**Answer: D**



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**120.** volatile nature of halogens is because



- A. Halogen molecules are bound by strong forces
- B. Halogen molecules are bound by electrostatic forces
- C. The forces existing between discrete molecules are only weak van der Waals forces
- D. The halogen molecules are more reactive.

**Answer: C**



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**121. Mark the strongest oxidising agent**

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine.

**Answer: A**



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**122. Mark the strongest reducing agent.**

A.  $H_2F_2$

B. HCl

C. HBr

D. HI.

**Answer: D**



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**123.** Which of the following is an interhalogen compound ?

A.  $\text{I Cl}$

B.  $\text{Cl}_2$

C.  $\text{H}_2\text{S}$

D.  $\text{HF}$

**Answer: A**



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124. Which out of the following interhalogen compounds is T-shaped ?



**Answer: A**



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**125.** Which of the following elements is extracted commercially by the electrolysis of an aqueous solution of its compound ?

A. Na

B. A

C. Br

D. Cl

**Answer: D**



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**126.** mark the element which displaces three halogens from their compounds

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer: A**



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**127.** Sea weeds are important source of

A. Iron

B. Chlorine

C. Iodine

D. Bromine

**Answer: C**



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**128.** The product formed during reaction of  $NH_3$  and  $I_2$  are:

A.  $NI_3$  and  $HI$

B.  $NH_3$ ,  $NI_3$  and  $HI$

C.  $NH_4I$

D.  $NH_4I$  and  $HI$

**Answer: B**



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**129.** Which of the following statements is incorrect?

A.  $ICl$  is a good conductor of electricity in fused state

B.  $Cl_2O_7$  is an anhydride of perchloric acid

C. Melting point and boiling point of  $HB$  less than  $HCl$



D.  $F_2$  does not form oxyacids.

**Answer: C**



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**130.** In the preparation of chlorine from  $HCl$ ,  $MnO_2$  acts as

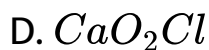
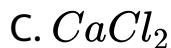
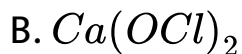
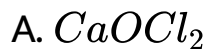
- A. Oxidising agent
- B. Reducing agent
- C. Catalytic agent
- D. Dehydrating agent

**Answer: A**



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**131.** When  $Cl_2$  gas is passed over dry slaked lime (at room temperature), the major product is



**Answer: A**



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132. When chlorine is passed through KI and starch solution

A. A yellow colour is obtained

B.  $I_2$  is liberated

C.  $Br_2$  is liberated

D.  $I_2$  is liberated and solution becomes blue

**Answer: D**



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133. When  $Cl_2$  is passed through hot and concentrated caustic soda a mixture of the product is

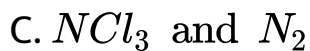
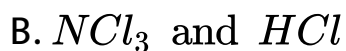
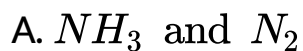
- A. NaCl and bleaching powder
- B. NaCl and sodium hypochlorite
- C. Sodium hypochlorite and bleaching powder
- D. NaCl and sodium chlorate.

**Answer: D**



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134. When on excess of chlorine is treated with ammonia ,the products formed are

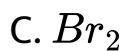
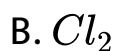
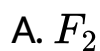


**Answer: B**



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135. A halogen which is used in the preparation of TEL, an antiknock compound in petroleum is



**Answer: C**



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136. HF is not stored in glass bottles because

- A. It reacts with visible part of light
- B. It reacts with sodium oxide of the glass
- C. It reacts with the aluminium oxide of the glass
- D. It reacts with  $SiO_2$  of the glass

**Answer: D**



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**137.** Bromine can be easily prepared by

- A. Heating any bromide with conc.  $H_2SO_4$
- B. Heating any bromide with HCl
- C. Passing iodine vapour through bromide solution

D. Heating any bromide with dilute  $H_2SO_4$

**Answer: A**



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**138.** Caliche is

A. Impure Indian salt petre

B. Chile salt petre

C. Pure nitre

D. None of these

**Answer: B**





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**139.** The solubility of iodine in water increases in the presence of

- A. Alcohol
- B. Chloroform
- C. Sodium hydroxide
- D. Potassium iodide.

**Answer: D**



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140. Which of the following statements is true?

A.  $Cl_2$  can't be dried over  $H_2SO_4$

B. Available chlorine is obtained from caustic soda by treating with HCl

C. Conc. HCl + conc.  $HNO_3$  is Marshall's acid

D. All neutral inter halogen molecules are diamagnetic in nature

Answer: D



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141. Ammonia can be dried by :

A. Conc.  $H_2SO_4$

B.  $PCl_5$

C. Quick lime

D. Anhydrous  $CaCl_2$

Answer: D



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142. Iodine will be able to displace chlorine from

A.  $KClO_3$

B. KCl

C. HCl

D.  $BaCl_2$

**Answer: A**



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**143.** Concentrated  $HNO_3$  reacts with iodine to give:

A. HI

B. HOI

C.  $HIO_3$

D.  $HOIO_3$

**Answer: C**

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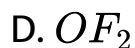
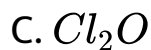
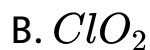
**144.** Concentrated  $H_2SO_4$  cannot be used to prepare HBr from NaBr , because it ,

- A. HBr oxidises  $H_2SO_4$
- B. HBr reduces  $H_2SO_4$
- C. HBr undergoes disproportionation
- D. KBr reacts very slowly

**Answer: B**

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145. Which of the following is a coloured gas



**Answer: B**



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146.  $ClO_2$  reacts with water and alkali to give:

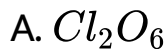
- A. Sodium chlorate
- B. Sodium chlorite
- C. Sodium chlorate and sodium chlorite
- D. None of the above.

**Answer: C**



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**147.** Which of the following is diamagnetic



D. None.

**Answer: D**



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**148.** Arrange the following in the decreasing order of their acidic strength

HClO, HBrO, HIO





**Answer: B**



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**149.** Tincture iodine widely used as disinfectant and antiseptic is

- A. Solution of iodine in Methanol
- B. Solution of iodine in Ethanol
- C. Solution of iodine in Acetone
- D. Solution of iodine in Water

**Answer: B**



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150. The respective oxidation states of iodine in  $HIO_4$ ,  $H_3IO_5$ ,  $H_5IO_6$  is

A. +1, +3, +7

B. +7, +7, +7

C. +3, +3, +3

D. +7, +5, +3

**Answer: B**



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**151.** Bromine is obtained on commercial scale from

A. Caliche

B. Carnallite

C. Common salt

D. Cryolite.

**Answer: B**



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**152.** Iodine deficiency in diet is known to cause

A. Beri-Beri

B. Goitre

C. Rickets

D. Night blindness

**Answer: B**



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**153.** Amongst the following acids which is the weakest

A. HF

B. HCl

C. HBO

D. HI

**Answer: A**



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**154.** HI cannot be prepared by the action of conc.  $H_2SO_4$  on KI because

- A. HI is stronger than  $H_2SO_4$
- B. HI is more volatile than  $H_2SO_4$
- C.  $H_2SO_4$  also oxidises HI so formed, to  $I_2$
- D.  $H_2SO_4$  forms complex with HI

**Answer: C**



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155. Which of the following gases can be dried by conc.

$H_2SO_4$  ?

A. HCl

B. HBr

C. HI

D.  $H_2S$

**Answer: A**



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**156.** Which halogen is most electropositive ?

A. F

B. Cl

C. Br

D. I

**Answer: D**



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**157.** The acid used for etching the glass is

A. HF

B.  $H_2SO_4$

C.  $HClO_4$

D. Aqua regia.

**Answer: A**



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**158.** The least soluble halogen in water is

A. Fluorine

B. Iodine

C. Chlorine

D. Bromine

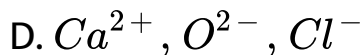
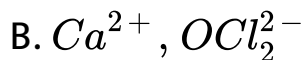
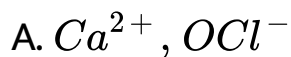


**Answer: B**



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**159.** Which ions are formed in solution when bleaching powder is shaken with water

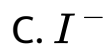
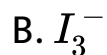


**Answer: C**



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160. Which of the following is a polyhalide ion ?



**Answer: B**



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161. Which difficulty encountered in Dennis method for the preparation of fluorine is removed in Whytlaw-Gray method ?

- A. Cathode and anode are not separated from each other which may result in the combination of  $H_2$  and  $F_2$  to form HF with explosion
- B. Electrolyte should be perfectly dry
- C.  $F_2$  liberated at the anode contains HF as impurity
- D. None of these.

**Answer: C**



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162. Which electrolyte is used in Dennis method for the preparation of fluorine ?

A.  $KHF_2$  solution in anhydrous HF

B. Fused cryolite

C. Pure dried fused  $KHF_2$

D. None of these.

**Answer: A**



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**163.** Which of the following hydrogen halides possess hydrogen bonding and also is a liquid at room temperature ?

A. HCl

B. HBr

C. HF

D. HI

**Answer: C**



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**164.** Iodine is a solid at room temperature because

A. It has a low value of electronegativity

B. It has a large size

C. The magnitude of van der Waals forces is very large due to larger molecular size

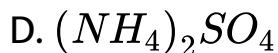
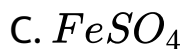
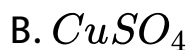
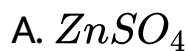
D. It has d-orbitals.

**Answer: C**



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**165.** Iodine is formed when potassium iodide reacts with a solution of



**Answer: B**



**Watch Video Solution**

**166.** Bromine gas turns starch iodide paper

A. Blue

B. Red

C. Colourless

D. Yellow

**Answer: C**



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**167.**  $Br^-$  is converted into  $Br_2$  by using

A.  $Cl_2$

B. Conc. HCl

C. HBr



D.  $H_2S$

Answer: A



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**168.** Bromine is obtained commercially from sea water  
by

A.  $AgNO_3$  solution

B. Crystals of NaBr

C.  $Cl_2$

D.  $C_2H_2$

**Answer: C**



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**169.** Chlorine acts as a bleaching agent only in the presence of

A. Dry air

B. Moisture

C. Sunlight

D. Pure oxygen

**Answer: B**



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170. Fluorine reacts with water to give

A. HF and  $O_2$

B. HF and  $OF_2$

C. HF and  $O_3$

D.  $HF$ ,  $O_2$  and  $O_3$

**Answer: D**



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171. Which of the hydrogen halides forms salts like  $KHX_2$  (where X is a halogen atom)

A. HF

B. HCl

C. HI

D. HBr.

**Answer: A**



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172. Chlorine reacts with sulphur to form

A.  $S\text{Cl}_4$

B.  $S\text{Cl}_2$

C.  $S\text{Cl}_6$

D. None of the above

**Answer: A**



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**173.** A dark violet solid X reacts with  $\text{NH}_3$  to form a mild explosive which decomposes to give a violet coloured gas. X also reacts with  $\text{H}_2$  to give an acid Y. Y can also be prepared by heating its salt with  $\text{H}_3\text{PO}_4$ . X and Y are :

A.  $Cl_2$ ,  $HCl$

B.  $SO_2$ ,  $H_2SO_4$

C.  $Br_2$ ,  $HBr$

D.  $I_2$ ,  $HI$

**Answer: D**

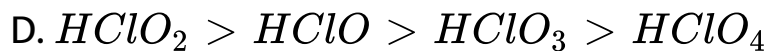
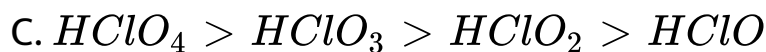


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174. The correct order of the increasing acidic strengths of  $HClO$ ,  $HClO_2$ ,  $HClO_3$ ,  $HClO_4$  is

A.  $HClO > HClO_2 > HClO_3 > HClO_4$

B.  $HClO_3 > HClO_4 > HClO_2 > HClO$



**Answer: C**



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**175.** Which are soluble in  $H_2O$  ?

AgF, AgCl, AgBr, AgI

A. AgF, AgBr, AgI

B. AgI, AgF

C. AgF

D. AgI, AgCl.

**Answer: C**



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**176.** Recent research about perfluorinated compound shows, that it has following uses. Which of the following is wrong

- A. Its use would eliminate the transmission of diseases such as AIDS through blood transfusion
- B. It would be particularly valuable to patients with rare blood types
- C. It can be used as blood substitute in human



D. It is a very good nuclear fuel.

**Answer: D**



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**177.** The colour of the solid iodine is

A. greenish yellow

B. dark brown

C. violet

D. reddish brown.

**Answer: C**



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178. The number of half filled orbitals in the valence shell of halogens is

A. One

B. Two

C. Three

D. Zero

**Answer: A**



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179. For the reaction  $X_2 + (aq) + 2e^- \rightarrow 2X^-(aq)$

the value of  $E_{\text{red}}^\circ$  is highest

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

**Answer: A**



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**180.** The halogen having five vacant orbitals in the outermost shell belongs to

A. 3rd period

B. 4th period

C. 2nd period

D. 5th period

**Answer: A**



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**181.** Which halogen cannot show oxidation state more than zero ?

A. Chlorine

B. Fluorine

C. Iodine

D. Bromine.

**Answer: B**



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**182.** Which of the following pairs represents 1st and 2nd most electronegative elements of the periodic table respectively ?

A. Cl, F

B. F, Cl

C. F, O

D. I, C

**Answer: C**



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**183.** Which oxidation state is not shown by iodine ?

A. -1

B. +1

C. +4

D. +5

**Answer: C**



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**184.** Which oxidation state is not shown by chlorine ?

A. +7

B. +3

C. +8

D. +4.

**Answer: C**



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**185.** Which halogen acid exists as zig-zag chains in solid state?

A. HF

B. HCl

C. HBr



D. None of these

**Answer: A**



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**186.**  $\Delta H$  (hydration) of  $X^-$  ion is maximum for

A.  $F^-$

B.  $Cl^-$

C.  $Br^-$

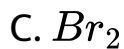
D.  $I^-$

**Answer: A**



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187. Which among the following is strongest reducing agent?

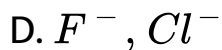
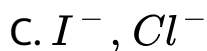
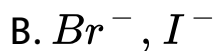
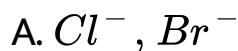


**Answer: A**



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188. The difference between the value of  $\Delta H$  (hydration) of  $X^-$  ion is maximum for which of the following pairs of ions?

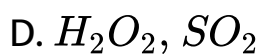
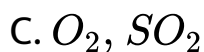
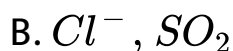
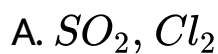


**Answer: D**



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**189.** Two gases X and Y bring about bleaching of flowers. X bleaches due to oxidation of dye while Y bleaches by reducing the colouring matter. X and Y are respectively



**Answer: B**



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190. Which among the following elements of 3rd period shows maximum tendency of forming  $d\pi - p\pi$  bond ?

A. Chlorine

B. Silicon

C. Phosphorus

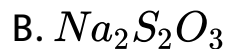
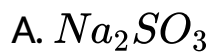
D. Sulphur

**Answer: A**



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191. Which of the following cannot decolourise the iodine solution ?



**Answer: A**



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**192.** Which halogen has maximum abundance in earth's crust?

A. Chlorine

B. Bromine

C. Iodine

D. Fluorine

**Answer: D**



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**193.** Which of the following interhalogen compounds is not possible ?



**Answer: A**



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**194.** Which of the following pairs contains halogen with lowest covalent radius and that with highest ionic radius respectively ?

A. F, I

B. Cl, I

C. Br, Cl

D. F, Br.

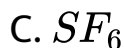
**Answer: A**





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195. Among the fluorides given below which will further react with  $F_2$



**Answer: B**



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**196.** The halogen acid which produces the weakest conjugate base is

A. HI

B. HCl

C. HBr

D. HF

**Answer: A**



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**197.** Which pair represents halogen acid with longest bond length and the one with highest bond energy

respectively?

- A. HI, HBr
- B. HCl, HF
- C. HI, HF
- D. HBr, HCl.

**Answer: C**



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**198.** Which halogen acid exists in dimeric form even in the gaseous state ?

- A. Hydrogen chloride

B. Hydrogen fluoride

C. Hydrogen bromide

D. Hydrogen iodide

**Answer: B**



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**199.** The number of chlorine to oxygen bonds in  $Cl_2O_7$

is

A. 7

B. 8

C. 6

D. 10

**Answer: B**



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**200.** The hybrid state of halogen atom is  $sp^3$  in



D. In all

**Answer: D**



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201. In which solution halogen molecules tend to disproportionate ?

A. In  $H_2SO_4$

B. In cold  $H_2O$

C. In hot NaOH

D. In hot water

**Answer: C**



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1. Sodium chloride when heated with conc.  $H_2SO_4$  and solid potassium dichromate gives

- A. Chromic chloride
- B. Chromyl chloride
- C. Chromous chloride
- D. None

**Answer: B**



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2. Oxidation states of iodine vary from

A. -1, 1,3,5

B. -1, 1,3

C. 3, 5, 7

D. -1, 1, 3, 5, 7

**Answer: D**



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3. Sea weeds are important source of

A. Iron



B. Chlorine

C. Iodine

D. Bromine

**Answer: C**



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**4. Which of the following is most volatile compound?**

A. HI

B. HCl

C. HBr

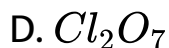
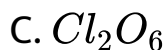
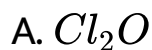
D. HF

**Answer: B**



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5. Which one is the anhydride of  $HClO_4$  ?



**Answer: D**



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6. Which of the following halogens does not form its oxyacids ?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine.

**Answer: A**



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7. Mark the smallest atom

A. F

B. Cl

C. Br

D. I.

**Answer: A**

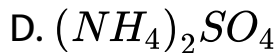
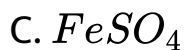


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**8.** Iodine is formed when potassium iodide reacts with a solution of

A.  $ZnSO_4$

B.  $CuSO_4$



**Answer: C**



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9. HI cannot be prepared by the action of conc.  $H_2SO_4$  on KI because

A. HI is stronger than  $H_2SO_4$

B. HI is more volatile than  $H_2SO_4$

C.  $H_2SO_4$  is an oxidising agent

D.  $H_2SO_4$  forms complex.

**Answer: C**



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**10.** Dilute hydrochloric acid solution cannot be concentrated by boiling beyond

A. 11 %

B. 33 %

C. 44 %

D. 22 %

**Answer: D**



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11. Bromine is obtained on commercial scale from

- A. Caliche
- B. Carnallite
- C. Common salt
- D. Cryolite

**Answer: B**



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12. Iodine deficiency in diet is known to cause

A. Beriberi

B. Goitre

C. Rickets

D. Night blindness

**Answer: B**



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**13. Which of the following halogen acid is a liquid ?**

A. HF

B. HCl

C. HBr



D. HI

**Answer: A**



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**14.** Which of the following acid is weakest ?

A. HClO

B. HBr

C.  $HClO_3$

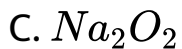
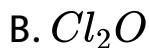
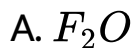
D. HCl

**Answer: D**



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15. In which of the following, oxygen has +2 oxidation number ?



**Answer: A**



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**16.** Fluorine does not show positive oxidation states due to the absence of

A. d-orbitals

B. s-orbitals

C. p-orbitals

D. None

**Answer: D**



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17. Which of the following belongs to the halogen family?

A. Francium

B. Polonium

C. Radium

D. Astatine.

**Answer: D**



**Watch Video Solution**

18. Which of the following has greatest reducing power?

A. HI

B. HBr

C. HCl

D. HF

**Answer: A**



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19. Bad conductor of electricity is

A.  $H_2F_2$

B. HCl

C. HBr

D. HI

**Answer: A**



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20. Bleaching powder is obtained by the action of chlorine gas and

A. Dilute solution of  $Ca(OH)_2$

B. Concentrated solution of  $Ca(OH)_2$

C. Dry CaO

D. Dry slaked lime

**Answer: D**



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**21. Mark the element which shows only one oxidation state in its compounds**

A. F

B. Cl

C. Br

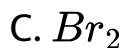
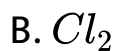
D. I

**Answer: A**



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22. Which one of the following halogens has the highest bond energy ?



**Answer: B**



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23. Which halogen is most electropositive ?

A. F

B. Cl

C. Br

D. I

**Answer: D**



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24. Euchlorine is a mixture of

A.  $Cl_2$  and  $SO_2$

B.  $Cl_2$  and  $ClO_2$

C.  $Cl_2$  and  $CO$

D. None of these

**Answer: B**

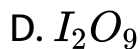
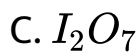


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25. Which one of the following is the true covalent oxide of iodine?

A.  $I_2O_4$

B.  $I_2O_5$



**Answer: B**



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**26.** 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 potential

D. Heat of hydration

**Answer: C**



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27. Bleaching powder reacts with a few drops of conc.  $HCl$  to yield

A. Chlorine

B. Hypochlorous acid

C. Calcium oxide

D. Oxygen.

**Answer: A**



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28. Iodine readily dissolves in potassium iodide solution giving

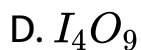
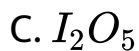


**Answer: D**



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29. Which of the following halogen oxides is ionic?

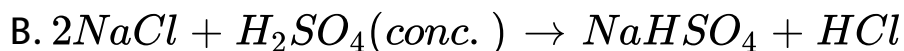
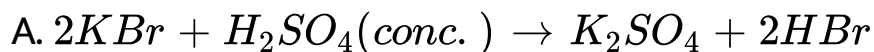


**Answer: D**



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30. Which amongst the following reactions cannot be used for the preparation of the halogen acid ?



**Answer: A**



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31. Which of the following hydrogen halide has the highest boiling point?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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32. Which member of the halogen family (X) does not show oxidation state of +1?

A. Fluorine

B. Chlorine

C. Bromine

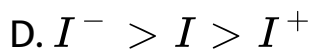
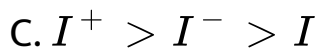
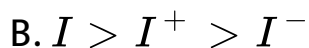
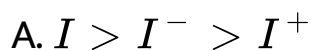
D. Iodine.

**Answer: A**



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33. Which one of the following is correct order of the size of iodine species ?



**Answer: D**



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34. Hydrogen fluoride is a liquid unlike other hydrogen halides because

- A. Fluorine atom is smaller in size
- B. HF is the weakest acid
- C. Fluorine is highly reactive
- D. HF molecules form intermolecular H-bonds.

**Answer: D**



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35. Which of the following is a false statement ?

- A. Hydrogens are strong oxidising agents
- B. Halogens show only-1 oxidation state
- C. HF molecules form intermolecular hydrogen bonding
- D. Fluorine is highly reactive.

**Answer: B**



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**36.** Which of the following arrangement for the three halogens Cl, Br and I when placed in the order of their increasing electron affinity is correct ?

A. Cl, Br, I

B. I, Br, Cl

C. Br, Cl, I

D. I, Cl, Br.

**Answer: B**



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**37.** Oxidising action increases in halogen in the following order

A. Cl It Br It I It F

B. Cl It I It Br It F

C. I It F It Cl It Br

D. I It Br It Cl It F

**Answer: D**



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**38.** Which of the following halogens has metallic character ?

A.  $F_2$

B.  $Cl_2$

C.  $I_2$

D.  $Br_2$

**Answer: D**



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**39.** the bleaching action of chlorine is due to

A. Reduction

B. Hydrogenation

C. Chlorination

D. Oxidation.

**Answer: D**



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**40.** As the atomic number of halogens increases. The halogens

- A. Lose the outermost electrons less readily
- B. Become lighter in colour
- C. Become less denser
- D. Gain electrons less readily.

**Answer: D**



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**41.** Which statement is correct about halogens ?



- A. They are all diatomic and form univalent ions
- B. They are all capable of exhibiting several oxidation states
- C. They are all diatomic and form divalent ions
- D. They can mutually displace each other from the solution of their compounds with metals.

**Answer: A**

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**42.** Which has the highest molar heat of vaporisation?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**43.** Which one of the following reacts with glass ?

A.  $H_2SO_4$

B. HF

C.  $HNO_3$

D.  $K_2Cr_2O_7$

**Answer: B**



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**44.** A 500 g toothpaste sample has 0.2 g fluoride concentration. What is the concentration of  $F^{\ominus}$  in ppm ?

A. 250

B. 200

C. 400

D. 1000

**Answer: C**



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45. The type of bonding in HCl molecule is

- A. Pure covalent
- B. Polar covalent
- C. Highly polar
- D. H-bonding

**Answer: B**



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46. Which of the following bonds will be most polar?

A. N-Cl

B. O-F

C. N-F

D. N-N.

**Answer: C**



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47. Elements of which of the following groups will form anions most readily ?

- A. Oxygen family
- B. Nitrogen family
- C. Halogens
- D. Alkali metals.

**Answer: C**



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**48.** The strongest hydrogen bonding exists in

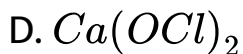
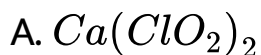
- A. Water
- B. Ammonia
- C. Hydrogen fluoride

D. Hydrogen sulphide

Answer: C

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49. When chlorine is passed over dry slaked lime at room temperature, the main reaction product is



**Answer: C**



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**50.** In the manufacture of bromine from sea water the mother liquor containing bromide is treated with

- A. Carbon dioxide
- B. Chlorine
- C. Iodide
- D. Sulphur dioxide.

**Answer: B**



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51. Which halogen can be purified by sublimation ?

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

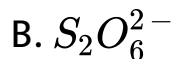
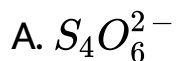
D.  $I_2$

**Answer: D**



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52. Oxidation of thiosulphate ( $S_2O_3^{2-}$ ) ion by iodine gives



**Answer: C**



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53. Fluorine is a better oxidising agent than  $Br_2$ . It is due to

- A. Small size of fluorine
- B. More electron repulsion in fluorine
- C. More electronegativity of fluorine
- D. Non metallic nature of fluorine.

**Answer: C**



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54. When cold  $\text{NaOH}$  reacts with  $\text{Cl}_2$  which of the following is formed

A.  $\text{NaClO}$

B.  $\text{NaClO}_2$

C.  $\text{NaClO}_3$

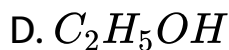
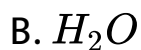
D. None

**Answer: A**



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55. Hydrogens bonding does not play any role in boiling of



**Answer: C**



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56. Which of the following species has four lone..

A. I

B.  $O^-$

C.  $Cl^-$

D. He

**Answer: C**



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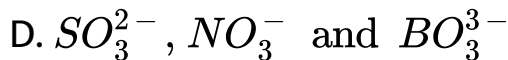
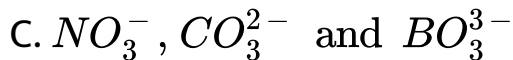
**57.**

Amongst

$NO_3^-$ ,  $AsO_3^{3-}$ ,  $CO_3^{2-}$ ,  $ClO_3^-$ ,  $SO_3^{2-}$  and  $BO_3^{3-}$  the

non-planar species are

A.  $CO_3^{2-}$ ,  $SO_3^{2-}$  and  $BO_3^{3-}$

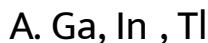


**Answer: B**



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**58.** Which of the following set has the strongest tendency to form anions?

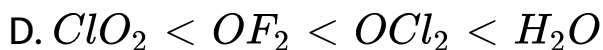
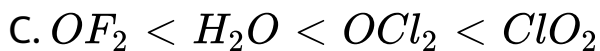
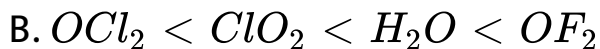
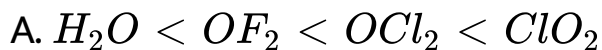


D. V,Cr,Mn

Answer: C

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59. Which of the following sequence represents the correct increasing order of bond angle in the given molecular ?



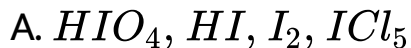


**Answer: C**



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**60.** The correct sequence of arrangement of the following compounds in order of decreasing oxidation numbers of iodine is

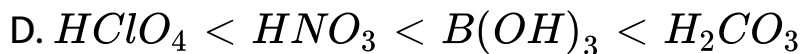
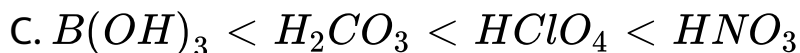
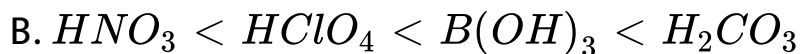
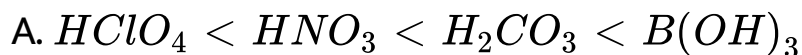


**Answer: D**



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61. Which of the following represents the correct order of increasing  $pK_a$  values of the given acids?

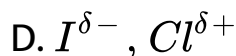
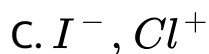
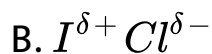


Answer: A



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62. Charge distribution in iodine monochloride is best represented as



**Answer: B**



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63. A solution of  $KBr$  is treated with each of the following which one would liberate bromine?

A. Hydrogen iodide

B. Sulphur dioxide

C. Chlorine

D. Iodine

**Answer: C**



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**64.** Which of the following elements is extracted commercially by the electrolysis of an aqueous solution of its compound ?

A. Cl

B. Br

C. Al

D. Na

**Answer: A**



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**65.** Which of the following pairs is not correctly matched ?

A. A halogen which is liquid at room temperature-

Bromine

B. The most electronegative element-Fluorine

C. The most reactive halogen-Fluorine

D. The strongest oxidising halogen-Iodine

**Answer: D**



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**66.** The element which liberated  $O_2$  from water is

A. P

B. N

C. F

D. I

**Answer: C**



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67. When  $I_2$  is dissolved in  $CCl_4$ , the colour that results is

A. Brown

B. Colourless

C. Violet

D. Bluish green.

**Answer: B**



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68. Ozonised oxygen can be obtained from  $H_2O$  the action of

A. Conc.  $H_2SO_4$

B.  $KMnO_4$

C.  $MnO_4^{2-}$

D.  $F_2$

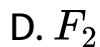
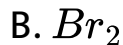
**Answer: D**



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69. Halogen which can be prepared from caliche is



Answer: C



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70. Which one of the following is most basic?



B.  $Cl^-$

C.  $Br^-$

D.  $I^-$

**Answer: D**



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**71.** Which one of the following elements can have both positive and negative oxidation state?

A. F

B. I

C. Li

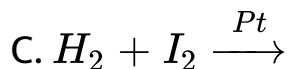
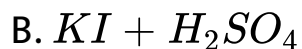
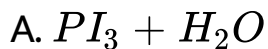
D. He

**Answer: B**



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72.  $HI$  can be prepared by all the following methods except

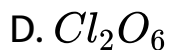
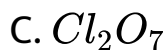
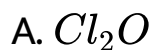


**Answer: B**



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**73. Which among the following is paramagnetic ?**



**Answer: B**



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74. Which one of the following pairs of substances when mixed, produces chlorine gas at room temperature?

A.  $HCl$  and  $KMnO_4$

B.  $NaCl$  and  $H_3PO_4$

C.  $NaCl$  and  $MnO_2$

D.  $CaCl_2$  and  $Br_2$

**Answer: A**



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75. Which one of the following oxyacids of chlorine is the least oxidizing in nature ?

A. HOCl

B.  $HClO_2$

C.  $HClO_3$

D.  $HClO_4$

**Answer: D**



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76. Which of the following bonds is the strongest ? .

A. F-F

B. Cl-Cl

C. H-I

D. Br-Br.

**Answer: B**



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77. Which of the following oxides of chlorine is obtained by passing dry chlorine over silver chlorate at  $90^{\circ}C$ .

A.  $Cl_2O$

B.  $ClO_3$

C.  $ClO_2$

D.  $ClO_4$

**Answer: C**



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**78.** The solubility of iodine in water may be increased by adding

A. Potassium iodide

B. Chloroform

C. Carbon disulphide



D. Sodium thiosulphate

**Answer: B**



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**79.** 1.0 M solution of which of the following salts is most basic ?

A.  $\text{NaClO}$

B.  $\text{NaClO}_4$

C.  $\text{NaClO}_2$

D.  $\text{NaClO}_3$

**Answer: A**



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**80.** The element which never acts as reducing agent in a chemical reaction is

A. O

B. Li

C. F

D. C.

**Answer: C**



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81. Which is the weakest out of HF, HCl, HBr and HI?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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82. The solubility of  $I_2$  increases in water in presence of

A. KI

B.  $H_2SO_4$

C.  $KMnO_4$

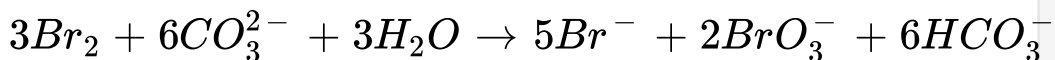
D.  $H_2S$

**Answer: A**



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**83.** In the reaction



A. Bromine is oxidised and carbonate is reduced

B. Bromine is both oxidised and reduced

C. Bromine is reduced and water is oxidised

D. Bromine is neither oxidised nor reduced

**Answer: B**



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**84.** Hydrochloric acid at  $25^{\circ}C$  is

A. Ionic and liquid

B. Covalent and liquid

C. Ionic and gas

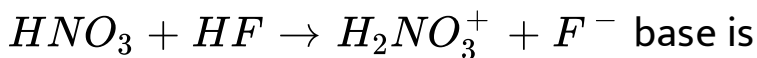
D. None of the above.

**Answer: D**



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**85.** In the reaction



A. HF

B.  $HNO_3$

C. HF and  $HNO_3$

D. None

**Answer: B**



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86. Oxidation of thiosulphate by iodine gives

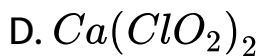
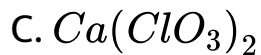
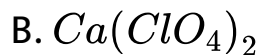
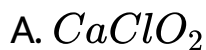
- A. Sulphate ion
- B. Sulphite ion
- C. Tetrathionate ion
- D. Sulphide ion

**Answer: C**



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87. The chemical formula for calcium chlorite is



**Answer: D**



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**88.** The shape of  $\text{ClO}_3^-$  is

A. Triangular pyramid

B. Tetrahedral

C. Triangular planar



D. Triangular bi-pyramid.

**Answer: A**



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**89.** Chlorine cannot displace

A. Fluorine from NaF

B. Iodine from NaI

C. Bromine from NaBr

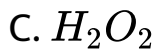
D. None of the above.

**Answer: A**



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90. Which of the following cannot work as oxidizing agent ?



Answer: D



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**91.** Among F, Cl, Br and I the lowest Ionisation potential will be of

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer: D**



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**92.** The correct order of electron affinity of halogens

A.  $F > Cl > Br > I$

B.  $F > Cl > Br > I$

C.  $F > Cl > Br > I$

D.  $F > Cl > Br > I$

**Answer: C**



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**93.** The electronegativity follows the order

A.  $F > O > Cl > Br$

B.  $F > Cl > Br > O$

C.  $O > F > Cl > Br$

D.  $Cl > F > O > Br$

Answer: A



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94. The bond energies of  $F_2$ ,  $Cl_2$ ,  $Br_2$  and  $I_2$  are 155, 244, 193 and 151 kJ mol respectively. The weakest bond will be in

A.  $Br_2$

B.  $Cl_2$

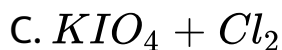
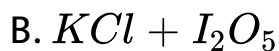
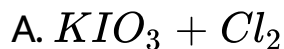
C.  $F_2$

D.  $I_2$

**Answer: D**

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**95.** On boiling an aqueous solution of  $KClO_3$  with iodine, the following product is obtained



D. No reaction takes place

**Answer: A**

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96. Chlorine gas is dried over

A. CaO

B. NaOH

C. KOH

D. Conc.  $H_2SO_4$

**Answer: D**



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97. The outer electronic structure of  $3s^23p^5$  is possessed by

A. O

B. Cl

C. Br

D. Ar

**Answer: B**



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98. Which of the following is the strongest acid ?



A. HOCl

B.  $\text{HOClO}_2$

C.  $\text{HOClO}_3$

D. HOClO

**Answer: C**



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**99.** The one with the largest size is

A. Cl

B.  $\text{Cl}^-$

C.  $\text{Cl}^+$

D.  $Cl^{3+}$

**Answer: B**

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**100.** Which has maximum pH in aqueous solution ?

A.  $NaClO$

B.  $NaClO_2$

C.  $NaClO_3$

D.  $NaClO_4$

**Answer: A**



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101. Fluorine does not form oxyacids unlike other halogens because

- A. It is highly electronegative
- B. It has no d-orbitals
- C. Its atomic radius is very small
- D. The  $F^-$  ion is stable and isoelectronic with

**Answer: B**



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102. The shape of  $ClO_3^-$  according to valence shell electron pair repulsion theory will be

- A. Planar triangle
- B. Pyramidal
- C. Tetrahedral
- D. Square planar

**Answer: B**



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103. The correct order of reactivity of halogens is

A. F gt Cl gt Br gt I

B. F lt Cl gt Br lt I

C. Flt ClIt BrIt I

D. Flt ClIt Br gt I

**Answer: A**



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**104.** Chlorine acts as a bleaching agent only in the presence of

A. dry air

B. Moisture

C. Sun light

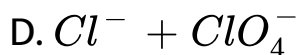
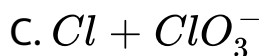
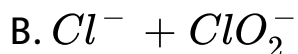
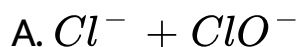
D. None of these

**Answer: B**



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**105.** When chlorine reacts with cold and dilute solution of sodium hydroxide, the products obtained are



**Answer: A**



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**106.** Oxidation state of chlorine in hypochlorous acid

A. +1

B. +2

C. -1

D. -2

**Answer: A**



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107. In the reaction



A.  $\text{Cl}_2$

B.  $\text{Br}_2$

C.  $\text{I}_2$

D.  $\text{N}_2$

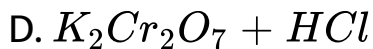
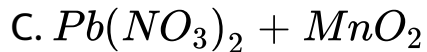
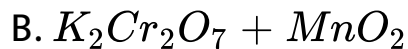
**Answer: A**



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108. Chlorine is liberated, when we heat





**Answer: D**



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**109.** Which of the following halogens does not form its oxyacids ?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

**Answer: A**



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**110.** Which of the following is not the characteristic of interhalogen compounds?

A. They are more reactive than halogens

B. They are quite unstable but none of them is explosive

C. They are covalent in nature

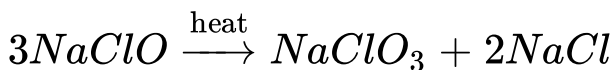
D. They have low boiling points and are highly volatile.

**Answer: D**



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**111.** Which of the following is correct about the reaction ?



A. It is a disproportionation reaction

B. Oxidation number of Cl decreases as well as increases in this reaction

C. This reaction is used for the manufacture of  
halates

D. All of the above.

**Answer: D**



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**112.** Which of the following is used in the preparation of chlorine?

A. Only  $MnO_2$

B. Only  $KMnO_4$

C. Both  $MnO_2$  and  $KMnO_4$

D. Either  $MnO_2$  or  $KMnO_4$

**Answer: D**



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**113.** Which bond is most polar?

A. Cl-F

B. Br-F

C. I-F

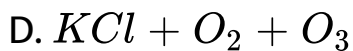
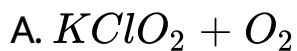
D. F-F

**Answer: C**



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114. On heating  $KClO_3$  we get:

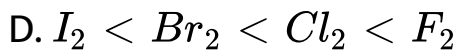
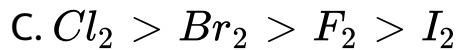
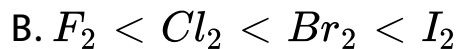
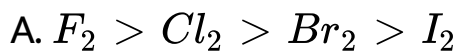


**Answer: B**



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115. The correct order of increasing oxidising power



**Answer: D**



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**116.** Freon is used as a

A. Refrigerant

B. Catalyst

C. Oxidant

D. Both (D) and (C).

**Answer: A**



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**117.** Which of the following halogen does not exhibit positive oxidation state in its compounds?

A. Cl

B. Br

C. I

D. F.

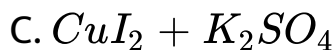
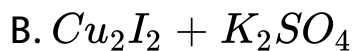


**Answer: D**



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**118.** KI and  $CuSO_4$  solutions when mixed give

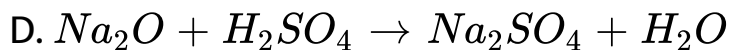
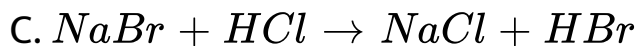
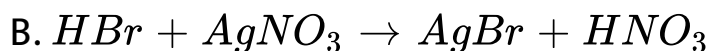
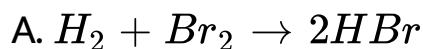


**Answer: B**



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**119.** Which of the following reaction involves oxidation and reduction ?

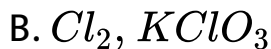
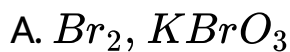


**Answer: A**



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120. A greenish yellow gas reacts with an alkali metal hydroxide to form a halate which can be used in fireworks and safety matches. The gas and the halate are



**Answer: B**



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121. The reaction of  $KMnO_4$  and  $HCl$  results in:

A. Oxidation of Mn in  $KMnO_4$  and production of



B. Reduction of Mn in  $KMnO_4$  and production of



C. Oxidation of Mn in  $KMnO_4$  and production of



D. Reduction of Mn in  $KMnO_4$  and production of



**Answer: D**



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122. When  $I_2$  is passed through KCl, KF and KBr solutions

- A.  $Cl_2$  and  $Br_2$  are evolved
- B.  $Cl_2$  is evolved
- C.  $Cl_2$ ,  $Br_2$  and  $F_2$  are evolved
- D. None of these.

**Answer: D**



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123. Which one of the following arrangements is the incorrect representation of the property indicated with it ? A)  $Br < Cl < F$  : Electronegativity B)  $F < Br < Cl$  : Electron - affinity C)  $F_2 < Br_2 < Cl_2$  : Bond energy D)  $Br_2 < Cl_2 < F_2$  : Oxidising strength

A. E.N:  $F > Cl > Br$

B. E.A.:  $Cl > Br > F$

C. Oxidising power:  $F_2 > Cl_2 > Br_2$

D. Bond energy :  $F_2 > Cl_2 > Br_2$

**Answer: D**



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124. The halogen that is most easily reduced is

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

Answer: A



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125. Sea weeds are important source of

A. Iodine

B. Bromine

C. Sulphur

D. Chlorine

**Answer: A**



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**126.** Which of the following is most volatile compound?

A. HI

B. HBr

C. HCl

D. HF

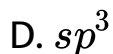
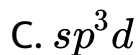
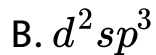
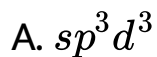


**Answer: C**



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127. The hybridization in  $ICl_7$  is



**Answer: A**



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**128.** The correct decreasing order of acidic character is



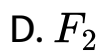
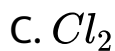
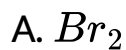
**Answer: A**



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**129.** The bond energies of  $F_2$ ,  $Cl_2$ ,  $Br_2$  and  $I_2$  are 155, 244, 193 and 151 kJ mol respectively. The weakest bond

will be in



**Answer: C**



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**130.** Which of the following has the stronger bond?



B. F-Cl

C. F-Br

D. Cl-Br

**Answer: A**



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**131.** Which of the following gives correct arrangement of compounds involved based on their bond strength?

A. HF gt HCl gt HBr gt HI

B. HI gt HBr gt HCl gt HF

C. HF gt HBr gt HCl gt HI

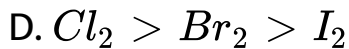
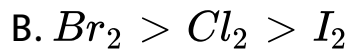
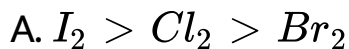
D. HF gt HCl gt HBr gt HI

Answer: A



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132. Which one of the following order is correct for the bond energies of halogen molecules?



**Answer: D**



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**133.** Which one of the following elements should have different oxidation states?

A. Sodium

B. Fluorine

C. Chlorine

D. Potassium

**Answer: C**



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**134.** At room temperature, HCl is a gas while HF is low boiling liquid. This is because

- A. H-F bond is covalent
- B. H-F bond is ionic
- C. HF has metallic bond
- D. HF has hydrogen bond

**Answer: D**



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**135.** Which of the following elements exhibits the most basic properties?

A. F

B. Cl

C. Br

D. I

**Answer: D**



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**136.** An element  $M$  has an atomic mass 19 and atomic number 9. Its ion is represented by



**Answer: C**



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**137.** Oxidation state of chlorine in hypochlorous acid

A. +7

B. +5

C. +3

D. +1

**Answer: D**



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**138.** In the presence of cobalt chloride ( $CoCl_2$ ), bleaching powder decomposes to form

A.  $CaCO_3$  and  $O_3$

B.  $ClO_2$  and  $CaO$

C.  $Cl_2O$  and  $CaO$

D.  $CaCl_2$  and  $O_2$

**Answer: D**



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**139.** Which one of the following halogen liberates oxygen, when passed through hot concentrated KOH solution ?

A.  $I_2$

B.  $Cl_2$

C.  $Br_2$

D.  $F_2$

Answer: D

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140. Bond dissociation energies of HF, HCl, HBr follow the order



**Answer: C**



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**141.** One mole of fluorine is reacted with two moles of hot and concentrated KOH. The product formed are KF,  $H_2O$  and  $O_2$ . The molar ratio of KF,  $H_2O$  and  $O_2$  is respectively

A. 1 : 1 : 2

B. 2 : 1 : 0.5

C. 1 : 2 : 1

D. 2 : 1 : 2

**Answer: B**



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**142.** "Fluorosis" disease is caused due to the reaction of  $\text{CaF}_2$  with excess of fluoride in the body

A. Ca

B. Mg

C. Fe

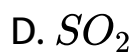
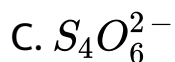
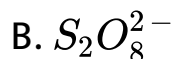
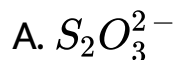
D. K

**Answer: A**



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143. Fluorine oxidizes  $HSO_4^-$  to  $\text{SO}_4^{2-}$



**Answer: B**



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**144.** In which of the following, hydrogen bond is the strongest ?

A. F-H..O

B. F-H...N

C. F-H.....F

D. All are equally strong.

**Answer: C**



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**145.** Which of the following is used as an antiseptic ?



A. I

B. Br

C. Cl

D. F

**Answer: A**



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**146.** Which of the following has highest bond strength?

A. HI

B. HCl

C. HF

D. HBr

**Answer: C**



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**147.** Which of the following halogens exhibit only one oxidation state in its compounds ?

A. Bromine

B. Chlorine

C. Fluorine

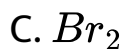
D. Iodine

**Answer: C**



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**148.** Which has the highest bond energy?



**Answer: B**



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**149.** Chlorine acts as a bleaching agent only in the presence of

A. dry air

B. sunlight

C. moisture

D. oxygen

**Answer: C**



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**150.** Concentrated hydrochloric acid when kept in open air sometimes produces a cloud of white fumes. The explanation for it is that :

A. due to strong affinity for water, concentrated hydrochloric acid pulls moisture of air towards itself. This moisture forms droplets of water and hence the cloud.

B. concentrated hydrochloric acid emits strongly smelling HCl gas all the time

C. oxygen in air reacts with the emitted HCl gas to form a cloud of chlorine gas

D. strong affinity of HCl gas for moisture in air results in formation of droplets of liquid solution which appears like a cloudy smoke.

**Answer: D**



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**151.** The mixture of concentrated  $HCl$  and  $HNO_3$  made in 3:1 ratio contains

A.  $ClO_2$

B.  $NOCl$

C.  $NCl_3$

D.  $N_2O_4$

**Answer: B**



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152.  $Cl_2O$  is best prepared by passing dry

A. chlorine gas over hot  $HgO$

B. hydrogen chloride and oxygen over hot silver  
oxide

C. hydrogen chloride over phosphorus pentoxide

D. chlorine and oxygen over hot silver chlorate

**Answer: A**



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**153.** Which of the following is the strongest oxidising agent ?

A. HOCl

B.  $HClO_2$

C.  $HClO_3$

D.  $HClO_4$

**Answer: A**



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**154.** Among the halogens, the one which is oxidised by nitric acid is

A. fluorine

B. iodine

C. chlorine

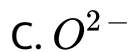
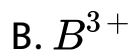
D. bromine.

**Answer: B**



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155. Which one of the following ions has the highest value of ionic radius?



**Answer: C**



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156.  $SO_2$  acts as temporary bleaching agent but  $Cl_2$  acts as permanent bleaching agent. Why?

A.  $Cl_2$  bleaches due to reduction but  $SO_2$  due to oxidation

B.  $Cl_2$  bleaches due to oxidation but  $SO_2$  due to reduction

C. Both (A) and (B)

D. None of these

**Answer: B**

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157. For the electron affinity of halogens (with  $-ve$  sign), which of the following is correct?

A. Br gt F

B. F gt Cl

C. Br gt Cl

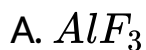
D. F gt I

**Answer: D**



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158. The compound used for the preparation of  $UF_6$  in the enrichment of  ${}_{92}U^{235}$  is

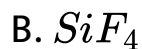


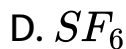
**Answer: D**



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**159.** The compounds used as gaseous insulators in high voltage generators is





**Answer: D**



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**160.** Fluorine is obtained by the interaction of  $K_2MnF_6$  with Lewis acid  $SbF_5$  because of the

A. Acidolysis of  $MnF_4$

B. Decomposition of  $MnF_4$

C. Ionisation of  $MnF_4$

D. Decomposition of  $SbF_6$

**Answer: B**



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**161.** Which of the following is used during the preparation of fluorine by Whytlaw-Gray method

A. aqueous KF

B. aqueous HF

C. molten  $KHF_2$

D.  $NH_4F$

**Answer: C**

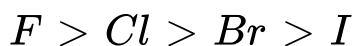


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162. Which one of the following statements about halogens is correct?

A.  $F_2$  has lower bond dissociation energy than

B. The electron affinities are in order



C. HF is the strongest hydrohalic acid

D. All halogens show variable oxidation states

**Answer: A**



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163. The correct order of the thermal stability of hydrogen halides ( $H - X$ ) is

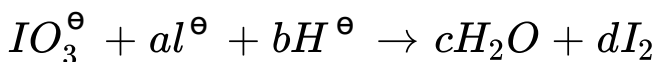


Answer: B



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164. In the balanced chemical reaction



$a$ ,  $b$ ,  $c$ , and  $d$ , respectively, correspond to

A. 5, 6, 3, 3

B. 5, 3, 6, 3

C. 3, 5, 3, 6

D. 5, 6, 5, 5

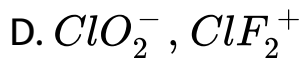
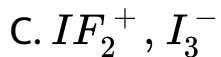
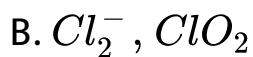
**Answer: A**



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**165.** The isoelectronic pair is

A.  $Cl_2O$ ,  $ICl_2^-$

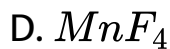
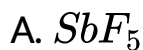


**Answer: D**



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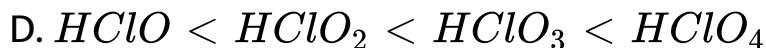
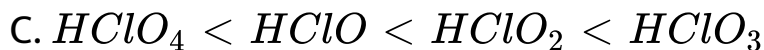
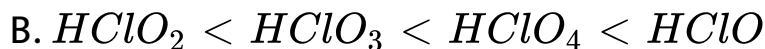
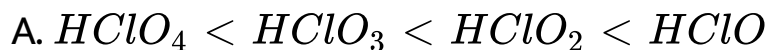
**166.**  $F_2$  is formed by reacting  $K_2MnF_6$  with



**Answer: A**

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**167.** The correct order of acid strength is



**Answer: A**

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**168.** Which of the following attacks glass?

A. HCl

B. HF

C. HI

D. HBr

**Answer: B**



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**169.** Which of the following hydrogen halide is most volatile?

A. HF

B. HCl

C. HBr

D. HI

**Answer: B**



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**170.** Which is the strongest acid ?

A.  $H_2SO_4$

B. HCl

C.  $HClO_4$

D.  $HNO_3$

**Answer: C**



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**171.** Which can do glass etching?

A.  $HClO_4$

B.  $SiF_4$

C. HF

D.  $HNO_3$

**Answer: C**



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172. The bleaching action of  $CaOCl_2$ , is due to

A. Nascent oxygen

B. Chlorine

C.  $HClO$

D.  $HCl$

**Answer: A**



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**173.** High concentration of fluoride is poisonous and harmful to bones and teeth at levels over

A. 1 ppm

B. 3 ppm

C. 5 ppm.

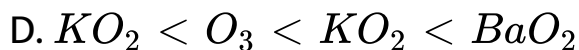
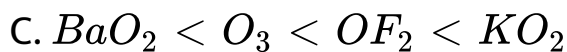
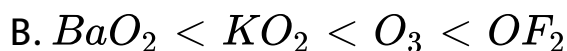
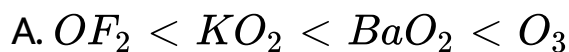
D. 10 ppm

**Answer: B**



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174. In which of the following, increasing orders the oxidation number of oxygen has been arranged ?



**Answer: B**



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175. Shape and hybridization of  $IF_5$ , respectively, are

A. Trigonal bipyramidal:  $sp^3d$

B. Seesaw:  $sp^3d$

C. Square pyramidal:  $sp^3d^2$

D. Pentagonal pyramidal:  $sp^3d^3$

**Answer:**



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**176.** In which of the following pairs, the two species are isostructural :

A.  $BrO_3^-$  and  $XeO_3$

B.  $SF_4$  and  $XeF_4$

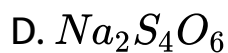
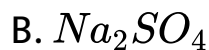
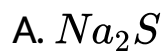


**Answer: A**



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177.  $Na_2S_2O_3$  is oxidised by  $I_2$  to



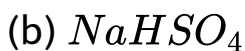
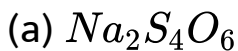
Answer: D



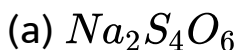
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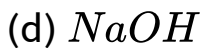
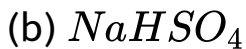
178. Which of the following is correct ?

Aqueous solution of  $Na_2S_2O_3$  on reaction with  $Cl_2$  gives ?



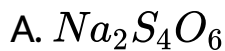
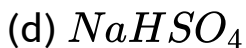
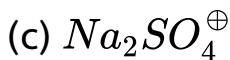
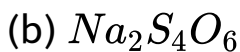
(ii) Acidic solution of  $Na_2S_2S_2O_3$  on reaction with  $Cl_2$  gives





(iii) Basic solution of  $Na_2S_2O_3$  on reaction with  $Cl_2$

gives

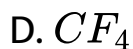
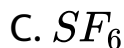
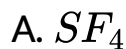


**Answer: B**



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**179.** Two types  $FXF$  angles are present in which of the following molecule ( $X = S, Xe, C$ ) ?



**Answer: A**



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180. If  $I_2$  is dissolved in aqueous KI, the intense yellow species  $I_3^-$  is formed. The structure of  $I_3^-$  ion is

- A. square pyramidal
- B. trigonal bipyramidal
- C. octahedral
- D. pentagonal bipyramidal.

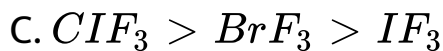
**Answer: B**



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**181.** The stability of interhalogen compounds follows the order

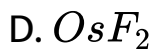
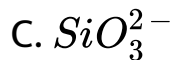


**Answer: A**



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**182.** The species having pyramidal shape is

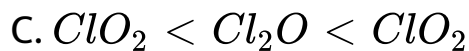
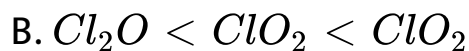
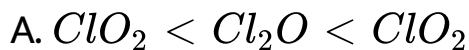


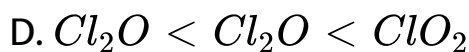
**Answer: D**



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**183.** Correct order of bond angles are in





Answer: A

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**184.** the correct order of electron gain enthalpy with negative sign of  $F, Cl, Br$  and  $I$  , having atomic number 9, 17, 35 and 53 respectively is

A.  $I > Br > Cl > F$

B.  $F > Cl > Br > I$

C.  $Cl > F > Br > I$

D.  $Br > Cl > I > F$

**Answer: C**



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**185.** Which one is the correct observation when  $Br_2$  is treated with NaF, NaCl and NaI taken in three test tubes labelled as (I), (II) and (III) ?

- A.  $F_2$ ,  $Cl_2$  and  $I_2$  are liberated
- B. Only  $F_2$  and  $Cl_2$  are liberated.
- C. Only  $I_2$  is liberated
- D. Only  $Cl_2$  is liberated.

**Answer: C**



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**186.** Which of the following is not a peroxy acid?

A. Perphosphoric acid

B. Pernitric acid

C. Perdisulphuric acid

D. Perchloric acid.

**Answer: D**



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**187.** The structure of  $IF_7$  is

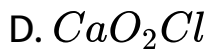
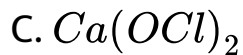
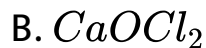
- A. Trigonal bipyramid
- B. Octahedral
- C. Pentagonal bipyramid
- D. Square pyramid

**Answer: C**



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**188.** Which one of the following is present as an active ingredient in bleaching powder for bleaching action?

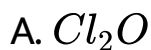


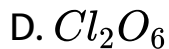
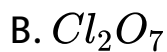
**Answer: C**



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**189.** Bleaching powder contains a salt of an oxoacid as one of its compounds. The anhydride of that oxoacid is :





**Answer: A**



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**190.** When  $Cl_2$  gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chlorine changes from:

A. Zero to +1 and zero to +5

B. Zero to -1 and zero to +5



C. Zero to -1 and zero to +3

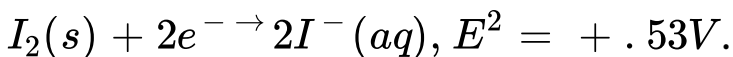
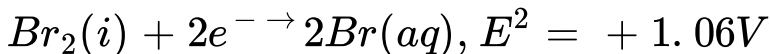
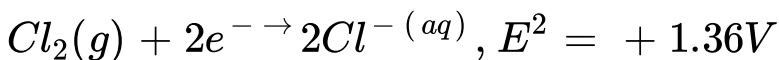
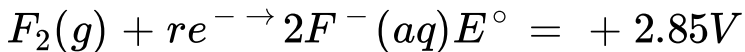
D. Zero two + and zero to -3

**Answer: A**



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**191.** Standard reduction potentials of the half reactions are given below :



The strongest oxidizing and reducing agents respectively

A.  $F_2$  and  $I^-$

B.  $Br_2$  and  $Cl^-$

C.  $Cl_2$  and  $Br^-$

D.  $Cl_2$  and  $I_2$ .

**Answer: A**



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**192.** In which of the following arrangements the given sequence is not strict according to the property

indicated against it?

A. HF < HCl < HBr < HI

increasing acid strength

B.  $H_2O < H_2S < H_2Se < H_2Te$

increasing pKa values

C.  $NH_3 < PH_3 < AsH_3 < SbH_3$

increasing acidic character

D.  $CO_2 < SiO_2 < SnO_2 < PbO_2$

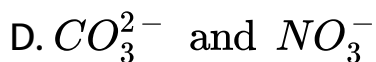
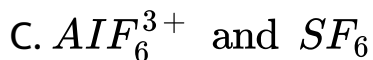
increasing acidic strength

**Answer: B**



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**193.** In which of the following pairs, the two species are not isostructural?



**Answer: B**



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**194.** Which is the strongest acid in the following ?

A.  $HClO_4$

B.  $H_2SO_3$

C.  $H_2SO_4$

D.  $HClO_3$

**Answer: A**



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## Selected Straight Objective Type Mcqs

1. Electrolysis of brine gives

A. NaOH

B.  $H_2$

C.  $O_2$

D.  $Cl_2$

**Answer: A,B,D**



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2. The halogens which are coloured are

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

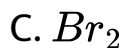
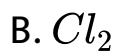
D.  $I_2$

**Answer: A,B,C,D**



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**3.** The halogens which are gases at room temperature are



**Answer: A,B**



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4. The halogens which show positive oxidation states are

A. F

B. Cl

C. Br

D. I

**Answer: B,C,D**



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5.  $F_2$  on reaction with  $H_2O$  produces

A. HF

B.  $O_2$

C.  $O_3$

D. None of these.

**Answer: A,B,C**



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6. A solution of  $KI_3$  in water contains

A.  $K^{3+}$  ions

B.  $I^-$  ions

C.  $K^+$  ions

D.  $I_3^-$  ions.

**Answer: C,D**



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7. The halogen acid(s) which cannot be obtained by the action of conc.  $H_2SO_4$  on corresponding halide is (are)

A. HF

B. HCl

C. HBr

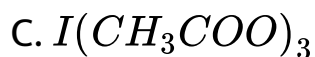
D. HI

**Answer: C,D**



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**8. Which of the following contains cationic iodine?**



D. None of these.

**Answer: B,C**



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9. Which one of the following are prepared by electrolytic method ?

A. Mg

B. Sn

C. S

D.  $F_2$

**Answer: A,D**



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10. Ammonia , on reaction with hypochlorite anion, can form

A. NO

B.  $NH_2Cl$

C.  $NH_4$

D.  $HNO_2$

**Answer: B,C**



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11. Which of the following is most stable to heat?

A. HCl

B. HOCl

C. HBr

D. HI

**Answer: A**



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12. HBr and HI can reduce sulphuric acid, HCl can reduced  $KMnO_4$  and HF can reduce.....

A.  $H_2SO_4$

B.  $KMnO_4$

C.  $K_2Cr_2O_7$

D. None of the above

**Answer: D**



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**13.** Chlorine acts as a bleaching agent only in the presence of

A. Dry air

B. Moisture

C. Sunlight

D. Pure oxygen.

**Answer: B**



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**14.** Hydrogen bonding is strongest in

A. O-H...S

B. S-H...O

C. F-H...F

D. F-H...O

**Answer: C**



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15. Bromine can be liberated from potassium bromide solution by the action of

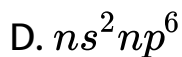
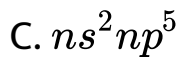
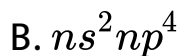
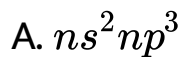
- A. Iodine solution
- B. Chlorine water
- C. Sodium chloride
- D. Potassium iodide.

**Answer: B**



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**16.** The outermost electronic configuration of the most electronegative element is

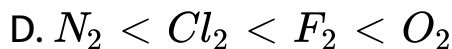
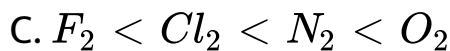
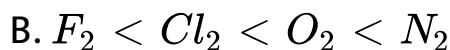
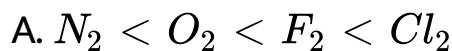


**Answer: C**



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17. The correct increasing order of bond dissociation energy for  $N_2$ ,  $O_2$ ,  $F_2$ ,  $Cl_2$  is



**Answer: B**



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18. Concentrated  $HNO_3$  reacts with iodine to give:

A. HI

B. HOI

C.  $HOIO_2$

D.  $HOIO_3$

**Answer: C**



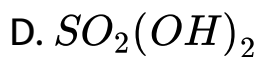
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**19. Which of the following is the strongest acid?**

A.  $ClO_3(OH)$

B.  $ClO_2(OH)$

C.  $SO(OH)_2$



**Answer: A**



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**20.** The elements which exists in the liquid state is/ are

A. Bromine

B. Mercury

C. Gallium

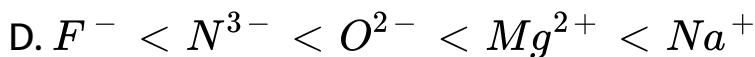
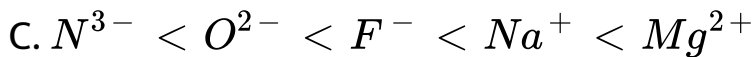
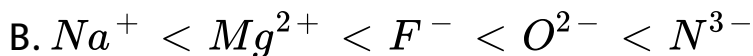
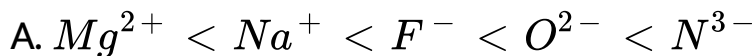
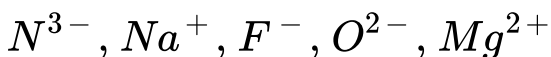
D. All

**Answer: D**



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21. Increasing order of ionic size :

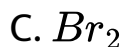


**Answer: A**



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22. The halogen which is most easily reduced is



**Answer: A**



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23. The type of hybrid orbitals used by chlorine atom in

$ClO_2^-$  is :

A.  $sp^3$

B.  $sp^2$

C. sp

D. None of these

**Answer: A**



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**24.** Arrange the acids (I)  $H_2SO_3$ , (II)  $H_3PO_3$  and (III)  $HClO_3$  in the decreasing order of acidity.

A.  $I > III > II$

B.  $I > II > III$



C.  $III > II > I$

D.  $II > III > I$ .

**Answer: C**



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25. The following acid have arrange in the order of decreasing strength. Identify the correct order.

$ClOH(I)BrOH(II)IOH(III)$

A.  $I > II > III$

B.  $II > I > III$

C.  $III > II > I$

D. I gt III gt II

Answer: A



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26.  $KF$  combines with to form  $KHF_2$ . The compound contains the species :

A.  $K^+$ ,  $F^-$  and  $H^+$

B.  $K^+$ ,  $F^-$  and  $HF$

C.  $K^+$  and  $[HF_2]^-$

D.  $[KHF]^+$  and  $F^-$

**Answer: C**



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27. Which one of the following are pseudohalide ions ?

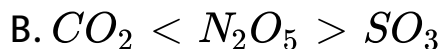


**Answer: B**



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28. The correct order of acidic strength is

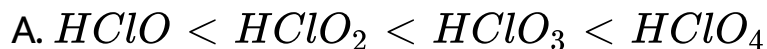


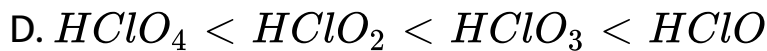
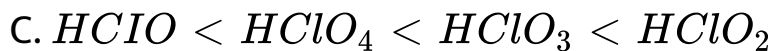
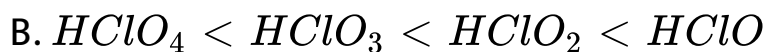
Answer: A



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29. The set with the correct order of acidity is



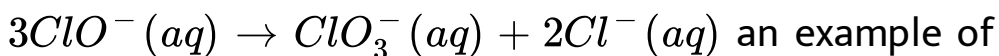


**Answer: A**



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30. The reaction



:

A. Oxidation reaction

B. Reduction reaction

C. Disproportionation reaction

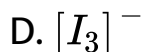
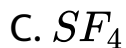
D. Decomposition reaction

**Answer: C**



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**31.** Which species has the maximum number of lone pair of electrons on the central atom ?

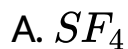


Answer: D



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32. In which of the following molecules /ions , are all the bonds not equal ?



Answer: A



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33. What products are expected from the desproprtionation reactin of hypochorous acid ?

A.  $HClO_3$  and  $Cl_2O$

B.  $HClO_3$  and  $HClO_4$

C.  $HCl$  and  $Cl_2O$

D.  $HCl$  and  $HClO_3$

**Answer: D**



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34. Which one of the following orders is not correct in accordance with the property stated against is ?

A.  $F_2 > Cl_2 > Br_2 > I_2$  , Bond dissociation energy

B.  $F_2 > Cl_2 > Br_2 > I_2$  : oxidising power

C. HI gt HBr gt HCl gt HF : acidic property order

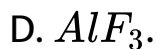
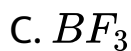
D.  $F_2 > Cl_2 > Br_2 > I_2$  electronegativity

**Answer: A**



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35. In which of the following molecules all the bonds are not equal ?



**Answer: B**



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36. Which one of the following ionic species has the greatest proton affinity to form stable compound ?



**Answer: C**



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37. Identify the incorrect statement amongst the following

A.  $Br_2$  reacts with hot NaOH solution to give NaBr,

$NaBrO_3$  and water

B. Ozone reacts with  $SO_2$  to form  $SO_3$

C. Silicon reacts with aq NaOH in the presence of air

to give  $Na_2SiO_3$  and  $H_2O$

D.  $Cl_2$  reacts with excess of  $NH_3$  to give  $N_2$  and HCl

**Answer: D**



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## Matrix Match

1. Here each question contains statements given in two columns which have to be matched.

Statements in Column I are labelled as A, B, C and D whereas the statements in Column II are labelled as p, q, r and s. The answers to these questions are to be appropriately bubbled as illustrated below in the following example. If the correct matches are A-p, A-s, B-q, B-r, C-p, C-q and D-p, their correctly labelled  $4 \times 4$  matrix should look like :

	<i>p</i>	<i>q</i>	<i>r</i>	<i>s</i>
A	●	○	○	●
B	○	●	●	○
C	●	●	○	○
D	●	○	○	○

**Column I**

- (A) Fluorine
- (B) Chlorine
- (C) Bromine
- (D) Iodine

**Column II**

- (*p*) Gas
- (*q*) Liquid
- (*r*) Solid
- (*s*) Variable oxidation states



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2. Here each question contains statements given in two columns which have to be matched.

Statements in Column I are labelled as A, B, C and D whereas the statements in Column II are labelled as p, q, r and s. The answers to these questions are to be appropriately bubbled as illustrated below in the following example. If the correct matches are A-p, A-s, B-q, B-r, C-p, C-q and D-p, their correctly labelled  $4 \times 4$  matrix should look like :

	<i>p</i>	<i>q</i>	<i>r</i>	<i>s</i>
A	●	○	○	●
B	○	●	●	○
C	●	●	○	○
D	●	○	○	○

### Column I

(A)  $\text{Cl}_2\text{O}$

(B)  $\text{BrO}_2$

(C)  $\text{ClF}_3$

(D)  $\text{I}_3$

### Column II

(*p*) Linear Shape

(*q*)  $sp^3$  hybridisation

(*r*)  $sp^2$  hybridisation

(*s*)  $sp^3$  hybridisation



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1. Total sum of oxidation states of Cl in the compounds obtained in disproportionation of sodium hypochlorite is  $\hat{\epsilon}$ ..

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2. Among the following, the number of elements showing only one non-zero oxidation state is:

O, Cl, F, N, P, Sn, Tl, Na, Ti

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3. Maximum number of atoms present in one interhalogen atom.

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4. Highest oxidation state shown by Cl in its compounds is  $+7$

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**Assertion Reason**

1. Assertion (A):  $F_2$  does not show disproportionation reactions.

Reason (R ):  $F_2$  is the stronger oxidising agent and is always reduced.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: A**





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2. Assertion :HBr is a stronger acid than HI.

Reason :HBr is more polar than HI.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. Both A and R is false

**Answer: D**



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3. Assertion (A): Iodine forms  $IF_7$ .

Reason (R ): In iodine 5d-subshell is available in the valence shell to expand its octet.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: A**



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4. Assertion (A): HOCl is a stronger acid than HOBr.

Reason (R ): More the electronegativity of the halogen stronger is the acid.

- A. Both A and R true and R is the correct explanation of A
- B. Both A and R true and R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

**Answer: A**



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5. Assertion (A): Bond energy of Cl-Cl bond is more than F-F bond.

Reason (R ): Shorter the bond length, stronger the bond, more is the bond energy.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: B**



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6. Assertion :  $I_2$  is less soluble in  $KI(aq)$  than in pure water

Reason : Common ion effect reduces the solubility.

A. Both A and R true and R is the correct explanation of A



B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. Both A and R is false

**Answer: D**

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7. Assertion (A):  $I_2$  can displace  $Cl_2$  from  $NaClO_3$ .

Reason (R): I is more electronegative than Cl.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: C**

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8. Assertion:  $F - F$  bond in  $F_2$  molecule is strong.

Reason:  $F$ -atom is small in size.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. Both A and R is false

**Answer: D**

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**9. Assertion (A):** The fluorine has lower reactivity.

**Reason (R):** F-F bond has low bond dissociation energy.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: D**



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**10. Assertion (A):** The halogens absorb visible light.

**Reason (R):** All halogens are coloured.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: A**

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11. Assertion :  $HClO_4$  is a stronger acid than  $HClO_3$ .

Reason : Oxidation state of Cl in  $HClO_4$  is + 7 and in  $HClO_3$  is + 5.

A. Both A and R true and R is the correct explanation of A

B. Both A and R true and R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer: B**



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**Ultimate Preparatory Package**

1. Which of the following is soluble in water ?

A. AgF

B. AgCl

C. AgBr

D. None.

**Answer: A**



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2. Which of the following do not form polyhalide ions ?

A. F

B. Cl

C. Br

D. I.

**Answer: A**



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**3. Halogen with lowest bond dissociation energy is**

A.  $F_2$

B.  $Br_2$

C.  $Cl_2$

D. All have nearly equal bond energies.



**Answer: A**



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4. The halogen which gives  $O_2$  with hot conc. NaOH is

A.  $I_2$

B.  $Br_2$

C.  $Cl_2$

D.  $F_2$

**Answer: D**



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5. The shape of  $ICl_3$  is

A. triangular planar

B. pyramidal

C. T-shaped

D. distorted pyramid.

**Answer: C**



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6. The shape of  $IF_5$  is

A. triangular bipyramidal

- B. square pyramid
- C. pentagonal planar
- D. none of the these.

**Answer: B**



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7.  $Cl_2$ ,  $Br_2$  and  $I_2$  react with  $Na_2S_2O_3$ . Pick out the correct statement from the following

- A. All these react in a similar way
- B.  $Cl_2$  reacts differently
- C.  $Br_2$  reacts differently

D.  $I_2$  reacts differently.

**Answer: D**



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8. The perchalate ion with maximum oxidising power is



D. All have nearly same oxidising agent.

**Answer: B**



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9. Desiccator is

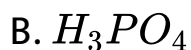
- A. anhydrous barium perchlorate
- B. anhydrous calcium chloride
- C. anhydrous magnesium chloride
- D. conc.  $H_2SO_4$

**Answer: A**



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10. Which of the following can act as an acid in sulphuric acid ?

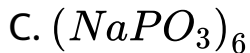


**Answer: C**



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11. Which of the following is called anhydride ?

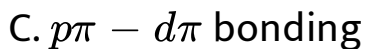
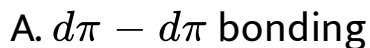


**Answer: D**



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**12.** In the oxyacids of chlorine  $Cl - O$  bond contains



D. None of these

**Answer: C**



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**13.** Which of the following interhalogen compounds does not exist ?

A.  $ICl$

B.  $ICl_2$

C.  $ICl_3$

D.  $IF_5$

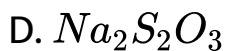
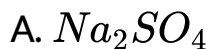


**Answer: B**



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**14.** The colour of  $I_2(aq)$  is discharged on shaking it with



**Answer: D**



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15. The colour of  $I_2(aq)$  is discharged on shaking it with

A.  $Na_2SO_4$

B.  $SO_2$  in water

C. NaCl

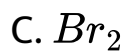
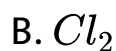
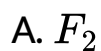
D. NaBr.

**Answer: B**



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16. Which halogen oxidises water to liberate oxygen exothermally?



**Answer: A**



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