



# CHEMISTRY

## BOOKS - MARVEL CHEMISTRY (HINGLISH)

### P-BLOCK ELEMENTS

#### MCQs

1. Atomic no. of N is 7, the atomic no. of IVth member of nitrogen family will be

A. 23

B. 51

C. 33

D. 43

**Answer: B**



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2. In  $NH_3$  and  $PH_3$  the common is

A. Odour

B. Combustibility

C. Basic nature

D. None of these

**Answer: C**



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**3.** Ionic radii (in Å) of  $As^{3+}$ ,  $Sb^{3+}$  and  $Bi^{3+}$

follow the order :





**Answer: D**



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4. Which one of the following elements is most metallic ?





B. *As*

C. *Sb*

D. *P*

**Answer: A**



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5. Which element from group 15 gives most basic compound with hydrogen?

A. Nitrogen

B. Bismuth

C. Arsenic

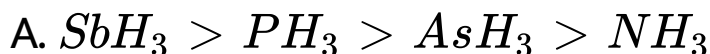
D. Phosphorus

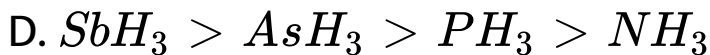
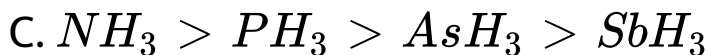
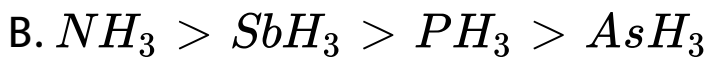
**Answer: A**



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6. The basic character of hydrides of the V-group elements decreases in the order



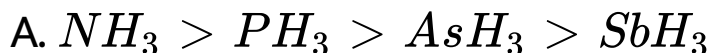


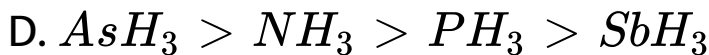
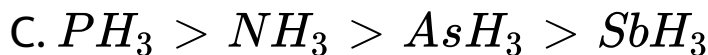
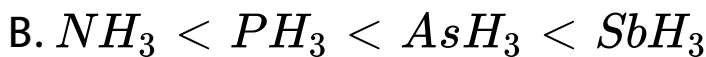
**Answer: C**



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7. Thermal stability of hydrides of first group elements follows the order :



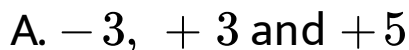


**Answer: A**



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**8.** The three important oxidation states of phosphorus are



B.  $-3$ ,  $+3$  and  $-5$

C.  $-3$ ,  $+4$  and  $-4$

D.  $-3$ ,  $+3$  and  $+4$

**Answer: A**

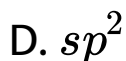
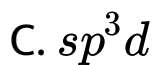


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**9.** What is hybridization of P in  $PCl_5$ ?

A.  $sp^3$

B.  $sp^3d^2$

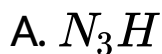


**Answer: C**



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**10.** Which of the following is isoelectronic as well as has the same structure as that of  $N_2O$  ?



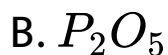
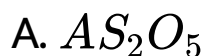


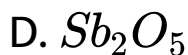
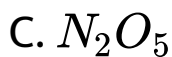
**Answer: D**



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**11.** Which of the following oxides is the most acidic?





**Answer: C**



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**12.** Which oxide of nitrogen is obtained on heating ammonium nitrate at  $250^{\circ}C$  ?

A. Nitric oxide

B. Nitrous oxide



C. Nitrogen dioxide

D. Dinitrogen tetroxide

**Answer: B**



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**13.** A deep brown gas is formed by mixing two colourless gases which are

A.  $NO_2$  and  $O_2$

B.  $NO$  and  $O_2$

C.  $N_2O$  and NO

D.  $NH_3$  and HCl

**Answer: B**

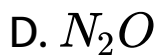
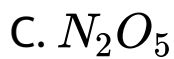


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**14.** Which one of the following oxides of nitrogen is blue solid?

A.  $N_2O_3$

B. NO

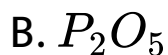
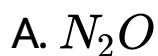


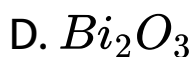
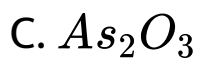
**Answer: A**



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**15.** Of the following compounds, the most basic is



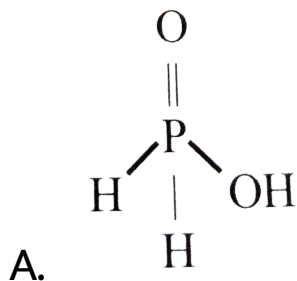


**Answer: D**

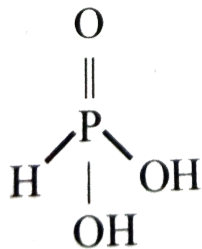


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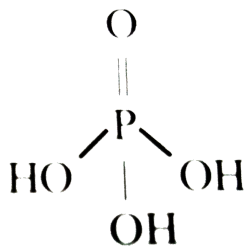
**16.** The structural formula of hypophosphorous acid is



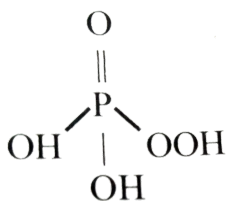
B.



C.



D.



**Answer: A**



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17. Orthophosphoric acid is

A. Monobasic

B. Dibasic

C. Tribasic

D. Tetrabasic

**Answer: C**



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18. The number of  $P - O - P$  bonds in cyclic metaphosphoric acid is :

A. Three

B. Two

C. Zero

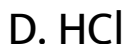
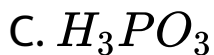
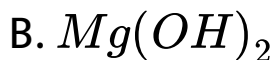
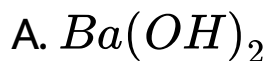
D. Four

**Answer: A**



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19. Which one of the following is an oxyacid ?



**Answer: A**



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20. The triple bond between  $N$  atoms of nitrogen molecule ( $N \equiv N$ ) consists of

- A. Three  $\sigma$ -bonds
- B. Two  $\sigma$ -bonds and one  $\pi$ -bond
- C. One  $\sigma$ -bond and two  $\pi$ -bonds
- D. Three  $\pi$ -bonds

**Answer: C**



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21. The molecule having bond order 3 is



**Answer: B**



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22. An element ( $X$ ) forms compounds of the formulae  $XCl_3$ ,  $X_2O_5$  and  $Ca_3X_2$ , but does not form  $XCl_5$ . Which of the following is the element  $X$ ?

A. B

B. Al

C. N

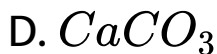
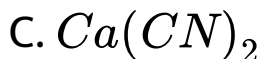
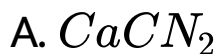
D. P

**Answer: C**



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23. Which of the following is obtained when  $N_2$  reacts with calcium carbide ?



**Answer: A**



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**24.** The explanation for the presence of three unpaired electrons in the nitrogen atom can be given by -

A. Heisenberg's uncertainty principle

B. Aufbau's rule

C. Pauli's exclusion law

D. Hund's rule

**Answer: D**



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25. In which of the following the  $NH_3$  is not used ?

A. Cold storage

B. In surgery of an Anaesthetic

C. Manufacture of rayon and plastic

D. None of these

**Answer: B**



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**26.** The shape of the ammonia molecule is

- A. Tetrahedral
- B. Pyramidal
- C. Planar triangle
- D. Octahedral

**Answer: B**



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27. When ammonia is heated with cupric oxide, a molecule of ammonia will

A. gain 3 electrons

B. lose 3 electrons

C. gain 2 electrons

D. lose 2 electrons

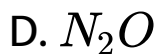
**Answer: B**



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28. Chemical formula of Aqua Fortis is



**Answer: B**



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29. The mixture of calcium cyanamide and graphite is used as fertilizer under the name

A. Nitrolim

B. Phosphate

C. Phosphorite

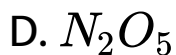
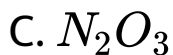
D. Hyponitrate

**Answer: A**



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30. The formula of nitronium nitrate is



**Answer: D**



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31. What may be expected to happen when phosphine gas is mixed with chlorine gas ?

A.  $PCl_3$  and  $HCl$  are formed and the mixture warms up

B.  $PCl_5$  and  $HCl$  are formed

C.  $PH_3$  and  $Cl_2$  are formed

D.  $Pl_3PO_4$  is formed

**Answer: A**



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**32.** Which of the following phosphorus is the most reactive?

- A. Red phosphorus
- B. White phosphorus
- C. Scarlet phosphorus
- D. Violet phosphorus

**Answer: B**



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33. White phosphorus is

- A. a monoatomic gas
- B.  $P_4$  a pyramidal with triangular base solid
- C.  $P_8$  , a crown
- D. a linear diatomic molecule

**Answer: B**



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34.  $PH_3$ , the hydride of phosphorus is

A. Metallic

B. Ionic

C. Non-metallic

D. Covalent

**Answer: D**



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**35. Basicity of orthophosphoric acid is**

A. 1

B. 2

C. 3

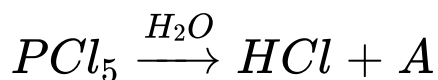
D. 4

**Answer: C**



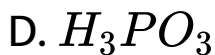
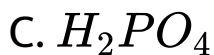
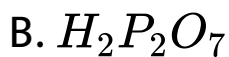
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**36.** In the following reaction



A.  $H_2P_2O_4$





**Answer: C**



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**37.** Which of the following compounds undergoes sublimation ?





**Answer: D**



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**38.** The electronic configuration of an element is  $1s^2 1s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^3$ . Its properties would be similar to which of the following elements?

A. Boron

B. Oxygen

C. Nitrogen

D. Chlorine

**Answer: C**



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**39.** Nitrogen has an atomic number of 7 and oxygen has an atomic number of 8. The total

number of electron in the nitrate ion ( $NO_3^-$ )

is :

A. 8

B. 16

C. 32

D. 64

**Answer: C**



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40. If  $HNO_3$  changes into  $NO_2^+$ , the oxidation number is changed by :

A. +3

B. 0

C. 6

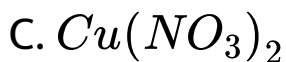
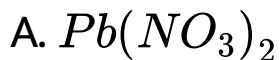
D. +4

**Answer: B**



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41. Which of the following leaves no residue on heating ?

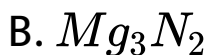
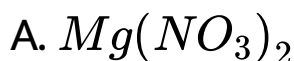


**Answer: B**



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42. A metal  $X$  on heating in nitrogen gas gives  $Y$ ,  $Y$  on treatment with  $H_2O$  gives a colourless gas which when passed through  $CuSO_4$  solution gives a blue colour  $Y$  is :



**Answer: B**



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**43.** Calgon (a water softener) is :

A. Sodium hexametaphosphate

B. Sodium phosphate

C. Copper sulphate

D. Arsenic sulfide

**Answer: A**



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44. Oxidation number of As in  $H_2AsO_4^-$  is

A. +6

B. +5

C. -7

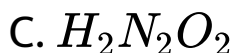
D. 9

**Answer: B**



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45. Which of the following compounds is explosive in nature?



**Answer: B**



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**46.** Ammonium ion is :

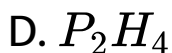
- A. both an acid and a base
- B. a conjugate base
- C. neither an acid nor a base
- D. a conjugate acid

**Answer: D**



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47. Phosphine on reaction with hydrobromic acid gives



**Answer: B**



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**48.** An important method of fixation of atmospheric nitrogen is

A. Fisher-Tropsch's process

B. Haber's process

C. Frasch's process

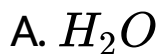
D. Solvay's process

**Answer: B**



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49. Which compound reacted with  $CO_2$  gives an organic compound?



**Answer: B**



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50. The hydrolysis of  $NCl_3$  by  $H_2O$  produces

A.  $NH_2OH$  and  $HOCl$

B.  $NH_2NH_2$  and  $HCl$

C.  $NH_4OH$  and  $HOCl$

D.  $NH_2Cl$  and  $HOCl$

**Answer: C**



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51. Liquid ammonia bottles are opened after cooling them in ice for sometime. It is because liquid  $\text{NH}_3$

- A. brings tears to the eyes
- B. has a high vapour pressure
- C. is a corrosive
- D. is a mild explosive

**Answer: C**



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52. Ammonia is mainly manufactured for fertilisers by the reaction

A. Reaction between ammonium chloride and calcium hydroxide

B. Haber's process

C. Serpeks process

D. Cyanamide process

**Answer: B**



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53. Nitrogen can be purified from the impurities of oxides of nitrogen and ammonia by passing through

A. conc. HCl

B. alkaline solution of pyrogallol

C. a solution of  $K_2Cr_2O_7$  acidified with



D. a solution of KOH

**Answer: D**



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54. calcium cyanamide on treatment with steam under pressure gives ammonia and

- A.  $CaCO_3$  and  $NH_3$
- B.  $Ca(OH)_2$  and  $NH_3$
- C.  $CaO$  and  $NH_3$
- D.  $CaHCO_3$  only

**Answer: A**



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55. The catalyst used in manufacture of  $HNO_3$  by Ostwald's process is

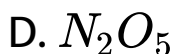
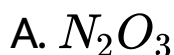
- A. Platinum gauze
- B. Vanadium pentoxide
- C. Finely divided nickel
- D. Platinum black

**Answer: A**



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56. In the catalytic oxidation of ammonia an oxide is formed which is used in the preparation of  $HNO_3$ . This oxide is

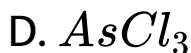


**Answer: B**



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57. The white pigment used under the name pearl white is

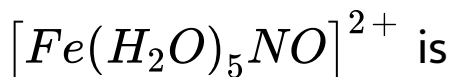


**Answer: A**



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58. The oxidation state of iron in



A. 0

B. + 1

C. + 2

D. + 3

**Answer: C**



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59. The reaction of  $P_4$  with X leads selectively to  $P_4O_{10}$ . The X is

A. dry  $O_2$

B. a mixture of  $O_2$  and  $N_2$

C. moist  $O_2$

D.  $O_2$  in the presence of aqueous NaOH

**Answer: B**



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60. Of the following acids, the one which possesses oxidising and reducing properties and has the capability to form complex compound is

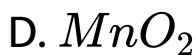


**Answer: A**



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61. Which one of the following compounds is a peroxide?



**Answer: C**



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62. Oxidation states of  $P$  in  $H_4P_2O_5$ ,  $H_4P_2O_6$  and  $H_4P_2O_7$  are respectively

A. +3, +4, +5

B. +3, +5, +4

C. +5, +3, +4

D. +5, +4, +3

**Answer: A**



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**63.** Fixation of nitrogen means

A. conversion of free atmospheric nitrogen  
into nitrogen compounds

B. the action of denitrifying bacteria on  
nitrogen compounds

C. decomposition of nitrogenous  
compounds to yield free nitrogen

D. reaction of nitrogen with oxygen

**Answer: A**



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**64.** Orthophosphoric acid on heating gives :

- A. Metaphosphoric acid
- B. Phosphine
- C. Phosphorus pentoxide
- D. Phosphorus acid

**Answer: A**



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**65.** In case of nitrogen,  $NCl_3$  is possible but not  $NCl_5$  while in case of phosphorous,  $PCl_5$  are possible. It is due to

A. availability of vacant d orbitals in P but not in N

B. lower electronegativity of P than N

C. lower tendency of H - bond formation in P than N

D. occurrence of P in solid while N in gaseous state at room temperature

**Answer: A**



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**66.** The number of hydrogen atom(s) attached to phosphorus atom in hypophosphorus acid is

A. three

B. one

C. two

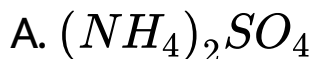
D. zero

**Answer: C**



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**67.** Repeated use of which one of the following fertilizers would increase the acidity of the soil?



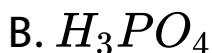


**Answer: A**



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**68.** When vapours of  $PH_3$  are passed into water through delivery tube, the bubble of gas formed when comes in contact with air, forms a ring of smoke. These are due to formation of



D.  $P_4$

**Answer: A**



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**69.** The formation of brown ring in the reaction between nitrates, conc.  $H_2SO_4$  and  $FeSO_4$  involves

A. oxidation of nitric oxide to nitrogen dioxide

B. reduction of ferrous sulphate to iron

C. reduction of nitrate to nitric oxide

D. oxidising property of sulphuric acid

**Answer: C**



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**70.**  $Cl - P - Cl$  bond angles in  $PCl_5$  molecule are

A.  $120^\circ$  and  $90^\circ$

B.  $125^\circ$  and  $30^\circ$

C.  $160^\circ$  and  $25^\circ$

D.  $60^\circ$  and  $125^\circ$

**Answer: A**



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**71.** The correct statement for  $H_3PO_3$  and  $H_3PO_4$  is

A.  $H_3PO_3$  is dibasic and non-reducing

B.  $H_3PO_3$  is tribasic and non-reducing

C.  $H_3PO_3$  is dibasic and reducing

D.  $H_3PO_4$  is tribasic and reducing

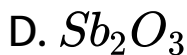
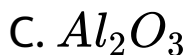
**Answer: C**



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**72.** Which of the following is the most basic oxide?

A.  $Bi_2O_3$



**Answer: A**



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**73.** Excess of  $PCl_5$  reacts with *conc.*  $H_2SO_4$   
gives

A. Sulphuryl chloride

B. Sulphurous acid

C. Chloro sulphuric acid

D. Thionyl chloride

**Answer: A**

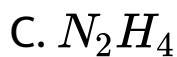


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**74.** The oxidation state of nitrogen is highest in

A.  $NH_2OH$

B.  $N_3H$



**Answer: B**



**Watch Video Solution**

**75.** Which of the following has lowest dipole moment?





C.  $AsH_3$

D.  $SbH_3$

**Answer: D**



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**76.** Nitrous oxide is

A. soluble in hot water

B. soluble in cold water

C. insoluble in hot and cold water

D. acidic in nature

**Answer: B**



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**77.** Which one of the following can be used as an anaesthetic?

A.  $N_2O$

B.  $NO$

C.  $NCl_3$

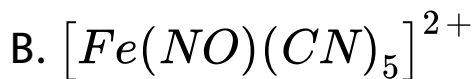
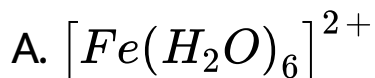
D.  $NO_2$

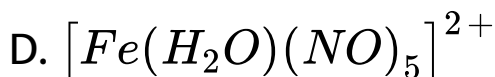
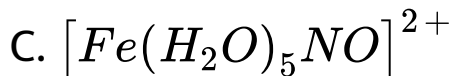
**Answer: A**



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**78.** The brown ring test for  $NO_2^-$  and  $NO_3^-$  is due to the formation of complex ion with formula :





**Answer: C**



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**79.** The oxyacid of phosphorus in which phosphorus has the lowest oxidation state is

A. Metaphosphoric acid

B. Orthophosphoric acid

C. Pyrophosphoric acid

D. Hypophosphorous acid

**Answer: D**



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**80.** Nitrogen is chemically inert due to

A. low density

B. absence of bond polarity

C. its diatomicity

D. presence of triple bond

**Answer: D**



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**81.** Ammonia can be dried by :

A. Conc.  $H_2SO_4$

B.  $P_4O_{10}$

C. CaO

D. Anhydrous  $CaCl_2$

**Answer: C**



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**82.**  $P_4O_{10}$  is not used to dry  $NH_3$  gas because

- A.  $P_4O_{10}$  reacts with moisture in  $NH_3$
- B.  $P_4O_{10}$  is not a drying agent
- C.  $P_4O_{10}$  is acidic and  $NH_3$  is basic
- D.  $P_4O_{10}$  is basic and  $NH_3$  is acidic

**Answer: C**



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83. Brown colour in  $HNO_3$  can be removed by

- A. adding Mg powder
- B. boiling the acid
- C. passing  $NH_3$  through acid
- D. passing air through warm acid

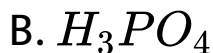
**Answer: D**



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**84.** Aluminium phosphide (cellphos) is used as fumigant (killing insects and pests) because in the presence of moisture it gives



D. White phosphorus

**Answer: C**



**Watch Video Solution**

**85.** One mole of sodium phosphide on reaction with excess of water gives

- A. one mole of phosphine
- B. two moles of phosphoric acid
- C. two moles of phosphine
- D. one mole of phosphorus oxide

**Answer: A**



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**86.** Which one of the following arrangements of molecules is correct on the basis of their dipole moments?



**Answer: A**



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**87.** In  $\text{NO}_3^-$  ion, the number of bond pair and lone pair of electrons on nitrogen atom are:

A. 4, 0

B. 1, 2

C. 3, 1

D. 2, 2

**Answer: A**



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88. Which is not correct for  $N_2O$  ?

A. It is laughing gas and is used as anaesthetic agent

B. It is nitrous oxide

C. It is not a linear molecule

D. It is least reactive of all the oxides of nitrogen

**Answer: C**



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**89.** Which of the following contains P - O- P bond?

- A. Metaphosphoric acid
- B. Hypophosphorous acid
- C. Pyrophosphoric acid
- D. Orthophosphoric acid

**Answer: C**



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90. Ammonium dichromate is used in some fireworks. The green-coloured powder blown in the air is



**Answer: B**



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91. Phosphine is not obtained by the reaction

A. Red P is heated with NaOH

B.  $Ca_3P_2$  reacts with water

C. Phosphorus trioxide is boiled with water

D. White P is heated with NaOH

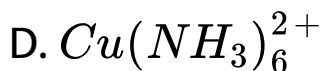
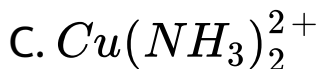
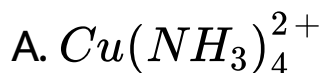
**Answer: A**



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92. The deep blue colour produced on adding excess of ammonia to copper sulphate is due to presence of

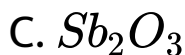
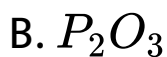
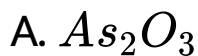


**Answer: A**



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93. Of the following compounds the most acidic is

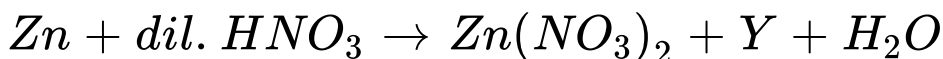
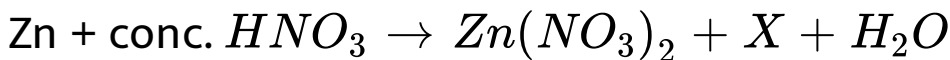


**Answer: B**



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94. Identify the compounds X and Y in the following reactions of Zn with  $HNO_3$



A.  $NO_2$  and NO

B.  $NO_2$  and  $NO_2$

C. NO and  $NO_2$

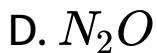
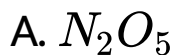
D.  $NO_2$  and  $N_2O$

**Answer: D**



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95.  $P_2O_5$  heated with conc.  $HNO_3$  gives



**Answer: A**



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96. What may be expected to happen when phosphine gas is mixed with chlorine gas ?

A.  $PCl_3$  and HCl are formed and the mixture warms up

B.  $PCl_5$  and HCl are formed and the mixture cools down

C.  $PH_3 \cdot Cl_2$  is formed with warming up

D. The mixture only cools down

**Answer: A**



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97. The least basic trihalide of nitrogen among the following trihalides

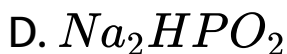
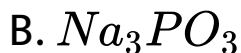
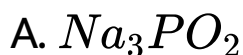


**Answer: C**



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**98.** The correct formula of salt formed by the neutralisation of hypophosphorous acid with NaOH is

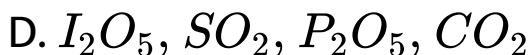
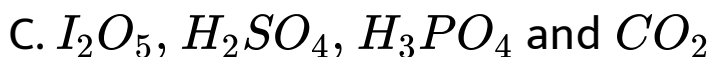
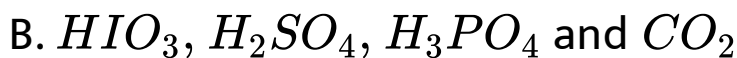
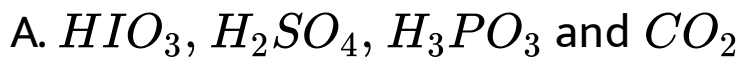


**Answer: C**



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99. Reaction of  $HNO_3$  with I, S, P and c gives respectively



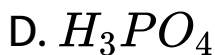
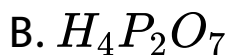
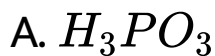
**Answer: B**



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100.  $P_4O_6$  reacts with water to give



**Answer: A**



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**101.** Cyanamide process is used in the formation of

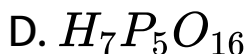
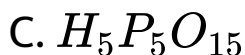
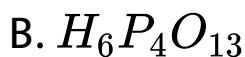
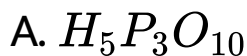


**Answer: C**



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102. Which of the following is a cyclic phosphate?

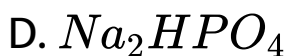
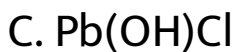
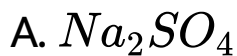


**Answer: C**



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**103.** Which salt can be classified as an acid salt?



**Answer: D**



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**104.** The cyanide ion  $CN$  and  $N_2$  are isoelectronic, but in contrast to  $CN^-$ ,  $N_2$  is chemically inert, because of

- A. Low bond energy
- B. Absence of bond polarity
- C. Unsymmetrical electron distribution
- D. Presence of more number of electron in bonding orbitals

**Answer: D**



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**105.** The number of hydroxyl group in pyrophosphoric acid is

A. 3

B. 4

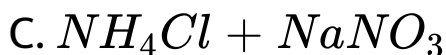
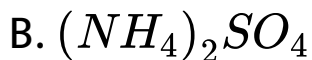
C. 5

D. 7

**Answer: B**

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106. Laughing gas is prepared by heating



**Answer: D**



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107. Nitrogen is chemically inert due to

A. low density

B. absence of bond polarity

C. its dialomicity

D. presence of triple bond

**Answer: D**



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**108.** The triple bond between N atoms of nitrogen molecule ( $\text{N} \equiv \text{N}$ ) consists of



A. Three  $\sigma$ -bonds

B. Two  $\sigma$ -bonds and one  $\pi$ -bond

C. One  $\sigma$ -bond and two  $\pi$ -bonds

D. Three  $\pi$ -bonds

**Answer: C**



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**109.** Nitrogen forms  $N_2$  but phosphorous when forms  $P_2$  gets readily converted into  $P_4$  because

- A.  $p\pi - p\pi$  bonding is strong in phosphorous
- B.  $p\pi - p\pi$  bonding is weak in phosphorous
- C. double bond is present in phosphorous
- D. single P - P bond is weaker than N - N bond

**Answer: B**



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110. Number of sigma bonds in  $P_4O_{10}$  is

A. 6

B. 7

C. 17

D. 16

**Answer: D**



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**111.** The number and type of bonds between two carbon atoms in calcium carbide are

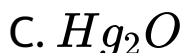
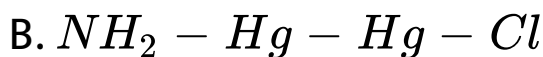
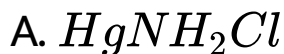
- A. one sigma, one pi
- B. one sigma, two pi
- C. two sigma , one pi
- D. two sigma , two pi

**Answer: B**



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112. Calomel ( $Hg_2Cl_2$ ) on reaction with ammonium hydroxide gives



**Answer: A**



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**113.** Phosphorus pentachloride dissociates as follows in a closed reaction vessel.



If total pressure at equilibrium of the reactions mixture is  $P$  and degree of dissociation of  $PCl_5$  is  $x$ , the partial pressure of  $PCl_3$  will be:

A.  $\left( \frac{x}{x+1} \right) P$

B.  $\left( \frac{2x}{1-x} \right) P$

C.  $\left( \frac{x}{x-1} \right) P$

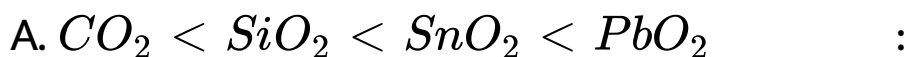
D.  $\left( \frac{x}{1-x} \right) P$

**Answer: A**



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**114.** In which of the following arrangements, the sequence is not strictly according to the property written against it ?



increasing oxidising power

B. HF < HCl < HBr < HI : increasing acid

strength

C.  $NH_3 < PH_3 < AsH_3 < SbH_3$  :

increasing basic strength

D. B It C It O It N : increasing first ionization

enthalpy

**Answer: C**



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**115.** Ammonia gas can be dried by

A. Conc.  $H_2SO_4$



B.  $PCl_5$

C.  $CaCl_2$

D. Quick lime

**Answer: D**



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**116.** Which of the following oxides of nitrogen is a coloured gas ?

A.  $N_2O$

B.  $NO$

C.  $N_2O_5$

D.  $NO_2$

**Answer: D**



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**117.** In  $P_4O_{10}$  each P atom is linked with \_\_\_\_ O atoms

A. 2

B. 3

C. 4

D. 5

**Answer: C**



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**118.** One mole of calcium phosphide on reaction with excess water gives

A. one mole of phosphine

B. two moles of phosphoric acid

C. two moles of phosphine

D. one mole of phosphorous pentoxide

**Answer: C**



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**119.** Polyphosphates are used as water softening agents because they

A. form soluble complexes with anionic species

B. precipitate anionic species

C. form soluble complexes with cationic species

D. precipitate cationic species

**Answer: C**



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**120.** Which is the most thermodynamically stable allotropic form of phosphorus ?

A. Red

B. White

C. Black

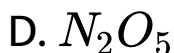
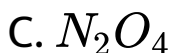
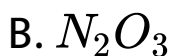
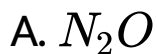
D. Yellow

**Answer: C**



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121. Which blue liquid is obtained on reacting equimolar amounts of two gases at  $-30^{\circ}C$ ?



**Answer: B**



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122. The percentage of p-character in the orbitals forming  $p - p$  bonds in  $P_4$  is

A. 25

B. 33

C. 50

D. 75

**Answer: D**



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**123.** The reaction of  $P_4$  with X leads selectively to  $P_4O_6$  The X is :

A. dry  $O_2$

B. a mixture of  $O_2$  and  $N_2$

C. moist  $O_2$

D.  $O_2$  in the presence of aqueous NaOH

**Answer: B**



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**124.** It is recommended that ammonia bottles be opened after cooling in ice for sometime. This is because

- A. it has high vapour pressure
- B. it comes out with brisk effervescence
- C. it is a corrosive fluid
- D. it vapourises at room temperature

**Answer: A**



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**125.** Which of the following is a tetrabasic acid?

A. Hypophosphorous acid

B. Metaphosphoric acid

C. Pyrophosphoric acid

D. Orthophosphoric acid

**Answer: C**



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**126.** The number of  $P - O - P$  bonds in cyclic metaphosphoric acid is.

A. One

B. Two

C. Three

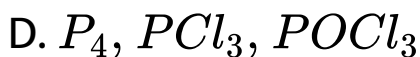
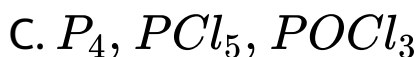
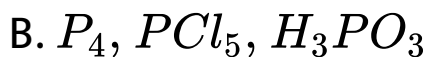
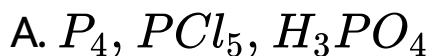
D. Four

**Answer: C**



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127. A translucent white waxy solid (A) reacts with excess of chlorine to give a yellowish white powder (B). (B) reacts with organic compounds containing -OH group converting them into chloro derivatives. (B) on hydrolysis gives (C) and is finally converted to phosphoric acid. (A), (B) and (C) are

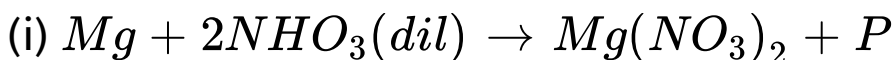


**Answer: A**



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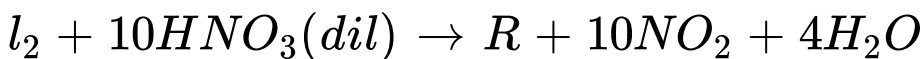
**128.** Complete the given equations



(ii)



(iii)



A. A-NO, B- $2NO_2$ , C- $6NCl_3$ , D- $5HIO_3$

B. A- $H_2$  , B- $2NO$  , C- $6NH_4Cl$  , D- $2HIO_3$

C. A- $N_2$  , B- $N_2$  , C- $NCl_3$  , D-HI

D. A- $NO_2$  , B- $N_2O$ , C- $2NH_4Cl$  , D-3HI

**Answer: B**



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**129.** A colourless inorganic compound (P) decomposes on heating to give two products (Q) and (R). (Q) is a colourless neutral gas with a sweet odour which when burnt with

phosphorous produces a strong dehydrating agent (S) while (R) is a neutral liquid at room temperature. Identify P, Q, R and S.



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**130.** A gas (X) is obtained when copper reacts with dilute  $HNO_3$ . The gas thus formed reacts with oxygen to give brown fumes of (Y). (Y) when dissolved in water gives an important acid (Z) and the gas (X). X, Y and Z respectively are



A.  $NO$ ,  $NO_2$ ,  $HNO_3$

B.  $NO_2$ ,  $NO$ ,  $HNO_3$

C.  $N_2O$ ,  $NO$ ,  $HNO_3$

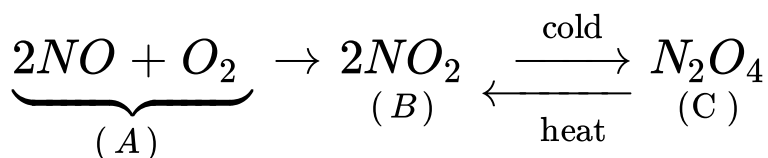
D.  $NO$ ,  $N_2O$ ,  $HNO_3$

**Answer: A**



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**131.** Fill in the blanks :



A. A-Colourless , B-Brown, Paramagnetic , C-  
Colourless Diamagnetic

B. A-Brown , B-Colourless Diamagnetic , C-  
Brown Paramagnetic

C. A-Colourless , B-Colourless, Paramagnetic ,  
C-Brown , Diamagnetic

D. A-Brown , B-Brown, Paramagnetic , C-  
Brown , Diamagnetic

**Answer: A**



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**132.** Brown ring test is used for detection of which radical?

A. Ferrous

B. Nitrite

C. Nitrate

D. Ferric

**Answer: C**



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133. Identify the compound in which phosphorus exists in the oxidation state of +1.

A. Phosphonic acid ( $H_3PO_3$ )

B. Phosphinic acid ( $H_3PO_2$ )

C. Pyrophosphorus acid ( $H_4P_2O_5$ )

D. Orthophosphoric acid ( $H_2PO_4$ )

**Answer: B**



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**134.** Which element among the following does form  $p\pi - p\pi$  multiple bonds ?

A. Arsenic

B. Nitrogen

C. Phosphorus

D. Antimony

**Answer: B**



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**135.** Electron affinity of sulphur is

- A. more than O and Se
- B. more than O but less than Se
- C. less than O but more than Se
- D. equal to O and Se

**Answer: C**



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**136.** Which show maximum catenation property ?

A. Te

B. S

C. Se

D. O

**Answer: B**



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**137.** The correct order of electron affinity of B , C , N and O is

A. O gt B gt C gt N

B. O gt C gt B gt N

C. B gt Ngt C gt O

D. OgtCgtNgtB

**Answer: D**



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**138.** A group 16 element exists in monoatomic state in the metallic lattice. It also exists in two crystalline forms. The metal is

A. S

B. Te

C. Po

D. Se

**Answer: C**



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**139.** Atomicity of sulphur in orthorhombic (  $\alpha$  sulphur) is

A. 1

B. 2

C. 8

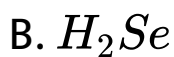
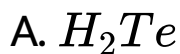
D. 6

**Answer: C**



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140. Which of the following hydride is most acidic ?

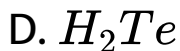
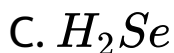
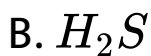
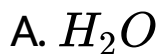


**Answer: A**



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**141.** Which of the following hydrides shows the highest boiling point ?



**Answer: A**

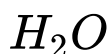


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**142.** Oxygen is more electronegative than sulphur, yet  $H_2S$  is acidic while  $H_2O$  is neutral. This is because:

A. water is highly associated compound

B. molecular mass of  $H_2S$  is more than



C.  $H_2S$  is a gas while  $H_2O$  is a liquid

D. H - S bond is weaker than H - O bond

**Answer: D**



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**143.** The type of hybridization in water molecule is

A.  $sp$

B.  $sp^2$

C.  $sp^3$

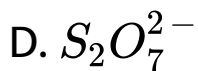
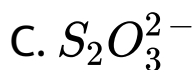
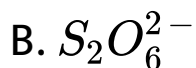
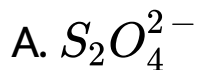
D.  $sp^3d$

**Answer: C**



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144. S - S bond is not present in

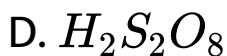
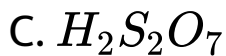
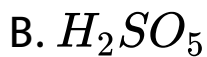
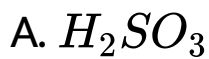


**Answer: D**



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145. Oleum is chemically known as

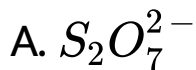


**Answer: C**

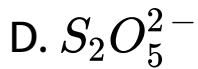
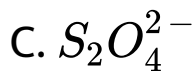
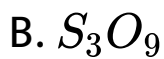


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**146.** S - S bond is present in





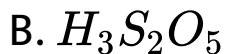
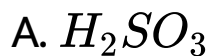


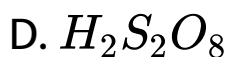
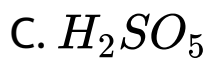
**Answer: C**



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**147.** Caro's acid is



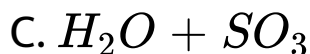
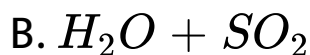
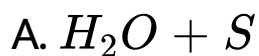


**Answer: C**



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**148.**  $H_2S$  reacts with  $O_2$  to form





**Answer: A**



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**149.** Which is the best oxidising agent among the following ?

A. Te

B. Se

C. S

D. O

**Answer: D**



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**150.** Halogens belong to group ..... In the modern periodic table.

A. 15

B. 16

C. 17

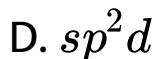
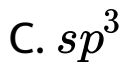
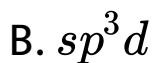
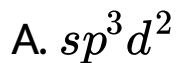
D. 18

**Answer: C**



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**151.** The hybridisation of sulphur in  $SF_4$  is

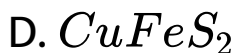


**Answer: B**



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**152.** The chemical formula of baryte, the salt of sulphur is



**Answer: C**



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**153.** Among the group 16 elements the only element which does not exist as octa-atomic solid is

A. Sulphur

B. Selenium

C. Oxygen

D. Tellurium

**Answer: C**



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**154.** Sulphurous acid is reducing agent due to

A. absence of hydrogen bonding

B. presence of lone pair of electrons of  
sulphur

C. absence of bonding between oxygen  
atoms



D. presence of only three oxygen atoms

**Answer: B**



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**155.** Peroxodisulphuric acid is known as

A. Caro's acid

B. Marshall's acid

C. Sulphurous acid

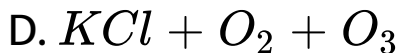
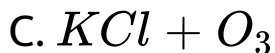
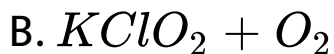
D. Dithionic acid

**Answer: B**



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**156.** When  $KClO_3$  is heated we get



**Answer: A**



157. Which is the characteristic of oxygen molecule ?

A. diamagnetic with no-unpaired electron

B. diamagnetic with two unpaired electrons

C. paramagnetic with two unpaired electrons

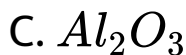
D. paramagnetic with no unpaired electrons

**Answer: C**



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158. Which is most acidic in nature?



**Answer: B**



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**159.** Which of the following oxides reacts with both HCl and NaOH?

A. CaO

B. ZnO

C.  $N_2O_5$

D.  $CO_2$

**Answer: B**



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**160.** Which of the following is formed by the action of water on sodium peroxide ?



**Answer: C**



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**161.** Which one of the following reacts with conc.  $H_2SO_4$ ?

A. Au

B. Ag

C. Pt

D. Pb

**Answer: B**



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**162.** Oxalic acid reacts with con.  $H_2SO_4$  to produce



**Answer: B**



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**163.** How many dative bonds are there in  $H_2SO_4$  molecule?

A. 0

B. 1

C. 2

D. 4

**Answer: A**



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**164.** The oxidation number of sulphur in iron pyrites is

A.  $-1$

B.  $+2$

C.  $-2$

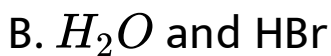
D.  $+3$

**Answer: A**



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165. When  $SO_2$  is passed through bromine water products formed are

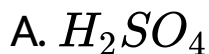


**Answer: A**



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**166.** Which of the following behaves as both oxidising and reducing agents ?

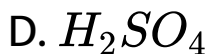
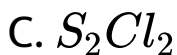


**Answer: B**



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**167.** The compound of sulphur that can be used as refrigerant is



**Answer: A**



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**168.** Which of the following is responsible for cough and choking in human ?

A. Sulphur

B. Carbon

C. Nitrogen dioxide

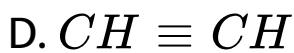
D. Sulphur dioxide

**Answer: D**



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169. Which of the following is 'V' shaped?



**Answer: B**



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170. Bleaching action of  $SO_2$  is due to its

A. oxidation

B. acidic nature

C. reduction

D. basic nature

**Answer: C**



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**171.** What product is formed when  $H_2S$  gas is passed through acidified  $KMnO_4$  solution ?



A. S

B.  $K_2S$

C.  $K_2SO_3$

D.  $MnO_2$

**Answer: A**



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**172.** In group 16 the photosensitive elements are

A. Oxygen and Sulphur

B. Oxygen and Tellurium

C. Selenium and Tellurium

D. Sulphur and Selenium

**Answer: C**



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**173.** Peroxodisulphuric acid is known as

A. Caro's acid

B. Marshall's acid

C. Sulphurous acid

D. Dithionic acid

**Answer: B**



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**174.** In the laboratory method of preparation of dioxygen by thermal decomposition of potassium chlorate the catalyst used is

A. Iron fillings

B. Manganese dioxide

C. Platinum

D. Copper chloride

**Answer: B**



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**175.** High boiling point of water is due to :

A. small size

B. presence of lone pair of electron on oxygen

C. strong intermolecular hydrogen bonding

D. presence of Vander Waal's forces

**Answer: C**



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**176.** The oxidation number of sulphur in  $Na_2S_4O_6$  is .

A.  $\frac{2}{3}$

B. 1.5

C.  $\frac{3}{5}$

D. 2.5

**Answer: D**



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177. When potassium ferrocyanide crystals are heated with concentrated sulphuric acid, the gas evolved is

A.  $SO_2$

B.  $NH_3$

C.  $CO_2$

D. CO

**Answer: D**



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**178.** Iron sulphide is heated in air to form  $A$ , an oxide of sulphur.  $A$  is dissolved in water to give an acid. The basicity of this acid is :

A. 2

B. 3

C. 1

D. zero

**Answer: A**



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**179.** When  $SO_2$  gas is passed through an acidified solution of  $K_2Cr_2O_7$ , the solution turns \_\_\_ in colour.



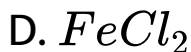
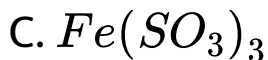
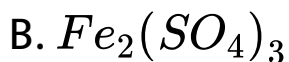
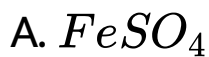
- A. the solution becomes blue
- B. the solution becomes colourless
- C.  $SO_2$  is reduced
- D. green  $Cr_2(SO_4)_3$  is formed

**Answer: D**



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**180.**  $FeCl_3$  solution on reaction with  $SO_2$  changes to?



**Answer: D**



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**181.** A considerable part of the harmful ultraviolet radiation of the sun does not reach

the surface of earth. This is because in the upper atmosphere, there is a layer of

A. Ozone

B. Hydrogen

C.  $CO_2$

D. Ammonia

**Answer: A**



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

- A. oxidizes HBr
- B. reduces HBr
- C. causes disproportionation of HBr
- D. reacts too slowly with KBr

**Answer: A**



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**183.** Which characteristic is not correct about  $H_2SO_4$ ?

- A. Reducing agent
- B. Oxidising agent
- C. Sulphonating agent
- D. Highly viscous

**Answer: A**



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**184.** Which of the following metal liberates hydrogen when treated with dilute  $H_2SO_4$  ?

A. Mg

B. Cu

C. Ag

D. Au

**Answer: A**



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**185.** Product obtained on heating  $KClO_3$  with conc.  $H_2SO_4$  is/are

A. Chlorine dioxide

B.  $HClO_4$

C.  $KHSO_4$

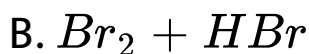
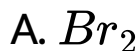
D. All

**Answer: D**



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186. When  $KBr$  is treated with concentrated  $H_2SO_4$  reddish brown gas is evolved, the gas is



D. None of these

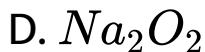
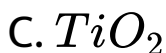
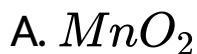
**Answer: A**



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**187.** Which oxide is of different type than others?



**Answer: D**



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**188.** Hydrogen sulphide reacts with lead acetate forming a black compound which reacts with  $H_2O_2$  to form another compound. The colour of the compound is

A. Black

B. Yellow

C. White

D. Pink

**Answer: C**



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**189.** Oxygen gas can be prepared from solid  $KMnO_4$  by

- A. strongly heating the solid
- B. dissolving the solid in dil.  $H_2SO_4$
- C. dissolving solid in dil. HCl
- D. treating the solid with  $H_2$  gas

**Answer: A**



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**190.** In the upper layers of atmosphere, ozone is formed.

A. action of ultraviolet rays on oxygen

B. action of electric discharge on oxygen molecules

C. combination of oxygen molecules

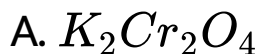
D. none

**Answer: A**

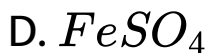
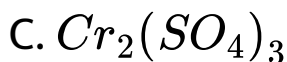


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191. On passing  $SO_2$  in solution of  $K_2Cr_2O_7$ , it turn green due to the formation of



B. Chromic acid

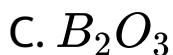


**Answer: C**



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192. Which one of the following is an amphoteric oxide?



**Answer: D**



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**193.**  $KO_2$  is used in oxygen cylinders in space and submarines because it

- A. absorbs  $CO_2$  and increases  $O_2$  content
- B. eliminates moisture
- C. absorbs  $CO_2$
- D. produces ozone

**Answer: B**



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**194.** The equivalent weight of sulphur in  $S_2Cl_2$  is

A. 16

B. 32

C. 64

D. 8

**Answer: B**



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**195.** All the elements of oxygen family are

A. Non metals

B. Metalloids

C. Radioactive

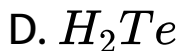
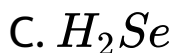
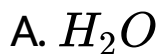
D. Polymorphic

**Answer: D**



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196. Which of the following hydrides has the lowest boiling point?

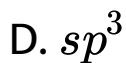
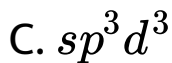
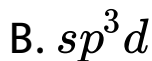
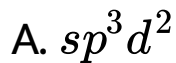


**Answer: B**



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197. What is the hybridization of S in  $SF_6$  ?



**Answer: A**



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**198.** In  $OF_2$ , the number of bond pairs and lone pairs of electrons are respectively,

A. 2, 8

B. 2, 6

C. 2, 9

D. 2, 10

**Answer: A**



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**199.** Peroxomonosulphuric acid is known as

A. Marshall's acid

B. Caro's acid

C. Sulphuric acid

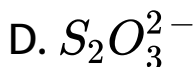
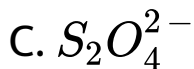
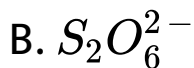
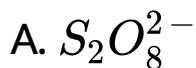
D. None of these

**Answer: B**



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200. Which of the following ions does not have S-S linkage ?



**Answer: A**



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**201.** Hydrides of oxygen and sulphur differ in physical state due to

A. presence of intermolecular hydrogen bonding in the hydrides of oxygen

B. more electronegativity of oxygen

C. stronger S- S bonds compared to O-O bonds

D. repulsion of lone pair of electrons on oxygen atoms

**Answer: A**



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**202.** In  $O_2$  (O-O) the number of electrons which are paired is

A. 14

B. 16

C. 8

D. 7



**Answer: A**



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**203.**  $PCl_5$  on treatment with sulphuric acid gives

- A. Thionyl chloride
- B. Sulphur monochloride
- C. Sulphuryl chloride
- D. Sulphur tetrachloride

**Answer: C**



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**204.** What is the number of sigma ( $\sigma$ ) and pi ( $\pi$ ) bonds present in sulphuric acid molecule ?

A.  $6\sigma, 2\pi$

B.  $6\sigma, 0\pi$

C.  $2\sigma, 2\pi$

D.  $2\sigma, 2\pi$

**Answer: A**



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**205.**  $SO_2$  can be obtained from which of the following reaction?

A. Reaction with dil.  $H_2SO_4$  with  $O_2$

B. Hydrolysis of dil.  $H_2SO_4$

C. Reaction of conc.  $H_2SO_4$  with Cu

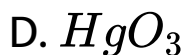
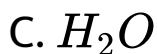
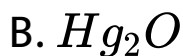
D. None

**Answer: C**



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**206.** The compound formed when Mercury comes in contact with ozone is



**Answer: B**



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**207.** The shape of all tetrafluorides of group 16 is

- A. Pyramidal
- B. Linear
- C. Trigonal bipyramidal
- D. Tetrahedral

**Answer: C**



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**208.** The only element in group 16 whose hydride is colourless liquid is

A. Sulphur

B. Selenium

C. Oxygen

D. Tellurium

**Answer: C**



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**209.** Which of the following does not exhibit  $sp^3$ - hybridisation ?



**Answer: A**



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**210.** Draw structure of  $N_2O_5$  and also find numbers of lone pairs in  $N_2O_5$  :-



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**211.** Oxygen does not show positive oxidation state (except on  $O_2F_2$  and  $OF_2$ ) due to



A. presence of unpaired electrons

B. High electronegativity

C. small size

D. inert pair effect

**Answer: B**



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**212.** Numbers of lone pairs present in ozone molecule is :-

A. 4

B. 5

C. 6

D. 12

**Answer: C**



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**213.** Ozone is considered to be

A. a resonance hybrid of oxygen

B. an isomer of oxygen

C. an oxide of oxygen

D. an allotropic modification of oxygen

**Answer: D**



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**214.** When sugar is treated with conc. sulphuric acid, the sugar is charred. In this process, sugar is

A. reduced

B. oxidised

C. sulphonated

D. dehydrated

**Answer: D**



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**215.** Which of the following is the best scientific method to test the presence of water in liquid ?

A. Taste

B. Smell

C. Use of litmus paper

D. Use of anhydrous  $CuSO_4$

**Answer: D**



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**216.** Which of the following mixture is chromic acid?

A.  $K_2Cr_2O_7$  and conc.  $H_2SO_4$

B.  $K_2Cr_2O_7$  and HCl

C.  $K_2SO_3$  and conc.  $H_2SO_4$

D.  $H_2SO_4$  and HCl

**Answer: A**



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**217.** Sulphuric acid reacts with  $PCl_5$  to give

A. Thionyl chloride

B. Sulphur monochloride

C. Sulphuryl chloride

D. Sulphur ultrachloride

**Answer: C**



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**218.** Ozone depletion due to the formation of following compound in Antarctica

A. Acrolein

B. Peroxy acetyl nitrate

C.  $SO_2$  and  $SO_3$

D. Chlorine nitrate

**Answer: D**



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**219.** Sulphur in  $+3$  oxidation state is present in

A. Sulphurous acid

B. Pyrosulphuric acid



C. Dithionous acid

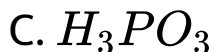
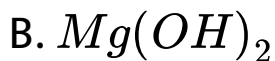
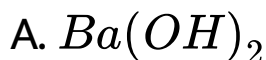
D. Thiosulphuric acid

**Answer: C**



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**220.** Which one of the following is an oxyacid ?



D. HCl

**Answer: C**



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**221.** The hybridisation of sulphur in  $SF_6$  is

A.  $sp^3d^2$

B.  $sp^3d$

C.  $sp^3$

D.  $sp^2d$

**Answer: A**



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**222.** The strongest acid among the following is

A. concentrated  $H_2SO_4$

B. concentrated  $H_3PO_4$

C. concentrated HCl

D. solid oxalic acid

**Answer: A**



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**223.** Which is the electronic configuration of the outermost shell of group 16 elements?

A.  $ns^2np^2$

B.  $ns^2(n-1)d^2$

C.  $ns^2(n-1)d^4$

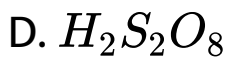
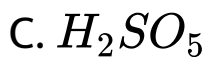
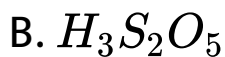
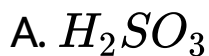
D.  $ns^2np^4$

**Answer: D**



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**224.** Caro's acid is



**Answer: C**



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**225.** An amorphous solid (X) burns in air to form a gas (Y) which turns lime water milky. This gas decolourises aqueous solution of acidified  $KMnO_4$ . Gas (Y) reacts with oxygen to give another gas (Z) which is responsible for acid rain. X, Y and Z are

A. X-C, Y-CO, Z- $CO_2$

B. X-S, Y- $SO_2$ , Z- $SO_3$

C. X-P, Y- $P_2O_3$ , Z -  $P_2O_5$

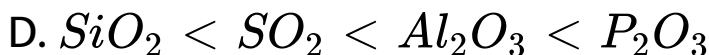
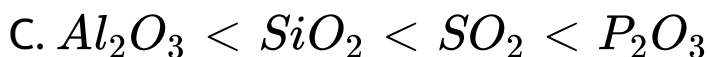
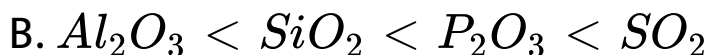
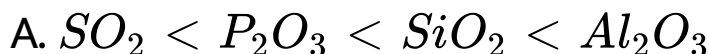
D. X-S, Y- $SO_3$ , Z- $H_2SO_4$

**Answer: B**



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226. Among  $Al_2O$ ,  $SiO_2$ ,  $P_2O_3$  and  $SO_2$  the correct order of acid strength is



Answer: B



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227. The states of hybridisation of boron and oxygen atoms in boric acid ( $H_3BO_3$ ) are respectively :

A.  $sp^2$  and  $sp^2$

B.  $sp^3$  and  $sp^3$

C.  $sp^3$  and  $sp^2$

D.  $sp^2$  and  $sp^3$

**Answer: D**



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**228.** The compound which gives oxygen on moderate heating is

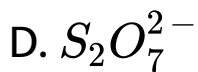
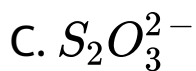
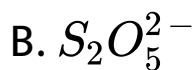
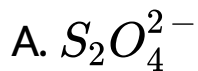
- A. Cupric oxide
- B. Mercuric oxide
- C. Zinc oxide
- D. Aluminium oxide

**Answer: B**



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229. There is no  $S - S$  bond in



**Answer: D**



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**230.** Hydrolysis of one mole of peroxodisulphuric acid produces

A. two moles of sulphuric acid

B. two moles of peroxomonosulphuric acid

C. one mole of sulphuric acid and one mole of peroxomonosulphuric acid

D. one mole of sulphuric acid and one mole of peroxomonosulphuric acid and one mole of hydrogen peroxide

**Answer: C**



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**231.** Which one of the following oxides is neutral ? A)  $CO$  B)  $SnO_2$  C)  $ZnO$  D)  $SiO_2$

A.  $CO$

B.  $SnO_2$

C.  $ZnO$

D.  $SiO_2$

**Answer: A**



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**232.** Fill in the blanks.

Conc.  $H_2SO_4$  chars paper, wood and sugar by removing \_\_\_\_\_ from them. It is also known as \_\_\_\_\_. It is manufactured by \_\_\_\_\_ process. It is a strong \_\_ and \_\_ acid.



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**233.** Which is the most stable allotrope of sulphur ?

- A. Octahedral sulphur
- B. Monoclinic sulphur
- C. Plastic sulphur
- D. Colloidal sulphur

**Answer: A**



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**234.** The element that does not form acidic oxide is

A. Carbon

B. Phosphorus

C. Chlorine

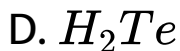
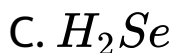
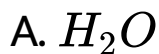
D. Barium

**Answer: D**



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235. Which among the following compounds does not act as reducing agent ?



**Answer: A**



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**236.** In preparation of sulphuric acid from sulphur dioxide in lead chamber process. What substance is used as a catalyst?

- A. Manganese dioxide
- B. Vanadium pentoxide
- C. Nitric oxide
- D. Raney Nickel

**Answer: C**



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**237.** Group 17 elements are known as

- A. Halogen
- B. Noble gas
- C. Transition element
- D. Metalloids

**Answer: A**



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**238.** The number of np-electrons in the outer shell of elements of group 17 is

A. Five

B. Three

C. Four

D. Seven

**Answer: A**



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**239.** Which of the following sets of element is known as halogens ?

A. Li, Na, K

B. F, Cl, Br

C. He, Ne, Ar

D. Cu, Ag, Au

**Answer: B**



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**240.** In Greek the word halo means

A. Salt

B. Sugar

C. Soluble

D. Sublime

**Answer: A**



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**241.** Among the following halogens the radioactive halogen is

A. F

B. Cl

C. Br

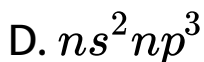
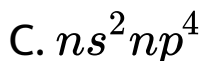
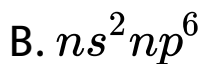
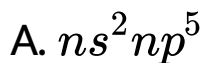
D. At

**Answer: D**



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**242.** The general electronic configuration of halogen family is



**Answer: A**



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**243.** The electronic structure of four elements

*A, B, C, D* are

(a)  $1s^2$  (b)  $1s^2, 2s^2, 2p^2$

(c)  $1s^2, 2s^2, 2p^5$  (d)  $1s^2, 2s^2 2p^6$

The tendency to form electrovalent bond is largest in

A. D

B. C

C. B

D. A



**Answer: B**



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**244.** Nucleus of an element contains 9 protons

Its valency would be :

A. 1

B. 2

C. 3

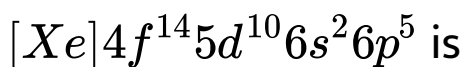
D. 5

**Answer: A**



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**245.** The element having electronic configuration



A. F

B. Cl

C. Br

D. At

**Answer: D**



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**246.** 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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**247.** 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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**248.** Which halogen cannot show oxidation state more than zero ?

A. Chlorine

B. Fluorine

C. Iodine

D. Bromine

**Answer: B**



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**249.** Fluorine is highly reactive due to

- A. its high electronegativity
- B. smallest size of its atoms
- C. low bond dissociation energy
- D. non-availability of d-orbitals

**Answer: C**



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250. Halogen molecules are

- A. diatomic and form  $X_2^{2-}$  ions
- B. diatomic and form  $X^-$  ions
- C. monoatomic and form  $X_2^{2-}$  ions
- D. monoatomic and form  $X^-$  ions

**Answer: B**



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

A. + 7

B. + 3

C. + 8

D. + 4

**Answer: C**



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**252.** The oxidation state of iodine in NaOI is

A. + 1

B. + 2

C. - 1

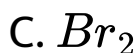
D. 0

**Answer: A**



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**253.** Which of the following halogen exists in the solid state?



**Answer: D**



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**254.** Which of the following is known as super halogen and why?



**Answer: C**



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**255.** seaweed contains iodine upto

A. 0.5 %

B. 6 %

C. 0.60 %

D. 0.05 %

**Answer: A**



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**256.** The formula of carnallite is

A.  $KCl$ ,  $MgCl_2 \cdot 6H_2O$

B.  $AgCl$ ,  $MgBr_2 \cdot 7H_2O$

C.  $NaCl$ ,  $MgCl_2 \cdot 5H_2O$

D.  $FeSO_4$ ,  $(NH_4)_2SO_4 \cdot 7H_2O$

**Answer: A**



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**257.** Fluorine is present in a small quantities in

A. Kidney

B. Heart

C. Bones and teeth

D. Liver

**Answer: C**



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**258.** Which of the following do not contain fluorine ?

A. Fluorspar

B. Cryolite

C. Fluorapatite

D. Carnallite

**Answer: D**



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**259.** The halogen in the gaseous state is

A.  $Br_2$

B.  $I_2$

C.  $Cl_2$

D.  $F_2$  and  $Cl_2$

**Answer: D**



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**260.** 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. F, S

**Answer: C**



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**261.** Which of the following has highest boiling point ?

A.  $F_2$

B.  $I_2$

C.  $Cl_2$

D.  $Br_2$

**Answer: B**



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

A.  $Cl^-$

B.  $Br^-$

C.  $F^-$

D.  $I^-$

**Answer: C**



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**263.** Which halogen exist as dark red liquid at ordinary temperature ?

A.  $Br_2$

B.  $Cl_2$

C.  $I_2$

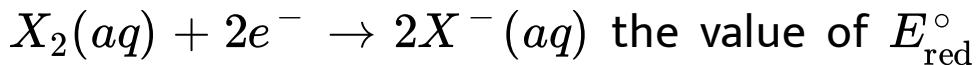
D.  $At_2$

**Answer: A**



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**264.** For the reaction



is highest



**Answer: A**



**Watch Video Solution**

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

A. HI

B. HCl

C. HBr

D. HF

**Answer: A**



**Watch Video Solution**

**266.** Which halogen acid is most volatile?

A. HF

B. HCl

C. HI

D. HBr

**Answer: B**



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**267.** Which halogen has atomicity greater than 2 ?

A.  $Br_2$

B.  $Cl_2$

C.  $I_2$

D. None of these

**Answer: D**



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**268.** 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



A.  $SO_2$ ,  $Cl_2$

B.  $Cl_2$ ,  $SO_2$

C.  $O_2$ ,  $SO_2$

D.  $H_2O$ ,  $SO_2$

**Answer: B**



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**269.** Which one is the best reducing agent ?

A.  $F^-$

B.  $Cl^-$

C.  $I^-$

D.  $Br^-$

**Answer: C**



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**270.** Which halogen shows some metallic character ?

A.  $F_2$

B.  $Br_2$

C.  $I_2$

D.  $Cl_2$

**Answer: C**



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**271.** Which of the following shows greatest mert pair effect ?

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

**Answer: D**



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**272.** Which of the following halogens has the highest melting point ?

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

**Answer: D**



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**273.** The substance that sublimes on heating is

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

**Answer: D**



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**274.** The law of triad is applicable to a group of

a)  $Cl, Br, I$  b)  $C, N, O$  c)  $Na, K, Rb$  d)  $H, O, N$

A.  $C, N, O$

B.  $Cl, Br, I$

C. Na,K,Rb

D. None of these

**Answer: B**



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**275.** The halogen-halogen bond length is longest for

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

**Answer: D**



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

A. Fluorine

B. Chlorine



C. Nitrogen

D. Sulphur

**Answer: A**



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**277.** Which of the following halic acid and maximum oxidising strength?

A.  $HClO_3$

B.  $HClO$



**Answer: C**



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**278.** Which one of the following is a pseudohalide ?



C.  $OSN^-$

D.  $CN^-$

**Answer: B**



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**279.** Among hypohalous acid the acid with highest  $K_a$  value is

A.  $HIO$

B.  $HFO$

C.  $\text{HClO}$

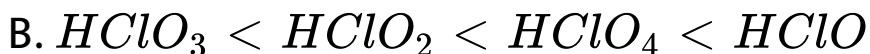
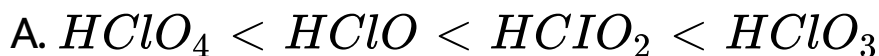
D.  $\text{BrOH}$

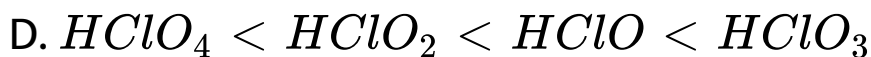
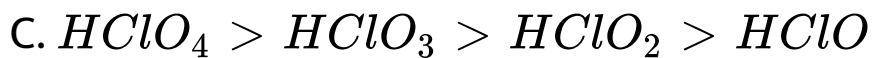
**Answer: C**



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**280.** Among the oxo-acid of chlorine the correct order of increasing acid strength is





**Answer: C**



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

A. 7

B. 8

C. 6

D. 10

**Answer: B**

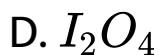
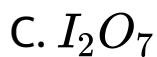


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**282.** Which oxide of halogen is formed when  $HIO_3$  is heated at  $170^\circ C$  ?

A.  $I_2O_3$

B.  $I_2O_5$



**Answer: B**



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**283.** Which of the following will liberate iodine on treatment with KI solution ?



C.  $H_2$

D.  $He$

**Answer: B**



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**284.** Which of the following oxygen compound is not called oxide ?

A.  $OF_2$

B.  $Cl_2O_7$



C.  $\text{ClO}_2$

D.  $\text{BrO}_2$

**Answer: A**



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**285.** What is true out of the following ?

A. Fluorine reduces water to oxygen

B. Fluorine neutralises water

C. Fluorine oxidises water to form  $\text{O}_3$  and  $\text{O}_2$

D. Fluorine does not react with water

**Answer: C**



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**286.** A mixture of sand and iodine can be separated by

A. dissolving in water and filtering

B. fractional crystallization

C. adding dil HCl solution

D. sublimation

**Answer: D**



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**287.** Which of the following has the highest value of dipole moment?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**288.** Which of the following does not form precipitate with  $AgNO_3$  ?

A. HF

B. HCl

C. HBr

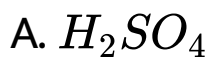
D. HI

**Answer: A**



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



D. Aqua regia

**Answer: C**



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**290.** Which of the following is called oxymuriatic acid ?

A. HCl

B.  $Cl_2$

C. HBr

D. HF

**Answer: B**



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**291.** Bromine vapours will turn moist starch iodide paper

A. Brown

B. Red

C. Blue

D. Colourless

**Answer: C**



**Watch Video Solution**

**292.** Chlorine is formed when dil HCl is treated with

A.  $KMnO_4$

B.  $MnO_2$

C.  $K_2Cr_2O_7$

D. All of these



**Answer: D**



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**293.** Which halogen does not show +7 oxidation state?

A. Chlorine

B. Bromine

C. Iodine

D. Fluorine

**Answer: D**



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**294.**  $Cl_2O_7$  can be regarded as an anhydride of

A. hypochlorous acid

B. chlorous acid

C. chloric acid

D. per chloric acid

**Answer: D**



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

- A. pentagonal planar
- B. trigonal bipyramidal
- C. square pyramidal
- D. dodecahedron

**Answer: C**



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

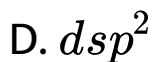
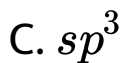
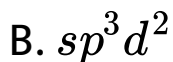
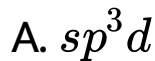


**Answer: A**



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297. The hybrid state of Br in  $BrF_5$  is



**Answer: B**



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**298.** The order  $HF < HCl < HBr < HI$  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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**299.** 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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**300.** Dilute solution of HF cannot be concentrated beyond 36% by distilling only because :

- A. HF is non volatil
- B. HF forms a constant boiling mixture
- C. HF is least acidic
- D. It is bad conductor

**Answer: B**



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**301.** 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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**302.** 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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**303.** 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

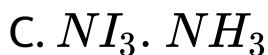
D. HCl  $\lt$  HBr  $\lt$  HF  $\lt$  HI

**Answer: A**



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



**Answer: C**



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305. Fluorine reacts with cold dilute NaOH to give

A. NaF and  $O_2$

B. NaF and  $OF_2$

C. NaF and  $H_2O_2$

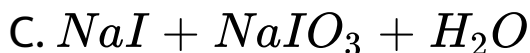
D. NaF ,  $H_2O_2$  and  $Fe_2O$

**Answer: B**



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**306.** Iodine reacts with hot conc. solution of NaOH to give

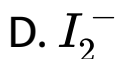
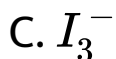
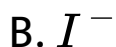


**Answer: C**



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



**Answer: C**



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**308.** 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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**309.** Which of the following does not form precipitate with  $AgNO_3$  ?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**310.** Which of the following statement is true regarding electrolysis of molten  $\text{ICl}$  ?

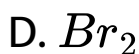
- A.  $\text{I}_2$  is liberated at the cathode
- B.  $\text{Cl}_2$  is liberated at the cathode
- C.  $\text{I}_2$  is liberated at the anode
- D. Both  $\text{I}_2$  and  $\text{Cl}_2$  are liberated at the anode

**Answer: A**



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

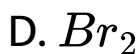


**Answer: B**



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



**Answer: B**



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

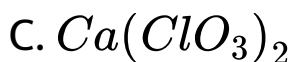
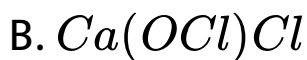
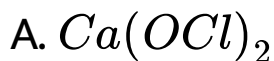
- A. pseudo halides
- B. inter halogen compound
- C. polyhalide
- D. none of these

**Answer: B**



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



**Answer: B**



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**315.** The acid which cannot be kept in glass bottles is

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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**316.** 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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**317.** 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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**318.** Iodine gives blue colour with

A.  $Cl_2$

B.  $F_2$

C. Starch solution

D.  $FeCl_3$  solution

**Answer: C**



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

A.  $Br_2$

B. Hg

C. Ga

D. All

**Answer: D**



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

A.  $-1$

B.  $+1$

C.  $+4$

D.  $+5$

**Answer: C**



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**321.** Chile salt petre contains sodium iodate upto

A. 0.02 %

B. 0.2 %

C. 0.002 %

D. 0.5 %

**Answer: B**



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**322.** The order of electron affinity among halogen is

A.  $F > Cl > Br > I$

B.  $Cl > F > I > Br$

C.  $Cl > F > Br > I$

D.  $I > F > Cl > Br$

**Answer: C**



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**323.** Bond energy is highest for which of the following?



**Answer: B**



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

A. HCl

B. HF

C. HBr

D. HI

**Answer: B**



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**325.** Fluorine does not show variable oxidation states while other members of the halogen family exhibit variable oxidation states. Why ?

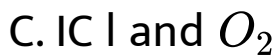
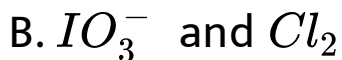
- A. its high electronegativity
- B. smallest size of its atom
- C. low bond dissociation energy
- D. non-availability of d-orbital

**Answer: D**



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326.  $\text{ClO}_3^-$  ion reacts with  $\text{I}_2$  to form



**Answer: B**



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327. In which of following ions, the hybrid state of halogen atom is  $sp^3$  ?



D. In all

**Answer: D**



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**328.** In which solution halogen molecule tends to disproportionate ?

A. In  $H_2SO_4$

B. In cold  $H_2O$

C. In hot NaOH

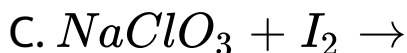
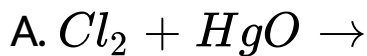
D. In hot water

**Answer: C**



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**329.** Which of the following reagents produce  $ClO_2$  ?



**Answer: D**



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**330.** Which of the following does not form precipitate with  $AgNO_3$  ?

A. HF

B. HCl

C. HBr

D. HI

**Answer: A**



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

A. Fluorine

B. Bromine

C. Iodine

D. Chlorine

**Answer: D**



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**332.** Which halogen oxidises water to liberate oxygen exothermally?



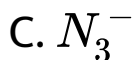
**Answer: A**



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**333.** Which of the following is a pseudohalide ion ?



D. Both (a) and (b)

**Answer: C**



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



**Answer: B**



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

A.  $\text{HCl}$

B.  $\text{HClO}_5$

C.  $\text{HClO}_2$

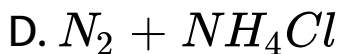
D.  $\text{HClO}_3$

**Answer: A**



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**336.** Chlorine reacts with excess  $NH_3$  to give



**Answer: D**



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

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

**Answer: D**



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**338.** Bromine is liberated when aqueous solution of potassium bromide is treated with

A. Cl

B.  $I_2$

C. Dilute  $H_2SO_4$

D.  $SO_2$

**Answer: A**



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**339.** Chlorine is used in water for

- A. Killing germs
- B. Prevention of pollution
- C. Cleansing
- D. Removing dirt

**Answer: A**



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**340.** Which two substances are used in preparing iodised salt ?

A.  $KIO_3$  and  $I_2$

B. KI and  $I_2$

C.  $KIO_3$  and KI

D. HI and KI

**Answer: B**



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**341.** Which one of the following orders is not proper?

A.  $F_2 > Cl_2 > Br_2 > I_2$  : Electronegativity

B.  $F_2 > Cl_2 > Br_2 > I_2$  : Bond  
dissociation energy

C.  $F_2 > Cl_2 > Br_2 > I_2$  : Oxidising power

D.  $HI > HBr > HCl > HF$  : Acidic  
property in water

**Answer: B**





**342.** A black powder when heated with Conc. HCl gives a greenish yellow. Gas. The gas as an oxidising and bleaching agent. When it is passed over slake lime, a white powder is formed which is a ready source of gas. The black powder and white powder respectively are

A.  $KClO_3$  and  $NaClO_3$

B.  $MnO_2$  and  $Ca(OCl)_2$

C.  $MnO_2$  and  $KClO$

D.  $MnCl_4$  and  $COCl_2$

**Answer: B**



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**343.** Unlike other halogens Fluorine does not show higher oxidation states because

A. It is most electronegative

B. It has no d- orbital

C. Atomic radius is smallest

D. All of above

**Answer: D**



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**344.** When chlorine is passed through concentrated solution of KOH, the compound formed is \_\_\_\_\_.

A. KCl

B.  $KClO_3$

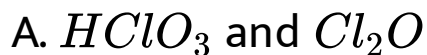


**Answer: B**



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**345.** What products are expected from the desproprtination reactin of hypochorous acid ?



B.  $HClO_2$  and  $HClO_4$

C.  $HCl$  and  $Cl_2O$

D.  $HCl$  and  $HClO_3$

**Answer: D**



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**346.** Element that liberates oxygen gas from water is

A. P

B. Na

C. F

D. I

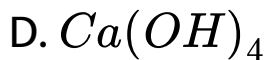
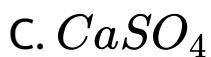
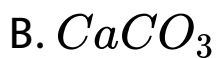
**Answer: C**



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**347.** Bleaching powder is obtained by treating chlorine with

A. Cao



**Answer: D**



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**348.** In which of the following O-H bond ruptures easily ?





B. P-O-H

C. S - O - H

D. Al - O- H

**Answer: A**



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**349.** What may be expected to happen when phosphine gas is mixed with chlorine gas ?

A.  $PCl_3$  and  $HCl$  are formed and the mixture warms up

B.  $PCl_5$  and  $HCl$  are formed and the mixture cools down

C.  $PH_3Cl_2$  is formed with warming up

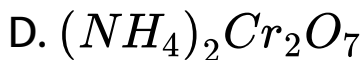
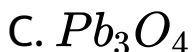
D. The mixture only cools down

**Answer: B**



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**350.** A red solid is insoluble in water. However, it becomes soluble if some KI is added to water. Heating the red solid in a test tube results in liberation of some violet coloured fumes and droplets of a metal appear on the cooler parts of the test tube. The red solid is:



**Answer: A**



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**351.** The maximum number of  $90^\circ$  angles between bp-bp of electrons is observed in .

A.  $dsp^3$  hybridisation

B.  $sp^3d^2$  hybridisation

C.  $dsp^2$  hybridisation

D.  $sp^3d$  hybridisation

**Answer: B**



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**352.** Excess of  $KI$  reacts with  $CuSO_4$  solution and  $Na_2SO_3$  solution is added to it. Which of the following statements is incorrect for the reaction?

- A.  $Cu_2I_2$  is reduced
- B. Evolved  $I_2$  is reduced
- C.  $Na_2S_2O_3$  is oxidised

D.  $CuI_2$  is formed

**Answer: D**



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

A. Trigonal bipyramid

B. Octahedral

C. Pentagonal bipyramid

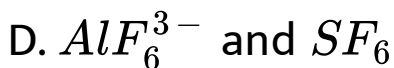
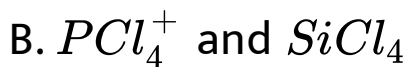
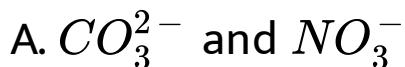
D. square pyramid

**Answer: C**



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

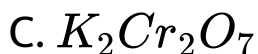
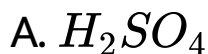


**Answer: C**



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



D. None of these



**Answer: D**



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

A. Dryair

B. Moisture

C. Sunlight

D. Pure oxygen

**Answer: B**



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**357.** 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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**358.** In compounds of type  $ECI_3$ , where  $E = BP, As$  or  $B$ , the angles  $CI - E - CI$  for different  $E$  are in the order

A.  $B < P = As < Bi$

B.  $B < P > As > Bi$

C.  $B > P = As > Bi$

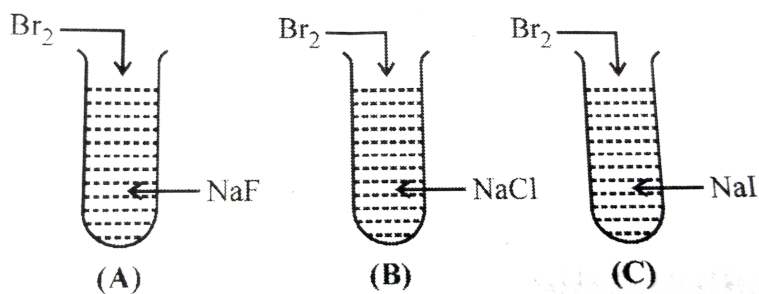
D.  $B > P > As > Bi$

Answer: B



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359. What is the correct observation when  $Br_2$  is treated with NaF, NaCl and NaI taken in three test-tubes labelled as A, B and C.



A.  $F_2$  is liberated in A and  $Cl_2$  in B

B. Only  $I_2$  is liberated in C

C. Only  $Cl_2$  is liberated in B

D. Only  $F_2$  is liberated in A

**Answer: B**



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**360.** What is the highest oxidation state exhibited by group 17 elements ?

A. +1

B. + 3

C. + 5

D. + 7

**Answer: D**



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**361.** Which halide of magnesium has highest ionic character?

A. Chloride

B. Bromide

C. Iodide

D. Fluoride

**Answer: D**



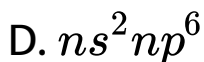
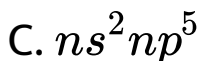
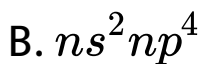
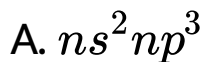
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**362.** Which halogen has the highest value of negative electron gain enthalpy ?



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**363.** The valence shell electronic configuration of noble gases except helium is



**Answer: D**



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**364.** The term noble gases is referred to which groups of element?

A. 13 group

B. 14 group

C. 18 group

D. 12 group

**Answer: C**



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**365.** Which electronic configuration corresponds to minimum energy and maximum stability?

A.  $(n - 1)d^{10}ns^1$

B.  $(n - 1)d^5ns^1$

C.  $ns^2np^6$

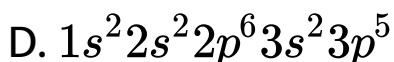
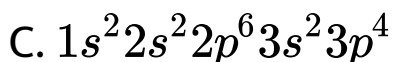
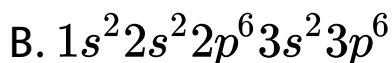
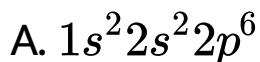
D.  $ns^2np^3$

**Answer: C**



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**366.** What is the electronic configuration of Argon ?



**Answer: B**



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**367.** Which of the following noble gases has the lowest atomic number?

A. He

B. Ne

C. Kr

D. Xe

**Answer: A**



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**368.** Which one of the following noble gas is obtained by radioactive disintegration ?

A. He

B. Ne

C. Ar

D. Rn

**Answer: D**



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**369.** The noble gases found dissolved in spring water are

- A. argon and helium
- B. neon and argon
- C. krypton and xenon
- D. xenon and radon

**Answer: C**



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**370.** Maximum number of compounds are formed by

A. He

B. Ne

C. Ar

D. Xe

**Answer: D**



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**371.** Study of solar spectrum revealed the presence of

A.  $H_2$  and He

B.  $H_2$  and Ar

C.  $H_2$  and Ne

D. Ar and Ne

**Answer: A**



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**372.** The ease of liquefaction of noble gases decreases in the order

A. He > Ne > Ar > Kr > Xe

B. Xe > Kr > Ar > Ne > He

C. Kr > Xe > He > Ar > Ne

D. Ar > Kr > Xe > He > Ne

**Answer: B**



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**373.** Which out of the following is called stranger gas?

A.  $N_2O$

B.  $He$

C.  $Xe$

D.  $Kr$

**Answer: A**



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**374.** The nucleus of helium contains

- A. three protons and one neutron
- B. two proton and two neutron
- C. four protons only
- D. one proton and three neutrons

**Answer: B**



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**375.** Which of the noble gas has highest polarizability

A. He

B. Ar

C. Kr

D. Xe

**Answer: D**



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**376.** The credit of discovery of Radon goes to

A. Rayleigh

B. Cavendish

C. Frankland and Lockye

D. EE Dorn

**Answer: D**



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**377.** Helium is found in radioactive minerals because

A. it is a radioactive gas

B. it reacts with radioactive elements

C. it is formed by the disintegration of the radioactive elements present in minerals like cleveite, monazite and remains enclosed within them

D. none of the above

**Answer: C**



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**378.** The spectrum of  $He^+$  is expected to be similar to that of

A. Na

B.  $Li^+$

C. H

D.  $Be^{+2}$

**Answer: C**



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**379.** The highest ionization enthalpy is a period is shown by

- A. Alkali metals
- B. Alkaline earth metals
- C. Halogens
- D. Noble gases



**Answer: D**



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**380.** The electron gain enthalpy of noble gas is

A. high

B. low

C. positive and very high

D. negative

**Answer: C**



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**381.** The molecular structure of noble gases are

- A. diatomic
- B. monoatomic
- C. tetra-atomic
- D. triatomic

**Answer: B**



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**382.** As we move along the period, the atomic radii decreases. Which of the following group contradicts the above statement ?

- A. Alkali metals
- B. Carbon family
- C. Halogen family
- D. Noble gases

**Answer: D**



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**383.** The inert gas abundantly found in atmosphere is:

A. Xe

B. Kr

C. Ar

D. He

**Answer: C**



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**384.** The lightest, non-inflammable gas is

A.  $O_2$

B.  $N_2$

C.  $H_2$

D. He

**Answer: D**



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**385.** A noble gas which is not adsorbed by coconut charcoal is

A. He

B. Ne

C. Ar

D. Kr

**Answer: A**



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**386.** The source from where most of helium is obtained at present is

A. Sun

B. Sea water

C. Minerals

D. Natural gas

**Answer: A**



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**387.** Which mineral was used in the isolation of Helium

A. Pitch blende

B. Haematite

C. Monazite

D. Clevite

**Answer: C**



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**388.** Which noble gas was detected first

A. He

B. Ne

C. Ar

D. Xe

**Answer: A**



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**389.** The inert gases can be isolated and separated by

- A. electrolysis of their compound
- B. fractional distillation of liquid air
- C. adsorption and desorption on charcoal
- D. both (b) and (c)

**Answer: D**



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**390.** Noble gases do not react with other elements because

A. they are monoatomic

B. they are found in abundance

C. the size of their atom is very small

D. their electrons are completely paired up

and they have completely filled electron subshells

**Answer: D**





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**391.** Nuclear fusion produces

A. Argon

B. Deuterium

C. Helium

D. Krypton

**Answer: C**



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**392.** Least chemical activity is shown by

A. Ammonia

B. Methane

C. Argon

D. Sulphuric acid

**Answer: C**



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**393.** Monazite is a source of

A. He

B. Kr

C. Ar

D. Ne

**Answer: A**



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**394.** Beacon lights are obtained from

A. tungsten lamps

B. hydrogen lamps

C. neon lamps

D. xenon lamps

**Answer: C**



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**395.** Deep sea divers used to respire in a mixture of

A. oxygen and argon

B. oxygen and helium

C. oxygen and nitrogen

D. oxygen and hydrogen

**Answer: B**



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**396.** Xenon reacts directly with

A.  $F_2$

B.  $Br_2$



C.  $Cl_2$

D. All

**Answer: A**



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**397.** Welding of magnesium can be done in an atmosphere of

A.  $O_2$

B.  $N_2$

C. He

D. All

**Answer: C**



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**398.** Clathrates are the compounds obtained from noble gases and

A. water

B. quinol

C. liquid ammonia

D. both (a) and (b)

**Answer: D**



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**399.** In order to prevent the hot metal filament from getting burnt, when the electric current is switched on, the bulb is filled with

A.  $Cl_2$

B.  $H_2$

C.  $NH_3$

D. An inert gas

**Answer: D**



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**400.** The atomicity of noble gases is

A. 4

B. 3

C. 1

D. 2

**Answer: C**



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**401.** Noble gas which forms interstitial compounds with metals is

A. Neon

B. Argon

C. Helium

D. Xenon

**Answer: C**



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**402.** Compounds formed when the noble gases get entrapped in the cavities of crystal lattices of certain organic and inorganic compounds are known as

A. Interstitial compounds

B. Clathrates

C. Hydrates

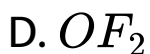
D. Picrates

**Answer: B**



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**403.** A monoatomic gas reacts with fluorine to form a fluoride which dissolve in HF to give a conducting solution. The fluoride is



**Answer: C**



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**404.** The forces of cohesion in liquid helium are

A. ionic



B. covalent

C. vander waal's

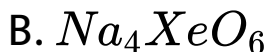
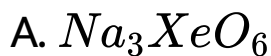
D. metallic

**Answer: C**



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**405.** The formula of sodium perxenate is \_\_\_\_\_.



C.  $\text{Na}_2\text{XeF}_8$

D. None

**Answer: B**



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**406.** Which of the following sets of elements are called aerogens ?

A. He, Ne, Ar

B. F, Cl, Br

C. O, S, Se

D. N, P, As

**Answer: A**



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**407.** In solid argon the atoms are held by

A. ionic bond

B. covalent bond

C. hydrogen bonds

D. vander waal's forces

**Answer: D**



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**408.** Draw the structure of  $XeF_4$  molecule.

A. tetrahedral

B. square planar

C. linear

D. octahedral

**Answer: B**



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**409.** Noble gases are sparingly soluble in water due to

A. Dipole - dipole interactions

B. Dipole - induced dipole interactions

C. Induced dipole - induced dipole interactions

D. Hydrogen bondings

**Answer: B**



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**410.** The coloured discharge tubes for advertisement mainly contains

A. He

B. Ar

C. Ne

D. Xe

**Answer: C**



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**411.** Fill in the blanks :

The noble gases can form compounds with  
\_\_\_\_A \_\_\_\_ and \_\_\_\_B\_\_\_\_. The mixture of  
\_\_\_\_C \_\_\_\_ and \_\_D\_\_\_\_ is used for respiration by  
divers.

A. A-Iodine , B-Oxygen , C-Oxygen , D-Argon

B. A-Fluorine , B-Oxygen , C-Helium ,D-Oxygen

C. A-Xenon , B-Platinum ,C-Argon, D-Krypton

D. A-Helium ,B-Oxygen , C-Xenon , D-Argon

**Answer: B**



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**412.** First ever compound of a noble gas was prepared by

A. Barlett

B. Berzelius



C. Ramsay

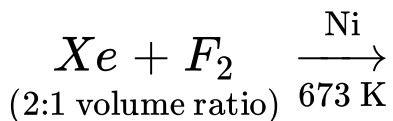
D. Cavendish

**Answer: A**



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**413.** Which compound is prepared by the following reaction ?



**A.  $XeF_4$**

B.  $XeF_2$

C.  $XeF_6$

D.  $XeF_2$  and  $XeF_6$

**Answer: A**



**Watch Video Solution**

**414.** Noble gas forms compounds with

A. Fluorine

B. Oxygen

C. Fluorine and Oxygen

D. Fluorine and Sulphur

**Answer: C**



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**415.** Which of the following noble gases is used in the treatment of cancer ?

A. Helium

B. Argon

C. Krypton

D. Radon

**Answer: D**



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**416.** The compound that attacks pyrex glass is

A.  $XeF_2$

B.  $XeF_4$

C.  $XeF_6$

D. All

**Answer: C**



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**417.** Which of the following is not the correct uses of clathrates ?

A. In the separation of noble gases

B. In transporting of isotopes of noble gases

C. Kr - 85 clathrate provide a useful source  
of  $\beta$ -radiations

D. Clathrates compounds are used for  
producing compounds of noble gases

**Answer: D**



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**418.** Molecules of a noble gas do not possess  
vibrational energy because a noble gas

A. Monoatomic

B. Chemically inert

C. Complete filled shells

D. Diatomic

**Answer: A**



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**419.** The coloured discharge tubes for advertisement mainly contains

A. Argon

B. Neon

C. Helium

D. Xenon

**Answer: B**



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**420.** Which of the following is not correct for noble gas?



A. Ar is used in electric bulbs

B. Kr is obtained during radioactive  
disintegration

C. Half life of Rn is 3.8 days

D. Helium is used to produce low  
temperature

**Answer: B**



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**421.** The forces acting between noble gas atoms are

- A. Vander waals forces
- B. Ion -dipole forces
- C. London - dispersion forces
- D. Magnetic forces

**Answer: A**

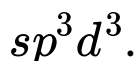


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**422.** Which of the following is not correct about xenon hexafluoride?

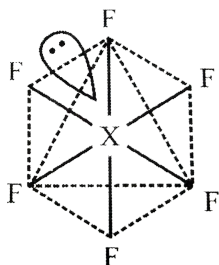
A. It has oxidation state of +6

B. The hybridisation involved in  $XeF_6$  is



C. The shape of  $XeF_6$  is distorted

octahedral and can be represented as



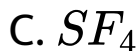
D. On hydrolysis it gives Xe, HF and  $O_2$

**Answer: D**



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**423.** Among the fluorides below, the one which does not exist is



D.  $CF_4$

**Answer: B**



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**424.** Argon possess \_\_\_\_\_ energy.

A. Translational

B. Vibrational

C. Rotational

D. Intermolecular

**Answer: A**



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**425.** Monazite is a source of

A. He and Ne

B. Kr

C. Ar

D. Xe

**Answer: A**



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**426.** The charcoal maintained at  $-100^{\circ}C$  absorbs

A. Ne and Kr

B. He and Ar

C. Ar, Kr and Xe

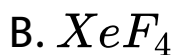
D. He and Ne

**Answer: C**



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427. Which is planar molecule ?



**Answer: B**



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**428.** In  $XeF_2$ ,  $XeF_4$ , and  $XeF_6$ , the number of lone pairs on  $Xe$  is, respectively,

A. 2, 3, 1

B. 1, 2, 3

C. 4, 1, 2

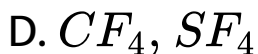
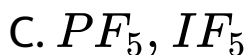
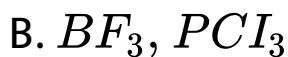
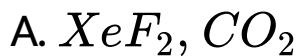
D. 3, 2, 1

**Answer: D**



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**429.** The pair of species having identical shapes for molecules of both species is



**Answer: A**



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**430.** Total number of lone pair of electrons in

$XeOF_4$  is :

A. 0

B. 1

C. 2

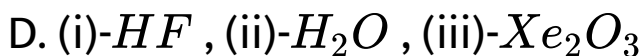
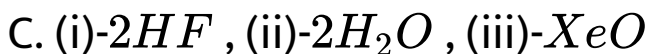
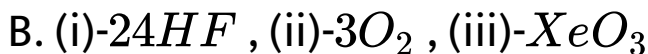
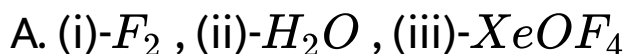
D. 3

**Answer: B**



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**431.** Complete the following reactions by filling the appropriate choice.



**Answer: B**



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**432.** The most abundant noble gas in the atmosphere is

A. Neon

B. Argon

C. xenon

D. Krypton

**Answer: B**



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**433.** Which element among the following does not form diatomic molecules?

A. Argon

B. Oxygen

C. Nitrogen

D. Bromine

**Answer: A**



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## TEST YOUR GRASP

1. The element which forms oxides in all oxidation states  $+1$  to  $+5$  is.

A. As

B. P

C. N

D. Bi

**Answer: C**



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2. With Nessler's reagent, ammonia gives brown precipitate due to formation of

A. Ammonium hydroxide

B. Iodide of Millon's base

C. Potassium amide

D. Chloramine

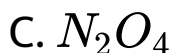
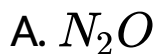
**Answer: B**



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3. Oxide of nitrogen used as an oxidiser for rocket fuels in missiles and space vehicles is



**Answer: C**



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4. Oxide of nitrogen which acts as oxidising as well as reducing agent is

A. NO

B.  $N_2O_5$

C.  $NO_2$

D.  $N_2O$

**Answer: A**



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5. A group 16 element exists in monoatomic state in the metallic lattice. It also exists in two crystalline forms. The metal is

A. S

B. Te

C. Po

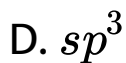
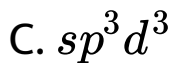
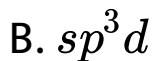
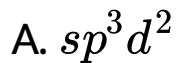
D. Se

**Answer: C**



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6. What is the hybridization of S in  $SF_6$  ?



**Answer: A**



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7. When dipped in conc.  $HNO_3$ , metals like iron, chromium, nickel, aluminium, base become passive. This is due to

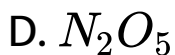
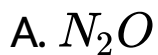
- A. reduction of metals
- B. formation of corresponding nitrates
- C. evolution of nitrogen dioxide
- D. formation of layer of metal oxide on the surface of metal

**Answer: D**



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8. Laughing gas has chemical formula

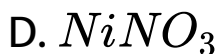
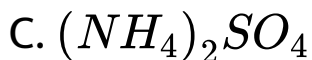
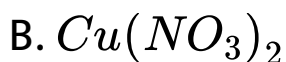


**Answer: A**



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9. A solution of colourless salt H on boiling with excess  $NaOH$  produces a non-flammable gas. The gas evolution ceases after sometime. Upon addition of Zn dust to the same solution, the gas evolution restarts. The colourless salt(s) H is (are)

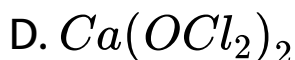
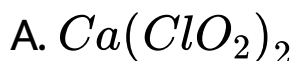


**Answer: A**



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**10.** When chloride is passed over dry slaked lime at room temperature the main reaction product is





**Answer: C**



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

A. brown colour

B. violet colour

C. colourless

D. bluish green

**Answer: B**



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

A. d-orbitals

B. s-orbital

C. p-orbitals

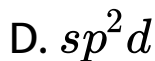
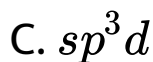
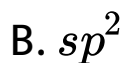
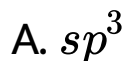
D. none

**Answer: A**



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**13.** The hybridisation of xenon in  $XeF_2$  is



**Answer: A**



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**14.** An inert gas atom

- A. has one electron in the outermost shell
- B. has three electrons in the outermost shell
- C. has half-filled outermost shell
- D. has a saturated outermost shell

**Answer: D**



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15. Argon is used in arc welding because of its
- A. ability to lower the melting point of metal
  - B. flammability
  - C. low reactivity with metal
  - D. high calorific value

**Answer: C**



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16. Nitrogen shows oxidation state +5, but it does not form pentahalide as

A. it is the first number of group 15

B. it is a diatomic gas

C. it has no d-orbitals so valence shell cannot be expanded

D. it has small atomic and ionic radii

**Answer: C**



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17.  $PCl_3$  fumes in moisture because

A. it undergoes hydrolysis giving fumes of

HCl

B. it has 5 chlorine atoms

C. P in  $PCl_3$  is  $sp^3$  hybridised

D. Chlorine atom is replaced by hydroxyl  
group

**Answer: A**



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**18.** Which of the following statement is correct?

A. Carbon forms oxides which are basic in nature

B. Metals can form only acidic oxides

C. Sodium metal is stored under kerosene

D. White phosphorus is kept under kerosene to avoid oxidation

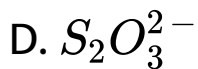
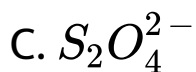
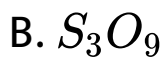
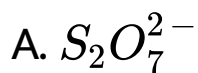
**Answer: C**



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19. S-S bond is present in

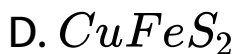
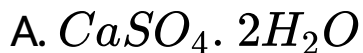


**Answer: C**



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20. The chemical formula of baryte, the salt of sulphur is

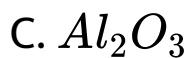


**Answer: C**



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21. Which is most acidic in nature?

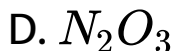
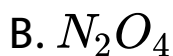
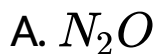


**Answer: B**



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22. The oxide of nitrogen used as an anaesthetic for minor operation by dentists is

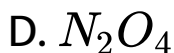
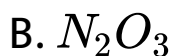
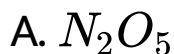


**Answer: A**



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23. The reddish brown coloured gas formed when nitric oxide is oxidised by air is



**Answer: B**



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**24.** Atoms in  $P_4$  molecule of white phosphorus are arranged regularly in the following way :

- A. at the corners of a cube
- B. at the corners of an octahedron
- C. at the corners of tetrahedron
- D. at the centre and corners of tetrahedron

**Answer: C**



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25. The most abundant inert gas in the atmosphere

A. He

B. Ne

C. Ar

D. Kr

**Answer: C**



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**26.** The last orbit of argon would have electrons

A. 8

B. 18

C. 2

D. 6

**Answer: A**



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**27.** In the clathrates of xenon with water, the nature of bonding between xenon and water molecule is:

A. covalent

B. hydrogen bonding

C. co-ordinate

D. dipole-induced dipole interactions

**Answer: D**



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**28.** Which of the following statements is not true about noble gases ?

- A. Their ionisation energies are very high
- B. Their electronic affinities are nearly zero
- C. They don't form any chemical compounds
- D. They are not easily liquified

**Answer: C**



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29. Bleaching action of  $SO_2$  is due to\_\_\_\_\_.

A. oxidation

B. acidic nature

C. reduction

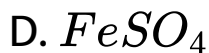
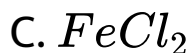
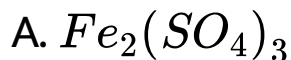
D. basic nature

**Answer: C**



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30. On passing  $H_2S$  through acidified  $FeCl_3$  solution  $FeCl_3$  is converted into



**Answer: C**



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31. The equivalent weight of sulphur in  $S_2Cl_2$  is

A. 16

B. 32

C. 64

D. 8

**Answer: B**



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32. Hydrogen sulphide reacts with lead acetate forming a black compound which reacts with  $H_2O_2$  to form another compound. The colour of the compound is

A. Black

B. Yellow

C. White

D. Pink

**Answer: C**



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**33.** Starch-iodide solution is

A. blue

B. deep blue

C. yellow

D. pink

**Answer: C**



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

A. F

B. Cl

C. Br

D. I

**Answer: D**



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**35.** Chlorine is used in water for



A. killing germs

B. prevention of pollution

C. cleansing

D. removing dirt

**Answer: A**



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**36.** Hydrogen bonding is strongest in

A.  $\text{O} - \text{H} \cdots \text{F}$

B.  $\text{S} - \text{H} \cdots \text{O}$

C.  $\text{F} - \text{H} \cdots \text{F}$

D.  $\text{F} - \text{H} \cdots \text{O}$

**Answer: C**



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**37.** The boiling point and melting point of inert gases are

A. high

B. low

C. very high

D. very low

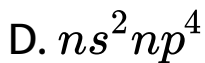
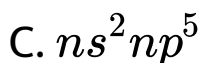
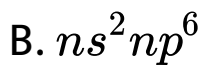
**Answer: D**



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**38.** Which of the following outer electronic configuration represents argon ?

A.  $ns^2$



**Answer: B**



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**39.** The charcoal maintained at  $100^{\circ}C$  absorbs

A. Ne and Kr

B. He and Ar

C. Ar, Kr and Xe

D. He and Ne

**Answer: C**



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**40.** 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. 100

**Answer: C**



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**41.** A greenish yellow gas reacts with an alkin metal hydroxide to form a halate which can be used in fireworks and saftey matches. The gas and the halate are

A.  $Br_2$ ,  $KBrO_3$

B.  $Cl_2$ ,  $KClO_3$

C.  $I_2$ ,  $NaIO_3$

D.  $Cl_2$ ,  $NaClO_3$

**Answer: B**



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**42.** Which one of the following is used in radiotherapy ?

A. Ar

B. Kr

C. Xe

D. Rn

**Answer: D**



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**43.** The noble gas which was discovered first in the sun and then on the earth



A. Ar

B. Xe

C. Ne

D. He

**Answer: D**



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**44.** Which of the following halogen can replace others?

A.  $I_2$

B.  $Br_2$

C.  $F_2$

D.  $Cl_2$

**Answer: C**



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**45.** The bond energies of  $F_2$ ,  $Cl_2$ ,  $Br_2$  and  $I_2$  are 155, 244, 193 and  $151 \text{ kJmol}^{-1}$  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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**46.** The increasing order of acid strength of hydrogen halide in water is

A.  $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$

B.  $\text{HCl} > \text{HF} > \text{HBr} > \text{HI}$

C.  $\text{HI} > \text{HBr} > \text{HCl} > \text{HF}$

D.  $\text{HCl} > \text{HBr} > \text{HF} > \text{HI}$

**Answer: C**



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

A. blue

B. red

C. colourless

D. yellow

**Answer: A**



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**48. Which is planar molecule ?**

A.  $XeO_4$

B.  $XeF_4$



**Answer: B**



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**49.** Which of the following noble gases does not have an octet of electrons in its outermost shell ?



B. Rn

C. Ar

D. He

**Answer: D**



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**50.** The coloured discharge tubes for advertisement mainly contains

A. Xe

B. He

C. Ne

D. Ar

**Answer: C**



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