



CHEMISTRY

BOOKS - NIKITA CHEMISTRY (HINGLISH)

P-BLOCK ELEMENT

MCQ

1. An element with atomic number 51 belongs to group

- A. 11
- B. 14
- C. 16
- D. 16

Answer: C



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2. Nitrogen (N_2) is relatively unreactive, because

- A. its electronegativity is high
- B. its dissociation energy is large
- C. its atomic radius is small
- D. it is the first element of group

Answer: B



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3. Phosphorous normally exhibits a covalency of ____ and ____ .

A. +1 and +2

B. +2 and +3

C. +3 and +4

D. +3 and +5

Answer: D



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4. Pick out the incorrect statement.

A. Except nitrogen, all the elements of group 15 exist in
allotropic modification

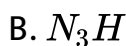
- B. Only at high temperatures, greater than 1070 K, phosphorus vapours dissociates into P_2 molecules
- C. Red P is obtained by heating white phosphorus at 540-570 K in the absence of air for several hours.
- D. White P is more reactive, but less soluble in CS_2 (and other organic solvents) than red P.

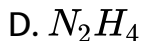
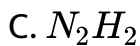
Answer: D



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5. A hydride of nitrogen which is acidic in nature is :

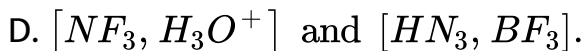
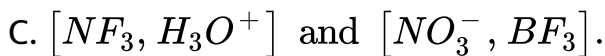
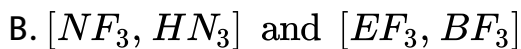
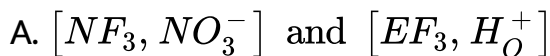
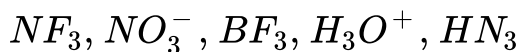




Answer: D

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6. Among the following species , identify the isostructural pairs



Answer: C



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7. Pick out the incorrect statement

- A. Red phosphorus consists of a complex chain structure and black phosphorus has a layer structure
- B. Nitrogen shows a little tendency for catenation, because N-N single bond is very strong
- C. The maximum number of covalent bonds formed atoby nitrogen is four, since it has no d-orbitals in its valence shell.

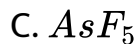
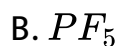
D. The group 15 elements do not form M^{5+} ions, but. +5 oxidation state is realized only through covalent bonding

Answer: B



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8. Why bismuth does not form pentahalides?

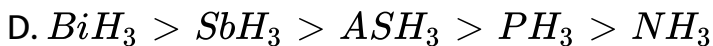
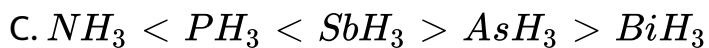
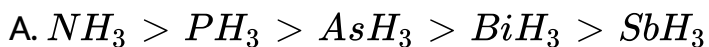


Answer: A



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9. The correct order of thermal stability of hydrides of group 15 is

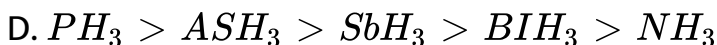
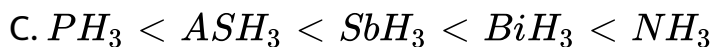


Answer: B



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10. Arrange the hydrides of group 15 in the correct order of reducing nature

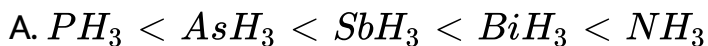


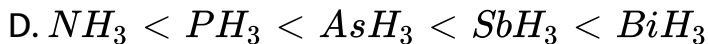
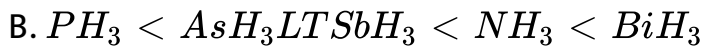
Answer: A



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11. Arrange the hydrides of group 15 in the order of increasing boiling points.



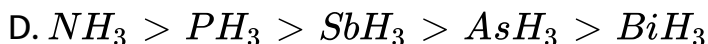
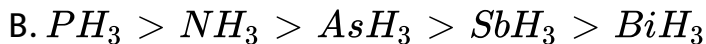
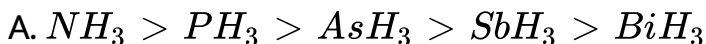


Answer: C



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



Answer: A



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13. The ammonium salt which produces ammonia gas on heating is :



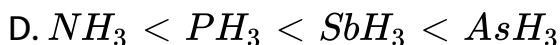
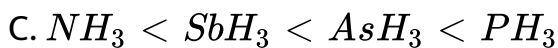
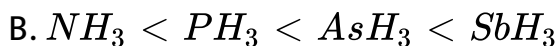
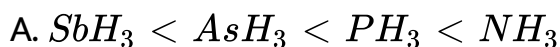
Answer: A



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14. Fifth group elements form hydrides to type AH_3 . The hydrides have a lone pair of electrons. The hydrides are reducing in nature and the reducing power is related to the stability of A-H bonds. The hydrides are covalent and low boiling. Their boiling points depends on their ability to form hydrogen bond and their molecular size which decide the intermolecular forces in the hydrides .

The H-M-H bond angle of V group hydrides decrease from 107° to 90° for NH_3 to SbH_3 , this is due to:



Answer: A

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15. Which of following trihalides of nitrogen behaves as the weakest base?



Answer: A

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16. Which of the following trihalides is not hydrolysed



Answer: A



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17. Pick out incorrect statement.

A. NF_3 molecules has trigonal pyramidal structure

B. It is practically insoluble in water and is only hydrolyzed, when an electric spark is through a mixture with water vapour

C. Dipole moment of NF_3 is more than that of NH_3

D. Nitrogen (II) oxide (N_2O_3) is an acidic oxide. passed

Answer: C

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18. H_2O_2 cannot act as

A. oxidizing agent only

B. reducing agent only

C. both oxidizing and reducing agent

D. nitrating agent

Answer: C

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19. Pick out the incorrect statement

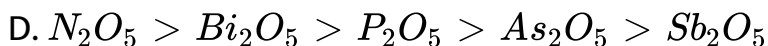
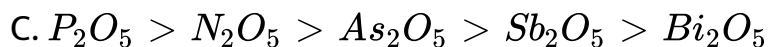
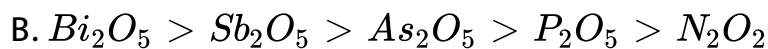
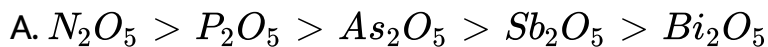
- A. In PCl_5 , P atom is sp^2d -hybridized and has trigonal bipyramidal geometry.
- B. PCl_5 on hydrolysis forms le-acids
- C. PCl_5 acts as Lewis acid
- D. In PCl_5 the axial chlorine atoms are closer to central P atom than equatorial chlorine atoms.

Answer: D



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20. Arrange the oxides of group 15 elements in decreasing order of their acidity



Answer: A



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21. The bonds present in N_2O_5 , are

A. only ionic

B. covalent and coordinate

C. only covalent

D. covalent and ionic

Answer: B



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22. Pick out the incorrect statement

A. Nitrogen dioxide has odd number of electrons and its structure is linear and has N-O bonds of different lengths

B. NO_2 is paramagnetic

C. N_2O_4 has planar structure and all N-O bonds are equivalent and is also diamagnetic molecule containing an

D. N_2O_4 ionizes slightly to form NO^+ and NO_3^- ions.

Answer: A

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23. Pick out the incorrect statement w.r.t. NH_3

A. It contains a lone pair of electrons, which can bond to a proton to form tetrahedral NH_4^+ ions

B. N_2 is formed, when NH_3 is passed over heated copper (II) oxide

C. NH_3 burns in air to form N_2 and steam

D. In Ostwald process for the manufacture of HNO_3 , NH_3 , is oxidized in presence of Pt/Rh catalyst to give NO and H_2O

Answer: C



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24. Which one of the following is used for drying of ammonia ?

A. CaO

B. Anhydrous $CaCl_2$

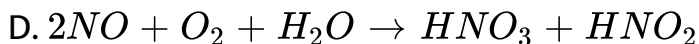
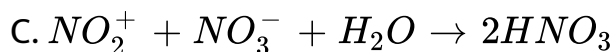
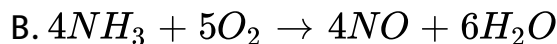
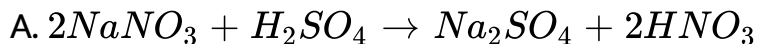
C. P_2O_5

D. Conc. H_2SO_4

Answer: A

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25. Large scale manufacturing of nitric acid by Ostwald process utilizes the reaction



Answer: B

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26. Sodium bismuthate is

- A. a powerful reducing-agent
- B. used in the estimation of Mn^{2+} ions
- C. a non-toichiometric compound
- D. obtained by treating Bi_2O_3 with conc. $NaOH$

Answer: B



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27. Pick out the incorrect statement

- A. N_2O is prepared by heating $NaNO_3$ and $(NH_4)_2SO_4$ mixture
- B. N_2O is a bent molecule

C. NO is prepared by the action of 50% nitric acid on Cu

D. Acidified solution of $KMnO_4$ oxidizes NO to HNO_3

Answer: B

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28. An oxide of nitrogen exists in equilibrium with its dimer. At low temperature, the oxide exists almost entirely as the pale yellow solid. As temperature is increased, the colour darkens, the dissociation is complete at $150^\circ C$ and the colour of gaseous matter becomes black. Further increase in temperature results in a loss of colour. The oxide of nitrogen is

A. N_2O_5

B. N_2O_4

C. NO_2

D. NO

Answer: C



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29. Which of the following elements (M) reacts with HNO_3 to form MO_2 ?

A. P_4

B. Mg

C. Zn

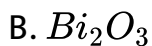
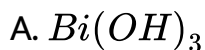
D. Sn

Answer: D



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30. When a small amount of HCl is added to an aqueous solution of $BiCl_3$, a white precipitate is formed. This is due to



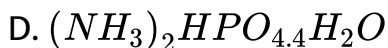
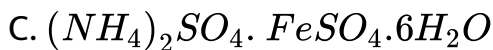
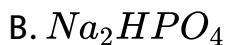
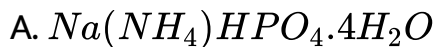
D. none of the above

Answer: C



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31. Which of the following salts is used in the bead test for basic radicals ?



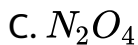
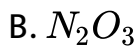
Answer: A



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32. Which of the following is a nitric acid anhydride?



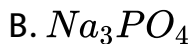


Answer: B



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33. What happens when white phosphorus is boiled with a strong solution of $NaOH$ in moist atmosphere ?



D. red phosphorus

Answer: C



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34. Ammonium dichromate on heating gives

A. 3 and 3

B. 4 and 4

C. 3 and 4

D. 4 and 3

Answer: D



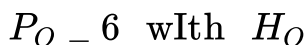
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35. In P_4O_6 and $P_{40}O_{10}$, the numbers of oxygen atoms bonded to each phosphorus atom are respectively

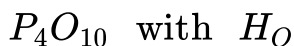
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36. Pick out the incorrect statement.

A. Orthophosphorus acid can be obtained by reacting



B. Orthophosphoric acid can be obtained by reacting



C. Pyrophosphoric acid can be obtained by heating

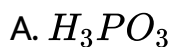
orthophosphorus acid

D. Metaphosphoric acid is obtained by the dehydration of orthophosphoric acid at 316°C .

Answer: C

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37. Which of the following oxyacids acts as most reducing agent?



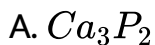
Answer: A



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38. Which of the following gives PH_3 on treatment with water

?



D. All of the above

Answer: D



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39. Pick out the incorrect statement

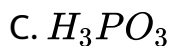
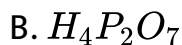
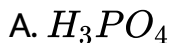
- A. PH_4^+ ion is tetrahedral like the NH_4^+ ion and is obtained when PH_3 is bonded to proton
- B. PH_4I is one of the most stable salts containing the phosphonium ion. It is also more stable than ammonium salts
- C. PH_4I is decomposed by water to form PH_3
- D. PH_3 converts silver salts in solution to silver phosphide, which subsequently reacts to give free metal.

Answer: B



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40. Oxyacid of phosphorus that can reduce $AgNO_3$ to silver is



Answer: C



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41. A monobasic acid of phosphorus, which reduces $HgCl_2$ to black Hg is

A. hypophosphorus acid

B. phosphoric acid

C. metaphosphoric acid

D. pyrophosphoric acid

Answer: A



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42. Iron is rendered passive by treatment with concentrated

A. H_2SO_4

B. H_3PO_4

C. HCl

D. HNO_3

Answer: D



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43. Which of the following is incorrect ?

- A. When NO_2 is dissolved in cold water, a mixture of nitrous and nitric acid is formed.
- B. When NO_2 is dissolved in hot water, the same reaction occurs as that in cold water
- C. N_2O_5 is made by the reaction of P_4O_{10} with nitric acid vapours.
- D. NO_2 is very corrosive gas and reacts directly with a number of metals.

Answer: B



44. Nitrogen (i) oxide is produced by

- A. thermal decomposition of ammonium nitrate
- B. disproportionation of N_2O_4
- C. thermal decomposition of ammonium nitrite
- D. interaction of hydroxylamine and nitrous acid

Answer: D



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45. The two compounds used as refrigerants are

1. NH_3
2. CCl_4
3. CF_2
4. CF_2Cl_2

A. 1,2

B. 2,3

C. 1,3

D. 1,4

Answer: D



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46. Which of the following elements of group 15 is a typical metal ?

A. P

B. As

C. Sb

D. Bi

Answer: D

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47. Which readily form $p\pi - p\pi$ multiple bonds with itself and with C and O among VA group elements ?

A. N

B. P

C. As

D. Bi

Answer: A

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48. Which of the following does not form stable diatomic molecule ?

A. Nitrogen

B. Phosphorus

C. Hydrogen

D. Oxygen

Answer: B



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49. Amongst the compounds, Mg_2N_2 , NH_3 and N_2O_3 nitrogen shows an oxidation state of +3 in

A. N_2O_3 only

B. NH_3 only

C. NH_3 and N_2O_3

D. All of the above

Answer: A



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50. The three important oxidation states of phosphorus are

A. -3

B. +3

C. +3 and -5

D. -3, +3 and +5

Answer: D



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51. White phosphorus is kept under

A. cold water

B. ammonia liquor

C. ethanol

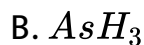
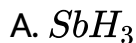
D. kerosene

Answer: A



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

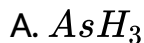


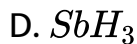
Answer: C



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53. Which of the following is the strongest base ?



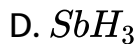


Answer: B



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54. Which of the following has weakest reducing nature?

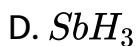
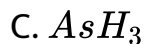


Answer: A



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55. Which of the following has minimum H-M-H bond angle?



Answer: D



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56. $FeSO_4$ forms brown ring with

A. NO

B. N_2O_3

C. NO_2

D. N_2O_5

Answer: A



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57. Nitrogen can be prepared by:

A. disproportionation of N_2O_4

B. thermal decomposition of NH_4NO_2

C. thermal decomposition of NH_4NO_3

D. the reaction of Cu with dil. HNO_3

Answer: C



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58. When copper is heated with dil. HNO_2 the oxide of nitrogen formed is

A. NO

B. N_2O_3

C. N_2O_5

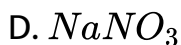
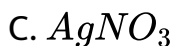
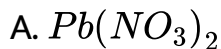
D. N_2O

Answer: A



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59. Among the following nitrates, silver nitrates, lead nitrate, silver nitrate and ammonium nitrate, the one that decomposes without leaving any solid residue is

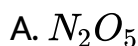


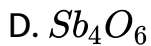
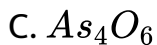
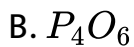
Answer: B



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60. Which of the following is an amphoteric oxide?



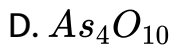
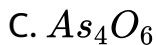


Answer: D



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61. Which of the following oxides will be the least acidic?



Answer: D



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62. Which of the following statement is correct ?

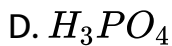
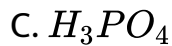
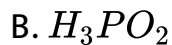
- A. PH_3 is more basic than ammonia
- B. PH_3 is less basic than ammonia
- C. PH_3 is equally basic as ammonia
- D. NH_3 is amphoteric and PH_3 is basic

Answer: B



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63. Conc. HNO_3 oxidizes phosphorus to

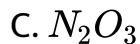
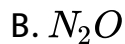


Answer: D



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64. Following are neutral oxides except :



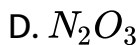
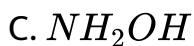
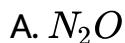
D. Both 'a' and 'b'

Answer: D



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65. A mixture of ammonia and air at about 800°C in the presence of *Pt* gauze forms



Answer: B



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66. AgCl dissolves in NH_3 solution, due to the formation

A. AgOH

B. Ag

C. Ag_2O

D. $[Ag(NH_3)_2]^+ Cl^-$

Answer: D



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67. Ostwald's process for the manufacture of HNO_3 involves the

A. oxidation of N_2 to NO

B. oxidation of NH_3 to NO in presence Pt/Rh catalyst

C. combination of N_2 and O_2

D. combination of H_2O and NO_2

Answer: B

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68. Nitric acid on standing develops brownish colour, which may be attributed to the presence of

A. NO_2

B. NO_2^+ ions

C. NO_3^- ions

D. HNO_2

Answer: A



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69. The passivity of iron results due to the formation of a thin protective layer of

A. iron oxide

B. ferric hydroxide

C. $Fe(NO_3)_3$

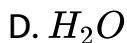
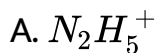
D. Fe_2O_4

Answer: A



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70. Which of the following contains a coordinate covalent bond?

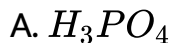


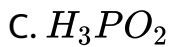
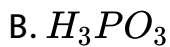
Answer: A



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71. Metaphosphoric acid has the formula



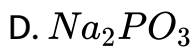
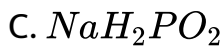
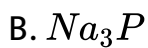
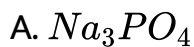


Answer: D



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72. Sodium hypophosphite represented as



Answer: C



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73. Which of the following is a tetrabasic acid?

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

Answer: D



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74. Hypophosphorus acid is

A. monobasic acid

B. a dibasic acid

C. a tribasic acid

D. not an acidic at all

Answer: A



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75. The acid obtained when P_4O_6 reacts with water is

A. H_3PO_2

B. H_3PO_3

C. H_3PO_4

D. $H_4P_2O_7$

Answer: B



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76. Which is a Lewis base ?



Answer: A



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77. The product obtained on heating NH_4NO_3 is

A. N_2O

B. NO

C. N_2O_5

D. N_2O_3

Answer: A



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78. In which of the following states nitric oxide is paramagnetic.

A. Gaseous

B. Liquid

C. Solid

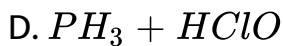
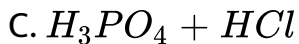
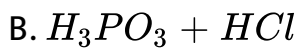
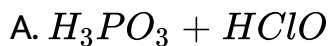
D. Diamagnetic in all states.

Answer: A



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79. The hydrolysis of PCl_3 produces



Answer: B



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80. Which of the following properties of white phosphorus is shown by red phosphorus also ?

- A. It is soluble in CS_2
- B. It produces phosphorescence in air
- C. It forms PH_3 with boiling KOH
- D. It burns on warming

Answer: D



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81. Which of the following is wrong ?

- A. Red phosphorus has a polymeric structure
- B. White phosphorus has higher internal energy than red phosphorus
- C. Red phosphorus is more active than white phosphorus
- D. White phosphorus is metastable at all temperature upto the melting point of red phosphorus

Answer: C



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82. Phosgene is



C. $COCl_2$

D. SCl_2

Answer: C

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83. A process of making NH_3 in presence of a catalyst is called

A. synthesis

B. gasification

C. destructive distillation

D. catalytic decomposition

Answer: A

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84. Which of the following is coloured ?

A. NO

B. N_2O

C. NO_2

D. NH_3

Answer: C



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85. The NH_4^+ ion is

A. square planar

B. tetrahedral

C. a Lewis base

D. planar in solution

Answer: B



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86. In nitrogen cycle, the main products are

A. NO and NO_2

B. NO_2 and N_2O_3

C. NO and N_2O_3

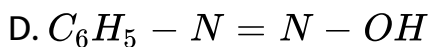
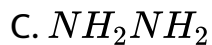
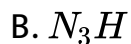
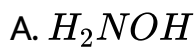
D. N_2O_3 and N_2O_5

Answer: A



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87. Hydrazoic acid is



Answer: B



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88. The strongest acid is

A. HNO_2

B. HNO_3

C. $H_2N_2O_2$

D. $HNOS$

Answer: B



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89. Phosphorus has the oxidation state of + 3 in

A. orthophosphoric acid

B. hypophosphoric acid

C. metaphosphoric acid

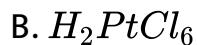
D. orthophosphorus acid

Answer: D



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90. The formula chloroplatinic acid



Answer: B



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91. The nature of phosphine is

- A. acidic
- B. basic
- C. neutral
- D. amphoteric

Answer: B



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92. Conc. H_2SO_4 is similar to conc. H_3PO_4 , in that

- A. both will oxidize I^- to I_2

B. if neutralized by alkali, both will form a precipitate with

$BaCl_2$ solution, which is soluble in dil. HCl

C. both can be used to dry NH_3 gas

D. both will displace volatile acids from their salts

Answer: D



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93. NaOH reacts with white phosphorus to give

A. PH_3

B. P_4O_{10}

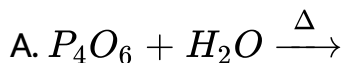
C. P_4O_6

D. Na_2PO_4

Answer: A

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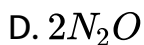
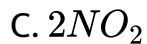
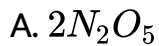
94. Which of the following reactions can be used to prepare metaphosphoric acid ?



Answer: A

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95. Write the missing product in the following reaction

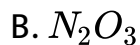
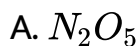


Answer: A



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96. The laughing gas is

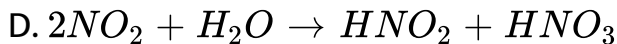
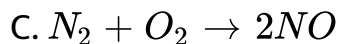
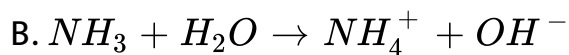
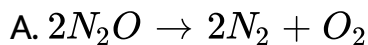


D. N_2O

Answer: D

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97. Which of the following reactions is an example of nitrogen fixation ?



Answer: C

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98. The Ostwald process is the main method for the manufacture of nitric acid. In the first step in this process

A. nitrogen and hydrogen react to form NH_3

B. ammonia is burned in O_2 to generate N_2 and H_2O

C. nitrogen and oxygen react to form NO_2

D. ammonia is burned with O_2 to generate NO and H_2O

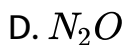
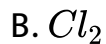
Answer: D



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99. Which of the following resembles water in the liquid state, where it is a solvent for many electrolytes, and even undergoes

autoionization as water does ?



Answer: C



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100. Phosphoric acid is the most important of the phosphorus oxyacids. Industrially, phosphoric acid is prepared by

A. the Ostwald process

B. the Haber's process

C. the reaction of phosphate rock with sulphuric acid

D. the reaction of P_4O_{10} with water

Answer: C

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101. When phosphorus trichloride $PCl_3(l)$ reacts with water, the products are

A. PCl_5 and H_3PO_4

B. $H_3PO +_4$ and Cl_2

C. H_3PO_4 and HCl

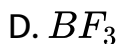
D. H_3PO_3 and HCl

Answer: D



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102. Which one of the following molecule is not trigonal pyramidal ?



Answer: D



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103. The number of P=O bonds in P_4O_{10} are

A. 2

B. 3

C. 4

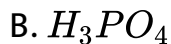
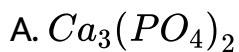
D. 5

Answer: C



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104. On reaction with water, calcium phosphide produces



Answer: D



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105. Which one of the following is a covalent hydride ?



Answer: D



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106. Which of the following elements show allotropy?

1. Carbon 2. Sulphur

3. Phosphorus 4. Hydrogen

A. 1,2,3 and 4

B. 2 and 4

C. 1,3 and 4

D. 1,2 and 3

Answer: D



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107. Nessler's reagent used to test the presence of ammonia or

NH_4^+ is

A. K_2HgI_4 in excess KI

B. K_2HgI_4 in excess KOH

C. K_2HgI_4 in excess HCl

D. H_2I_2 in excess KOH

Answer: B



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108. When a heated Pt wire is introduced into a mixture of NH_3 and air

A. Pt forms the oxide

B. NO and H_2O are formed

C. Pt forms oxide and nitride

D. N_2O and H_2O are formed

Answer: B

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109. The reaction of calcium cyanamide with water yields

A. $Ca(OH)_2$ and N_2

B. CaC_2 and N_2H_4

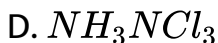
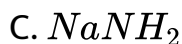
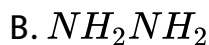
C. $Ca(HCO_3)_2$ and NH_3

D. $CaCO_3$ and NH_4OH

Answer: D

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110. Excess of NH_3 combine with sodium hypochlorite solution gives -

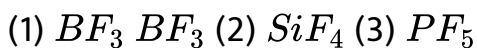


Answer: B



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111. Which of the following compounds possess Lewis acid character ?



A. 1 alone

B. 1,2, and 30

C. 2 and 3

D. 1 and 3

Answer: B



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112. Which of the following statements is correct ?

A. The major pollutant acids in acid rain are nitrous acid and sulphurous acid

B. HF is a strong acid nboe

C. P_4O_6 and P_4O_{10} are allotropes of phosphorus

D. Phosphoric acid is a weak acid

Answer: A

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113. The oxidation number of phosphorus in $Ba(H_2PO_2)_2$ is:-

A. + 3

B. + 2

C. + 1

D. - 1

Answer: C

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114. Which of the following phosphorus is the most reactive?

A. Red 'P'

B. White 'P'

C. Scarlet 'P'

D. Violet 'P'

Answer: B



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115. White P is more reactive than N_2 because

A. electronegativity of P is low

B. ionization energy of P is low

- C. P-P bond has lower dissociation energy than that of N = N bond
- D. all the above

Answer: C



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116. In white phosphorus, the arrangement of P atoms is

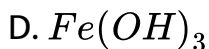
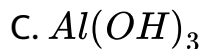
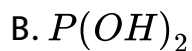
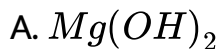
- A. linear
- B. tetrahedral
- C. square planar
- D. none of these

Answer: B



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117. Which of the following is an acid ?



Answer: B



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118. An example of tetra atomic molecule is

A. white P

B. ozone

C. diborane

D. urea

Answer: A



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119. H_3PO_2 is the molecular formula of an acid of phosphorus.

Its name and basicity respectively are

A. phosphorus acid and two

B. hypophosphorus acid and one

C. hypophosphoric acid and one

D. orthophosphoric acid and three

Answer: B

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120. Which of the following acid does not contain +5 oxidation state ?

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

Answer: C

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121. Phosphine gives black precipitate with

A. NaCl

B. Cl_2

C. $AlCl_3$

D. $CuSO_4$

Answer: D



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122. Smoke screen is produced by using

A. calcium carbide

B. calcium phosphide

C. phosphorus trisulphide

D. All of the above

Answer: B



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123. Number of P=O bonds is P_4O_6 , molecule is

A. 1

B. 2

C. 4

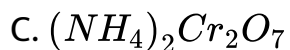
D. Nil

Answer: D



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124. Which of the following gives $N_2(g)$ on heating ?



D. Both a and c

Answer: D



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125. Which of following statements is false ?

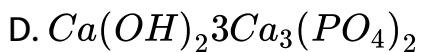
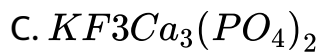
- A. Density of white phosphorus is less than that of red phosphorus
- B. White phosphorus is soluble in CS_2 , but red phosphorus is insoluble in CS_2
- C. Both red and white phosphorus evolves PH_3 on heating with NaOH solution
- D. White phosphorus show phosphorescence, while red phosphorus does not show phosphorescence.

Answer: C



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126. Which of the following is fluoroapatite



Answer: A



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127. Which of the following has more atomic size

A. N

B. As

C. P

D. Bi

Answer: B



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128. Nitrogen can form N^{3-} ion because of

A. high electronegativity

B. low electronegativity

C. high I.E.

D. Low I.E.

Answer: A



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129. In N_2O_4 oxidation state of nitrogen is

A. -4

B. $+4$

C. -3

D. $+3$

Answer: B



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130. The maximum covalency of nitrogen is

A. 2

B. 3

C. 4

D. 5

Answer: B



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131. $p\pi - p\pi$ bonding is possible in

A. N

B. P

C. As

D. Sb

Answer: A



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132. Which of the following element do not form $d\pi - p\pi$

A. N

B. P

C. As

D. Sb

Answer: A



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133. Nitrogen exist as

A. diatomic molecule

B. monoatomic molecule

C. triatomic molecule

D. tetraatomic molecule

Answer: A



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134. Which of the following shows large number of oxidation state

A. N

B. P

C. As

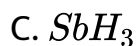
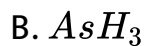
D. Bi

Answer: A



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135. Which of the following has highest bond dissociation energy?

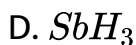


Answer: A



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136. Highest hydrogen bonding is possible in

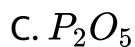
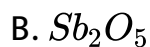
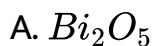


Answer: C



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137. Which of the following is more acidic oxide ?



D. N_2O_5

Answer: D

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138. Antimony with hot conc. HNO_3 , produces oxides and behave like

A. metal

B. non-metal

C. metalloid

D. any of the above

Answer: B

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139. Antimony with hot conc. H_2SO_4 , produced sulphates and behave like

A. metal

B. non-metal

C. metalloid

D. any of the above

Answer: A



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140. Commercially nitrogen is prepared from

A. by passing vapours of HNO_3 on heated copper

B. thermal decomposition of barium azide

C. liquification of air

D. oxidation of NH_3

Answer: C



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141. Thermal decomposition of ammonium dichromate gives

A. O_2

B. N_2

C. NH_3

D. H_2

Answer: B



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142. Calcium carbide reacts with nitrogen to give

A. CaCN

B. $\text{Ca}(\text{CN})_2$

C. N_2O

D. NO_2

Answer: B



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143. Haber's process is used to prepare

A. O_2

B. N_2

C. NH_3

D. PH_3

Answer: C



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144. Hydrazine is formed when cyanamide gives

A. N_2

B. NH_3

C. $CaOCl_2$

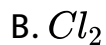
D. N_2O

Answer: B



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145. Ammonia reacts with excess of chlorine to give

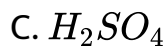
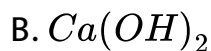


Answer: C



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146. Hydrolysis of calcium cyanamide gives Hydrazine is formed when ammonia react with



Answer: D



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147. Ostwald process is used to prepare -



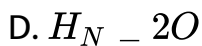
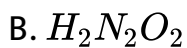
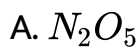


Answer: C



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148. Which of the following is hyponitrous acid ?



Answer: B



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149. Fuming nitric acid is,

A. 50% HNO_3

B. 60% HNO_3

C. 68% HNO_3

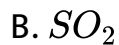
D. 98% HNO_3

Answer: D



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150. NO_3^- is isoelectronic with,

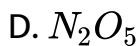
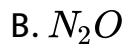


Answer: C



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151. Dilute nitric acid react with copper to give,



Answer: A



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152. Conc. HNO_3 , acid react with copper to give,

A. NO

B. N_2O

C. NO_2

D. N_2O_5

Answer: C



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153. Which of the following represent laughing gas?

A. NO

B. N_2O

C. NO_2

D. N_2O_5

Answer: B



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154. Laughing gas is produced from zine react with

A. Dilute HNO_3

B. Conc. HNO_3

C. Dilute H_2SO_4

D. HNO_2

Answer: A

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155. Aquaregia is a mixture of

A. 3:1 HCl and HNO_3

B. 1:3 HCl and HNO_3

C. 3:1 H_2SO_4 and HNO_3

D. 1:3 H_2SO_4 and HNO_3

Answer: A

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156. Nitrogen monoxide is

- A. neutral
- B. acidic
- C. basic
- D. amphoteric

Answer: A



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157. N_2O_4 is

- A. Acidic and paramagnetic

B. Acidic and dimagnetic

C. Basic and paramagnetic

D. Basic and dimagnetic

Answer: B



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158. Which of the following exist in dimer ?

A. N_2O_5

B. $NO - (4)$

C. NO_2

D. N_2O_3

Answer: C



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159. Which of following is polymeric phosphorous ?

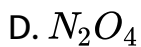
- A. White P
- B. Red P
- C. Black P
- D. Yellow P

Answer: B



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160. Calcium phosphide on hydrolysis gives



Answer: B



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161. Which of the following used in Holme's signals?



Answer: D



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162. Phosphorium bromide is obtained by reacting phosphine with

A. HBr

B. Br_2

C. NaOBr

D. PBr_3

Answer: A



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163. White phosphorous is heated with conc. NaOH in inert atmosphere of CO_2 gives

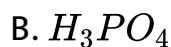
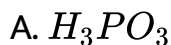


Answer: C



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164. Hydrolysis of PCI_5 gives



C. HPO_3

D. PH_3

Answer: B

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165. HPO_3 act as

A. Reducing agent

B. Oxidation agent

C. Hydrolytic agent

D. Bleaching agent

Answer: B

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166. How many P-OH bonds are present in H_3PO_2

A. 1

B. 2

C. 3

D. 0

Answer: A



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167. Phosphorous acid is

A. monobasic acid

B. dibasic acid

C. tribasic acid

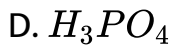
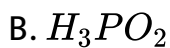
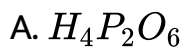
D. tetrabasic acid

Answer: B



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168. Which of the following is pyrophosphorous acid



Answer: C



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169. H_3PO_4 consist of

- A. two P-OH bonds and 2 P=O bonds
- B. one P-OH bond and 3 P =O bonds
- C. 2 P-OH bonds and one P-O bond
- D. 3 P-OH bonds and one P=O bond

Answer: D



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170. Phosphoric acid is prepared by

A. hydrolysis of P_2O_3

B. hydrolysis of P_4O_{10}

C. hydrolysis of PCl_3

D. action of PCl_3 on H_3PO_3

Answer: B



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171. Which of the following is magnesium bismuthide ?

A. Bi_3Mg

B. Bi_3Mg_2

C. Mg_3Bi_2

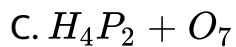
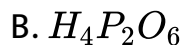
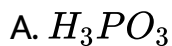
D. Mg_3Bi

Answer: C



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172. Which of the following is pyrophosphorous acid ?

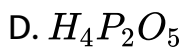
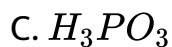
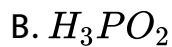
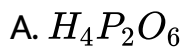


Answer: D



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173. In which of the following four P-OH bonds are present ?

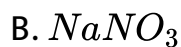


Answer: A



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174. Which of the following is an indian salt petre?



C. KCl

D. KNO_3

Answer: D

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175. Pyrophosphorous acid is

A. Mono basic acid

B. Dibasic acid

C. Tribasic acid

D. Neutral

Answer: B

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176. Pure nitrogen is prepared in the laboratory by heating a mixture of

A. NH_4Cl and $NaOH$

B. NH_4Cl and $NaNO_2$

C. NH_4OH and $NaCl$

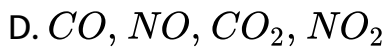
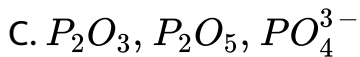
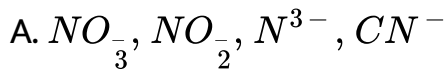
D. NH_4Cl and $NaNO_3$

Answer: B



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177. $d\pi - p\pi$ bonding is possible in



Answer: C



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178. Nitric oxide (NO) is paramagnetic in gaseous state

A. gaseous state

B. solid state

C. liquid state

D. polymeric state

Answer: A



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179. Nitronium ion is isoelectronic with

A. CO_2

B. CO

C. NO_2

D. NO

Answer: B



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180. P-P-P angle in white phosphorous is

A. 600°

B. 900°

C. $109^\circ 28'$

D. 120°

Answer: A



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181. With excess of Cl_2 react with ammonia forms

A. NH_4Cl

B. NCl_3

C. N_2

D. NOCl

Answer: B



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182. Select incorrect statements

A. The central in the hydride is sp^2 hybridised

B. BiH_3 is strong reducing agent than NH_3

C. NH_3 is strong Lewis base than BiH_3

D. The bond energy of the E-H bond decreases from

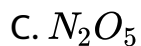
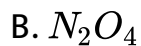
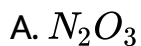
NH_3 to BiH_3

Answer: A



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183. N-N bond is not present in



Answer: C



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184. In the preparation red phosphorous from white phosphorous

- A. MnO_2 is used as catalyst
- B. the white phosphorous is treated in electric furnace
- C. a little I_2 is used as catalyst
- D. the gas P_4 is released

Answer: C



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185. One of the acid listed below is formed from P_2O_3 . The rest are formed from P_2O_5 . The acid formed from hydrolysis is

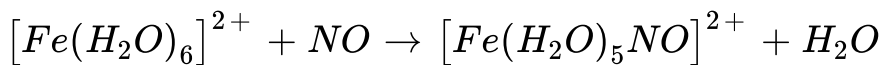
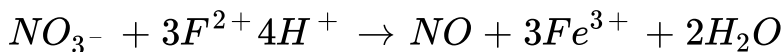
- A. HPO_3
- B. $H_4P_2O_7$
- C. H_3PO_4

D. H_3PO_3

Answer: D

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186. Consider the reaction



The brown complex is formed. IUPAC name of the complex is

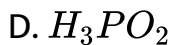
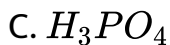
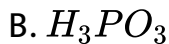
- A. Pentaquanitrosyliron(II)
- B. Pentaquanitrosyliron(III)
- C. Pentaquanitrosylferrate(II)
- D. Pentaquanitrosylferrate(III)

Answer: A



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187. PCl_3 under goes hydrolysis to produce an oxoacid. It has formula In solid PCl_3 , exist as



Answer: B



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188. In solid PCl_5 exist as



Answer: D



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189. Among CH_4 , NH_3 , and H_2O , acidity of H_2O is maximum because,

A. Oxygen contains two lone pairs of electrons

B. Bond angle in water is less than $109^\circ 28'$

C. Oxygen is more electronegative

D. Water is associated liquid

Answer: C

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190. Dimerisation of NO_2 gives

A. N_2O_4

B. N_2O

C. N_2O_2

D. N_3O_6

Answer: A

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191. NO_3^- , is isoelectronic with

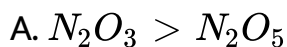


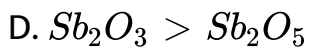
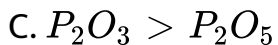
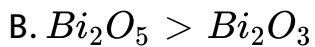
Answer: B



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192. In which of following first is more acidic than second





Answer: B



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193. Which of following does not react with conc. HNO_3

A. N

B. P

C. As

D. Pi

Answer: A



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194. Which of following element produces oxide with conc. HNO_3

A. N

B. P

C. As

D. Sb

Answer: D



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195. Which of the followinf gives dence fumes of P_4O_{10}

A. PCl_5

B. PCl_3

C. White phosphorous

D. Red phosphorous

Answer: C



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196. Two -OH bonds are present in

A. $H_4P_2O_5$

B. $H_4P_2O_6$

C. H_3PO_4

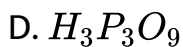
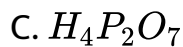
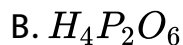
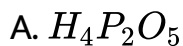
D. $H_4P_2O_7$

Answer: A



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197. Which of the following is more acidic?

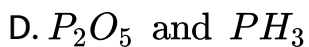
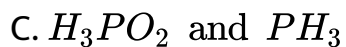
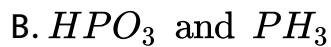
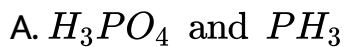


Answer: C



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198. H_3PO_3 disproportionates to

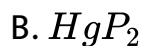
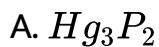


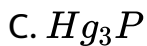
Answer: A



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199. Mercuric chloride reacts with phosphine give



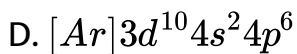
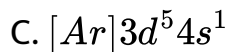
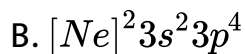
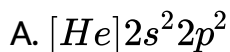


Answer: A



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200. Which electronic configuration belongs to an element of group 16?



Answer: B



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201. The first ionisation in electron volts of nitrogen and oxygen atoms are, respectively , given by

A. 14.5,13.5

B. 13.6, 14.6

C. 13.6, 13.6

D. 14.6, 14.6

Answer: A



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202. O_2 molecule is

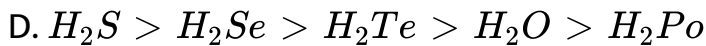
- A. ferrimagnetic
- B. ferromagnetic
- C. paramagnetic
- D. diamagnetic

Answer: C

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203. Thermal stability of hydrides of group 16 elements decreases in the following order

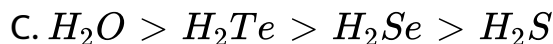
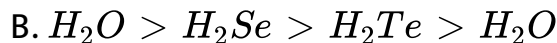
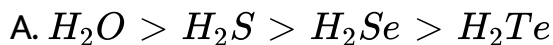
- A. $H_2Po > H_2Te > H_2Se > H_2S > H_2O$
- B. $H_2O > H_2S > H_2Se > H_2Te > H_2Po$
- C. $H_2S > H_2Se > H_2O > H_2Te > H_2Po$



Answer: B

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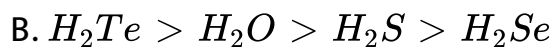
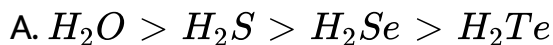
204. The boiling points of hydrides of group 16 are in the order



Answer: C

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205. Hydrides of group 16 are weakly acidic in nature. The correct order of acidity is



Answer: C



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206. Which of the following reactions is employed to produce ozone in the laboratory ?

A. Exposure of air to U.V. light lea

B. Reaction of F_2 with H_2O at low temperature

C. Reaction of SO_2 with H_2O_2

D. Passage of silent electric discharge through O_2

Answer: D



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207. Which gives of O_2 on moderate heating is?

A. CuO

B. HgO

C. ZnO

D. Al_2O_3

Answer: B



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208. Which of the following is not true for ozone ?

- A. It is a strong sterilizing agent
- B. It attacks organic compounds containing carbon-carbon double bond
- C. Its molecular is linear and has two different O-O bond lengths
- D. It is more powerful oxidising agent than molecular oxygen

Answer: C



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209. Pick out the incorrect statement regarding ozone

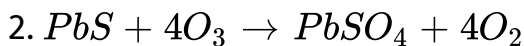
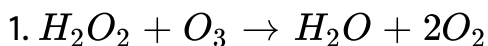
- A. O_3 is an emetable, dark-blue diamagnetic gas
- B. The central oxygen in O_3 is sp^2 – hybridized
- C. It is oxidising agent
- D. It does not react with BaO_2

Answer: D



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210. In the reaction



- A. O_2 is reduced both in (a) and (b)

B. O_3 is enodined both in (a) and (b)

C. O_3 is oxidized in (a) and reduced in (b)

D. O_3 , is reduced in (a) and oxidized in (b)

Answer: A



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211. Which of the following is incorrect ?

A. Water is mere polar than H_2S

B. H_2O_2 , is planer molecule

C. Heavy water a produced by the exhaustive electrolysis of water made acidic

D. H_2O_2 acts both as oxidising as well as reducing agent in acidic medium.

Answer: B

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212. Pick out the incorrect statement

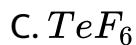
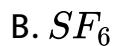
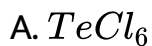
- A. The oxides of fluorine are properly called oxygen
sapuong
- B. In SF_4 , 'S' atom is in the state of sp^2d^2 - hybridization
- C. SF_6 is highly unreactive towards hydrolysis.
- D. SF_4 , is a gas and has regular tetrahedral structure.

Answer: D



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213. Which has greater reactivity



Answer: C



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214. Which among the following is a false statement ?

- A. SO_3 , is obtained by the catalytic oxidation of SO_2
- B. SO_3 has trigonal planar geometry in gaseous state
- C. SO_3 , in gaseous state has all S-O bonds equivalent
- D. SO_2 is acidic in nature

Answer: D



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215. Which of the elements does not show the O.S of +4?

- A. O
- B. B
- C. Se
- D. Te

Answer: A



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216. Which one of the following has the highest bond energy ?

A. O-O

B. S-S

C. Se-Se

D. Te-Te

Answer: B



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217. Pick out the incorrect statement.

- A. The tendency for catenation is marked by shown by sulphur.
- B. $\text{Te}=\text{C}=\text{Te}$ is unknown
- C. The + 4 oxidation state is relatively more stable for Se, Te and Po than +6 O.S, but opposite trend holds good for S.
- D. S_2 is diamagnetic, but O_2 is paramagnetic

Answer: D



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218. On passing H_2S through HNO_3 we get

A. Colloidal sulphur

B. O_2

C. O_3

D. NO_3

Answer: A



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219. Milk of sulphur is obtained by

A. passing H_2S through HNO_3

B. the reaction of $Na_2S_2O_3$ with HCl

C. melting sulphur in a dish

D. boiling milk of lime with sulphur and then with HCl .

Answer: D



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220. Colloidal sulphur is obtained when

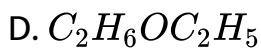
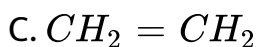
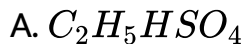
- A. sulphur is heated gradually to a high temperature
- B. sulphur is heated with $Ca(OH)_2$
- C. hydrogen sulphide gas is passed through an aqueous solution of nitric acid
- D. sulphur is warmed with CS_2

Answer: C



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221. Excess of conc. H_2SO_4 reacts with C_2H_5OH at 413 K to form.



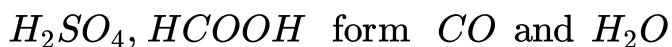
Answer: C



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222. Pick out the incorrect statement regarding H_2SO_4 .

A. When H_2SO_4 is treated with $HCOOH$ with



B. Glucose, when treated with conc. H_2SO_4 , forms carbon

C. Conc. H_2SO_4 cannot oxidize HBr and HI to form Br_2 , and I_2 , respectively

D. Conc. H_2SO_4 , reacts with $NaNO_3$

Answer: C



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223. When SO_2 is passed through an aqueous solution of I_2 , it becomes colourless. This is due to ing

A. bleaching action of SO_2

B. formation of HI

C. combination of SO_2 and I_2

D. formation of HNO_3

Answer: C

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224. Oxalic acid when heated with *conc.* H_2SO_4 it gives out

A. H_2O and CO_2

B. CO and CO_2

C. CO_2 and H_2S

D. oxalic sulphate

Answer: B

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225. A gas that cannot be collected over water is.

A. N_2

B. O_2

C. SO_2

D. PH_3

Answer: C



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226. Bleaching action of SO_2 is due to

A. hydrolysis

B. reduction

C. oxidation

D. its acidic nature

Answer: C

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227. Which one of the following is moderately basic?

A. SO_2

B. SeO_2

C. TeO_2

D. PoO_2

Answer: D

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228. H_2SO_4 , reacts with PCl_5 to give

- A. thionyl chloride
- B. sulphuryl chloride
- C. sulphur tetrachloride
- D. phosphoric acid

Answer: B



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229. Sulphur combines with.

- A. Mg

B. Au

C. Pt

D. Te

Answer: A



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230. SO_2 , reacts with Cl_2 , to form

A. $SOCl_2$

B. SO_2Cl_2

C. SCl_2

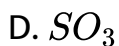
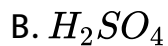
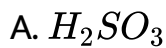
D. S_2Cl_2

Answer: B



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231. Sulphur reacts with HNO_3 to form



Answer: B



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232. HI when heated with conc. H_2SO_3 , it forms

A. HIO_3

B. KIO_3

C. I_2

D. All of these

Answer: C



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233. Which trioxide of group 16 elements exists as a cyclic tetramer in the solid state

A. SO_3

B. SeO_3

C. TeO_3

D. Both SO_3 and SeO_3

Answer: B

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234. Pick out incorrect statement for H_2SO_3

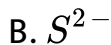
- A. But-1-ene when hydrated in presence of conc. H_2SO_4 ,
form butan-2-ol
- B. Carbon or sulphur are oxidized by conc. H_2SO_4 to their
respective dioxides.
- C. Cu is oxidized by conc. H_2SO_4 to form only H_2S
- D. Zn reduced conc. H_2SO_4 to form SO_2 , and $ZnSO_4$

Answer: C



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235. A substance on treatment with dilute H_2SO_4 liberates a colourless gas which produces (I) turbidity with baryta water and (ii) turns acidified dichromate solution green. The reaction indicates the presence of :

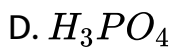
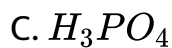
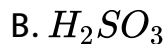
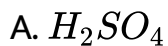


Answer: C



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236. Which has maximum number of oxo groups ?

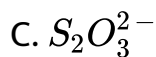
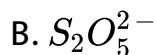
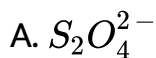


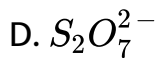
Answer: A



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

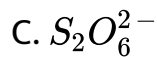
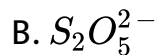
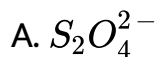




Answer: D

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238. There is S-S bond in



D. All of these

Answer: D

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239. Which of the following have undistorted octahedral structures: (1) SF_6 (2) PF_6^- (3) SIF_6^{2-} (4) XeF_6

Select the correct answer using the codes given below

A. 2,3 and 4

B. 1,3 and 4

C. 1,2, and 4

D. 1,2 and 3

Answer: D



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240. 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, one mole of peroxomonosulphuric acid and one mole of hydrogen peroxide.

Answer: C



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241. Polonium is a radioactive element. This element was discovered by

A. Faraday

B. Lewis

C. Marie Curie

D. Fajan

Answer: C



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242. Which of the group 16 elements is not called chalcogen ?

A. S

B. Se

C. Te

D. Po

Answer: D



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243. Which of the elements is/are semiconductor(s) ?

A. Oxygen

B. Sulphur

C. Selenium

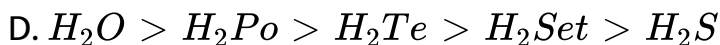
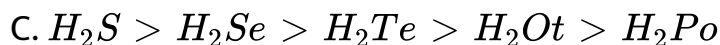
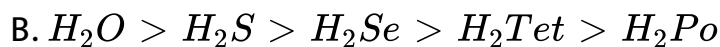
D. Selenium and tellurium

Answer: D



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244. The reducing nature of hydrides of group P 10 elements vary as

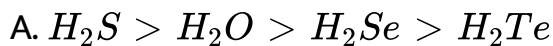


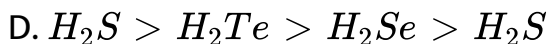
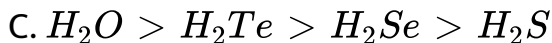
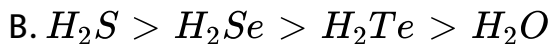
Answer: A



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245. The correct sequence of the melting points of 16 elements is



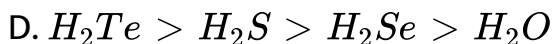
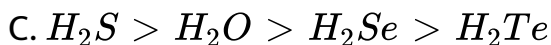
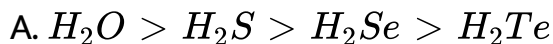


Answer: C



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246. The H-M-H bond angle in the hydrides of group 16 elements decreases in the order



Answer: A



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247. Crown shape of S_8 molecule is present in

- A. rhombic sulphur
- B. monoclinic sulphur
- C. both 'A' and 'B'
- D. plastic sulphur

Answer: C



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248. The high boiling point and viscosity of H_2SO_4 is due

- A. hydrogen bonding
- B. covalent bonding
- C. ionic bonding
- D. vander Waal's forces

Answer: A



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249. Which of the allotropes of sulphur has no sharp melting point and is insoluble in CS_2 ?

- A. Rhombic sulphur

B. Monoclinic sulphur

C. Plastic sulphur

D. None of the above

Answer: B



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250. In the reaction $HCOOH \xrightarrow{H_2SO_4} CO + H_2O$, H_2SO_4

acts as *a / an*

A. dehydrating agent

B. oxidising agent

C. reducing agent

D. all the above

Answer: A



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251. The reaction of Cu with hot conc. H_2SO_4 produc

A. SO_2

B. H_2S

C. H_2

D. Cu^+ ions

Answer: A



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252. Ozone is not

- A. an allotrope
- B. a powerful oxidizing agent
- C. paramagnetic
- D. a bent molecule

Answer: C



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253. When liberates H_2 with dil H_2SO_4 ?

- A. Zn
- B. Cu

C. Fe

D. S

Answer: C

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254. Which of the following statements regarding the manufacture of H_2SO_4 , by contact process is not true

A. S is burnt in air to form SO_2

B. SO_2 is oxidized to SO_3 , in presence of V_2O_5 as catalyst,

(or finely divided spongy platinum as catalyst) at a

pressure of 2 atm and a temperature of about 700K

C. SO_3 , is dissolved in H_2O to get 100% H_2SO_4 acid

D. H_2SO_4 obtained by contact process is of higher purity than that obtained by lead-chamber process.

Answer: C

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255. The impurities like As_2O_3 result in the poisoning of catalyst. In contact process, the impurities of arsenic are removed by

A. gelatinuous $Fe(OH)_3$

B. $Al(OH)_3$

C. $Cr(OH)_3$

D. Fe_2O_3

Answer: A



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256. The hybridization of S in SO_2 is

A. sp

B. sp^3

C. sp^2

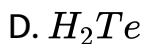
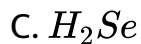
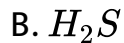
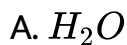
D. dsp^2

Answer: C



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257. Which one of the following has the highest boiling point ?



Answer: A



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258. Which one of the following compounds has bond angle close to 90° ?



B. H_2S

C. CH_4

D. H_2O

Answer: B



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259. Which of the following compounds is most acidic ?

A. H_2O

B. H_2S

C. H_2Se

D. H_2Te

Answer: D



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260. In SF_4 , S atom is hybridized.

A. sp^3

B. sp^3d

C. sp^3d^2

D. dsp^2

Answer: B



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261. Which of the following is not a linear molecule ?

A. CO_2

B. $BeCl_2$

C. CS_2

D. SO_2

Answer: D



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262. The catalyst used for the manufacture of H_2SO_4 , in contact process for the oxidation of SO_2 to SO_3 is

A. finely divided iron

B. molybdenum

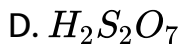
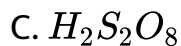
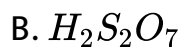
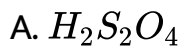
C. nitric oxide

D. vanadium pentaoxide

Answer: D

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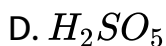
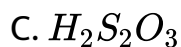
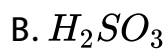
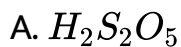
263. Which of the following represents the fuming sulphuric acid (oleum or pyrosulphuric acid) ?



Answer: D

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264. Pyrosulphurous acid is

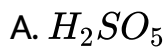


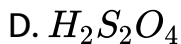
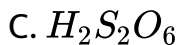
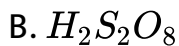
Answer: A



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265. Caro's acid is





Answer: A



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266. $Na_2S_2O_3$ is formed when

A. Na_2S is boiled with sulphur

B. Na_2SO_3 is boiled with Na_2S

C. Na_2SO_3 is boiled with sulphur

D. Na_2CO_3 is boiled with conc. H_2SO_4

Answer: C



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267. Hypo is used in photography to

- A. reduce AgBr to metallic silver
- B. remove silver as silver salt
- C. remove undecomposed silver bromide as soluble complex
- D. remove reduced silver

Answer: C



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268. Which of the following is used in purifying air of crowded places ?

A. O_2

B. O_3

C. Cl_2

D. SO_2

Answer: B



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269. From S to Po, the tendency to show -2 oxidation state

A. remains unchanged

B. increases

C. decreases

D. none of these above

Answer: C



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270. The most powerful oxidizing agent is

A. H_2SO_4

B. H_2PO_3

C. H_3PO_4

D. HPO_3

Answer: A



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271. The shape of SO_2 molecule is

A. bent

B. linear

C. tetrahedral

D. plane triangular

Answer: A



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272. In H_2S , S atom is.....hybridized

A. sp

B. sp^2

C. sp^3

D. dsp^2

Answer: C



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273. Sulphur molecule is

A. diatomic

B. tetratomic

C. octatomic

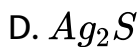
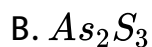
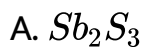
D. None of the above

Answer: C



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274. The sulphide, which is orange red is



Answer: A



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275. The most stable form of sulphur at room temperature is

A. monoclinic sulphur

B. rhombic sulphur

C. plastic sulphur

D. milk of sulphur

Answer: B

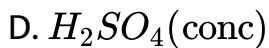
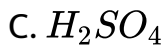
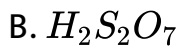


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276. The final acid obtained during the manufacturing of

H_2SO_4 by contact process is

A. $H_2S_2O_3$



Answer: B



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277. Sulphur is extracted from underground sulphur-bearing rocks by

A. Frasch process

B. Contact process

C. Spring's process

D. none of the above

Answer: A



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278. Pick out the ideal conditions needed for the manufacture of H_2SO_4 by contact process.

- A. Low temperature, high pressure and high concentration of reactants
- B. Low temperature, low concentration of reactants and low pressure
- C. High temperature, high pressure and high concentration of reactants

D. Low temperature, low pressure and high concentration of reactants.

Answer: A

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279. Ozone is an important constituent of stratosphere because it

A. prevents the formation of smog over large cities

B. remove poisonous gases of the atmosphere by reacting with them

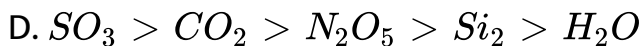
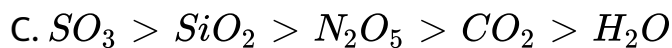
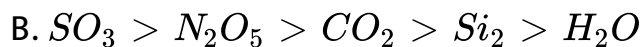
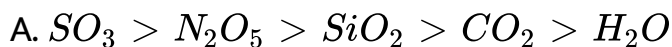
C. absorbs ultraviolet radiation, which is harmful to human life

D. destroys bacteria, which are harmful to human

Answer: C

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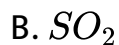
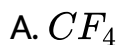
280. Arrange the acidic tendencies of the following non-metallic oxides in decreasing order



Answer: B

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281. Which of the following gases reacts with NaOH solution?



Answer: B



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282. Which one of the properties is not shown by H_2SO_4 ?

A. An acid

- B. An oxidizing agent
- C. As a dehydrating agent
- D. As a reducing agent

Answer: D



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283. In the reaction, $2H_2S + SO_2 \rightarrow 3S + 2H_2O$, H_2S is

- A. Reducing agent
- B. oxidizing agent
- C. precipitating agent
- D. an acid

Answer: A



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284. Sulphur is readily soluble in

A. water

B. alcohol

C. ether

D. CS_2

Answer: D



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285. On reacting with halogens, H_2S is

- A. oxidized
- B. reduced
- C. neutralized
- D. converted into sulphur halide

Answer: A



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286. O_3 is soluble in

- A. water
- B. CS_2
- C. turpentine oil
- D. ammonia

Answer: C



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287. O_3 is oxidising agent

A. oxidising agent

B. reducing agent

C. both (A) and (B)

D. none of these

Answer: A



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288. The O-O bond length in O_3 is equal to that of

- A. single bond
- B. double bond
- C. between single and double bond
- D. between double and triple bond

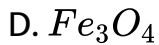
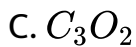
Answer: C



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289. Which of the following is a suboxide ?

- A. CsO_2
- B. MnO_2



Answer: C

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290. Which one of the following elements has highest ability for catenation ?

A. O

B. S

C. Se

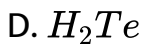
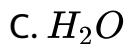
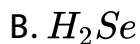
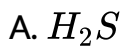
D. Te

Answer: B



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291. Which is the strongest acid ?

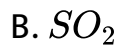
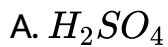


Answer: D



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



Answer: B



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293. Ozone (O_3) and oxygen gas (O_2) are examples of

A. isotopes

B. allotropes

C. antelopes

D. amphoterism

Answer: B



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294. The presence of ozone (O_3) in the upper atmosphere is important, because

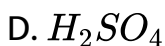
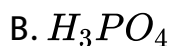
- A. O_3 absorbs outgoing radiation from the earth's surface, thus helping to keep the earth warm
- B. O_2 absorbs harmful solar radiation
- C. O_3 dissolves in water droplets and is very reactive
- D. O_3 is a major reactant in photosynthesis

Answer: B



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295. Which of the following industrial chemicals is produced in the greatest amount annually ?



Answer: D



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296. About half of H_2SO_4 produced in world is used to

A. Manufacture of soap

B. Manufacture of plastics

C. Manufacture of paints

D. Manufacture of fertilizers

Answer: D



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297. H_2O_2 can be used

A. both an oxidizing and as a reducing agent

B. only as an oxidizing agent

C. only as a reducing agent

D. neither as an oxidizing agent nor as a reducing agent

Answer: A



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298. Oleum is formed when conc. H_2SO_4

A. reacts with SO_2

B. reacts with SO_3

C. is refluxed

D. is heated with elemental sulphur

Answer: B



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299. The molecular formula of sulphur is

A. S_4

B. S_6

C. S_8

D. S_{12}

Answer: C



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300. The shape of SO_4^{2-} is

A. square planar

B. trigonal pyramidal

C. tetrahedral

D. hexagonal

Answer: C



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301. A boy accidentally splashes a few drops of *conc. H_2SO_4* on his cotton shirt and splashed part blackens and holes appears.

This is because the sulphuric acid

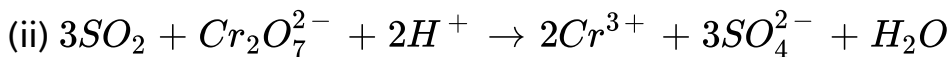
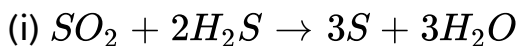
- A. heats up the cotton so that it burns
- B. dehydrates the cotton
- C. causes cotton to react with oxygen of the air
- D. removes the elements of water from cotton.

Answer: D



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302. In this reaction SO_2 is



- A. oxidizing agent both in (i) and (ii)
- B. oxidizing agent in (i) and reducing agent in (ii)
- C. reducing agent both in (i) and (ii)
- D. reducing agent in (i) and oxidizing agent in (ii)

Answer: B



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303. When SO_2 is passed through acidified $K_2Cr_2O_7$ solution

- A. the solution turns blue

B. the solution is decolorized

C. SO_2 is reduced

D. green $Cr_2(SO_4)_3$ is formed

Answer: D



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304. $FeCl_2$ reacts with SO_2

A. to give FeS

B. to give FeO

C. Fe will be oxidized

D. Fe will be reduced

Answer: C



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305. Sulphuric acid has great affinity for water because it

- A. it hydrolyses the acid
- B. it decomposes the acid
- C. acid forms hydrates with water
- D. acid decomposes water

Answer: C



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306. Conc, H_2SO_4 is added to the following compounds, Mark the compound which will give CO_2 .

- A. Formic acid
- B. Sugar
- C. Oxalic acid
- D. Ethyl alcohol

Answer: C



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307. Oxygen is denser than air, so it is collected over

- A. water
- B. spirit
- C. mercury
- D. kerosene

Answer: A



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308. Ozone belong to which group of the periodic table ?

A. 15

B. 16

C. 17

D. none

Answer: D



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309. Ozone with KI solution produces

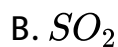


Answer: B



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310. A gas that cannot be collected over water is.



C. O_3

D. O_2

Answer: B

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311. Which of the following is oxidised by SO_2 ?

A. Mg

B. $K_2Cr_2O_7$

C. $KMnO_6$

D. All

Answer: A

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312. Sulphurous acid can be used as

- A. an oxidising agent
- B. a reducing agent
- C. a bleaching agent
- D. all of these

Answer: D



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313. Which of the following is cinnabar?

- A. $BaSO_4$

B. HgS

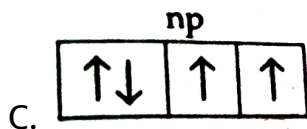
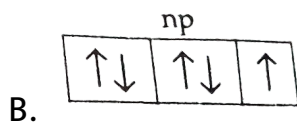
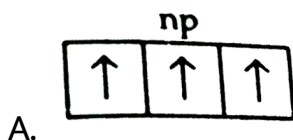
C. PbS

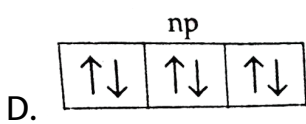
D. $CaSO_4 \cdot 2H_2O$

Answer: B

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314. Which is the valence shell electronic configuration 16^{th} group elements ?





Answer: C

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315. Which of the following is metalloid ?

A. O

B. S

C. Po

D. Te

Answer: D

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316. Which element has higher charge density?

A. O

B. S

C. Se

D. Po

Answer: A



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317. Electron gain energy is maximum in case of

A. O

B. S

C. Te

D. Se

Answer: B



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318. In 16th group element, which element does not show negative oxidation state ?

A. O

B. S

C. Po

D. Te

Answer: C



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319. Highest oxidation state of oxygen is

A. + 2

B. + 4

C. + 5

D. + 6

Answer: A



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320. Potassium nitrate on thermal decomposition gives

A. N_2

B. O_2

C. H_2

D. O_3

Answer: B



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321. When water is added to sodium peroxide we get

A. O_2 and $NaOH$

B. O_2 and N_2CO_3

C. O_2 and Na metal

D. O_3 and $NaOH$

Answer: A



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322. Oxygen form acidic oxide with

A. Ca

B. Na

C. S

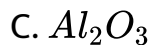
D. K

Answer: C



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323. Which of the following is acidic oxides ?

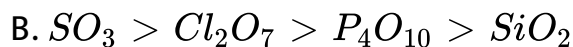
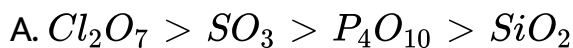


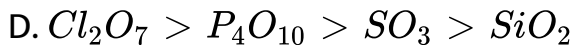
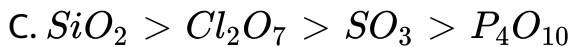
Answer: A



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324. Correct decreasing order of acidity of oxides is

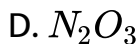
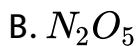
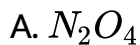




Answer: A

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325. Which of the following is neutral oxide?



Answer: C

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326. Oxidation state of oxygen in super oxide is

- A. 0
- B. 0.5
- C. 1
- D. 1.5

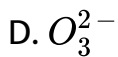
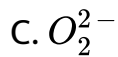
Answer: B



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327. Which of the following is peroxide ion?

- A. O_2^-



Answer: C



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328. Low content of oxygen than expected is found in

A. peroxide

B. superoxide

C. suboxide

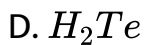
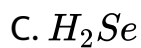
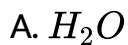
D. mixed oxide

Answer: C



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329. Minimum bond angle is found in which of the following hydride



Answer: D



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330. Ozone layer is depleted by aen

A. NO

B. NO_2

C. NO_3

D. N_2O_5

Answer: A



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331. Ozone oxidises PbS to

A. PbO

B. $PbSO_3$

C. $PbSO_4$

D. Pb

Answer: C



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332. Ozone shows reducing property with

A. PbS

B. KI

C. I^-

D. H_2O_2

Answer: D



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333. Shape of ozone molecule is

- A. V-shaped
- B. T-shaped
- C. Linear
- D. trigonal

Answer: A



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334. Naturally ozone is prepared from

- A. Oxygen by free radical mechanism
- B. Oxygen by cationic mechanism

C. Oxygen from anionic mechanism

D. None of these

Answer: A

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335. Bond present in O_2 molecule is

A. $p\pi - p\pi$

B. $p\pi - d\pi$

C. $d\pi - d\pi$

D. $d\pi - P\pi$

Answer: A

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336. Which of the following is amphoteric oxide

A. CO_2

B. Al_2O_3

C. N_2O

D. NO

Answer: B



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337. Mn_2O_7 is

A. acidic oxide

B. basic oxide

C. neutral oxide

D. amphoteric oxide

Answer: A



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338. Transition temperature between rhombic and monoclinic sulphur is

A. $26^{\circ}C$

B. $95.6^{\circ}C$

C. $70^{\circ}C$

D. $100^{\circ}C$

Answer: B



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339. S_8 molecule is present in

A. Rhombic sulphur

B. Milk of sulphur

C. Colloidal sulphur

D. Plastic sulphur

Answer: A



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340. β -sulphur is also known as

- A. prismatic sulphur
- B. rhombic sulphur
- C. plastic sulphur
- D. milk of sulphur

Answer: A



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341. In industry SO_2 , is prepared from

- A. Na_2SO_3
- B. $CuSO_4$

C. ZnS

D. burning sulphur in air

Answer: C

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342. SO_2 dissolve in water produces

A. H_2SO_4

B. H_2SO_3

C. SO_3

D. SO_4

Answer: B

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343. In aqueous medium behavior of SO_2 is similar to that of

A. SO_3

B. CO_2

C. NO_2

D. CS_2

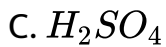
Answer: B



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344. Contact process is used to prepare Colloidal sulphur

A. SO_2

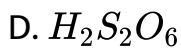
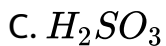
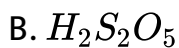
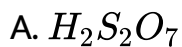


Answer: C



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345. Which one is oleum?

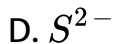


Answer: A



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346. In aqueous solution H_2SO_4 , ionise in two steps. In first steps it produces ?



Answer: C



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347. H_2SO_4 act as oxidising agent with

A. C

B. $C_6H_{12}O_6$

C. NaCl

D. NaOH

Answer: A



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348. Which of the following is not true for H_2SO_4 ?

A. low volatility

B. strong affinity with H_2O

C. act as oxidising agent

D. more volatility

Answer: D



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349. Hydrogen gas is liberated when dil. H_2SO_4 react with

A. Cu

B. Fe

C. C

D. S

Answer: B



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350. Chlorosulphuric acid is formed when H_2SO_4 react with

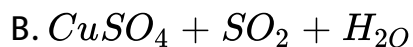


Answer: C



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351. Copper react with conc. H_2SO_4 to gives



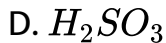


Answer: B



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352. Sulphur is oxidised by H_2SO_4 gives



Answer: A



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353. In angular structure of SO_2 , the sigma bond between S-O is formed by

A. $sp^3 - p$ overlapping

B. $sp^2 - p$ overlapping

C. $sp^3 - p$ overlapping

D. $sp^2 - s$ overlapping

Answer: B



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354. Which of the following is not true for structure of SO_2 ?

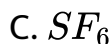
- A. It is a resonance hybrid of three resonating structures
- B. One π -bond arises from $p\pi - p\pi$ overlapping
- C. Other $\pi -$ bond arises from $p\pi - d\pi$ overlapping
- D. It is a resonance hybrid of two resonating structures.

Answer: A



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355. sp^3d – hybridization is possible in

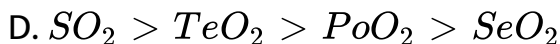
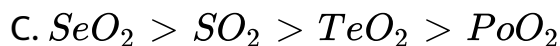
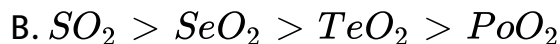
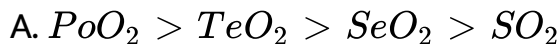


Answer: B



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356. Decreasing order of reducing property of dioxide of 16th group element is



Answer: B



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357. How many S-OH bonds are present in disulphuric acid?

A. 1

B. 2

C. 3

D. 4

Answer: B

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358. H_2SO_5 is

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359. In pyrosulphuric acid oxidation state of sulphur is

A. only +2

B. only +4

C. +2 and +6

D. only +6

Answer: B



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360. Which of the following is thiosulphurous acid?

A. H_2SO_3

B. $H_2S_2O_2$

C. $H_2S_2O_3$

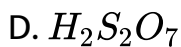
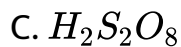
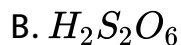
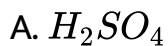
D. $H_2S_2O_6$

Answer: B



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361. S-O-O-S bond present in which of the following oxyacid is



Answer: C



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362. A polymer is resistant to heat and chemical attack and is also used for coating articles and cook wares to make them non-sticky. The monomer of this polymer is

A. monochlorotrifluoroethylene

B. tetrafluoroethylene

C. chloroprene

D. vinyl chloride

Answer: B



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363. Which one of halogen oxidizes water to oxygen with large evolution of heat?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: A



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

A. Fr

B. Ra

C. Po

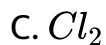
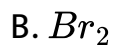
D. Al

Answer: D



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365. Which of the following is the strongest oxidant?



Answer: A



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366. Which of the following is a false statement ?

- A. Halogens are strong oxidizing agent
- B. Halogens show only -1 oxidation state
- C. HF molecules form intermolecular H-bonds
- D. Fluorine is highly reactive

Answer: B



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367. The highest electron affinity is shown by

- A. F_2
- B. Br_2

C. Cl_2

D. I_2

Answer: B

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368. Which of the halogens has lowest bond energy?

A. F_2

B. Br_2

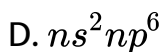
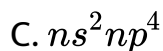
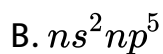
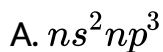
C. Cl_2

D. None of these

Answer: A

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369. The outermost electronic configuration of the most electronegative element is



Answer: C



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370. Which is the strongest reducing agent?

A. HF

B. HBr

C. HCl

D. HI

Answer: D



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371. Which of the following is a pseudohalide?

A. I_2^-

B. ICl

C. IF_7

D. CN^-

Answer: D



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372. Which has the highest heat of vaporisation?

A. HF

B. HBr

C. HCl

D. HI

Answer: A



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373. Which of the following compounds has highest boiling point ?

A. HI

B. HCl

C. HBr

D. HF

Answer: D



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374. Which of the following has the maximum ionic character ?

A. HF

B. HBR

C. HCl

D. HI

Answer: A



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375. The $3\text{ClO}^- (\text{aq.}) \rightarrow \text{ClO}_3^- (\text{aq.}) + 2\text{Cl}^- (\text{aq.})$ is an example of

A. oxidation reaction

B. disproportionation

C. reduction reaction

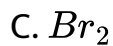
D. decomposition

Answer: C



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376. Which of the following does not form polyhalide ?

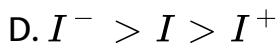
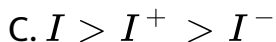
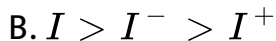
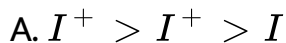


Answer: D



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377. Size of the iodine species following the order:



Answer: D



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

A. Heat of dissociation

B. Electron affinity

C. Ionization potential

D. Heat of hydration

Answer: C



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379. Which of following does not act as oxidizing agent ?

A. Br_2

B. Cl_2

C. Cl^-

D. F_2

Answer: B



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380. In the following reaction oxidation state of fluorine changes to $2F_2 + H_2O \rightarrow 4HF + O_2$

A. 0 to -01

B. 0 to +1

C. -1 to 0

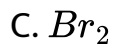
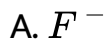
D. +1 to 0

Answer: A



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381. Which is the best reducing agent ?

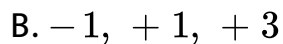
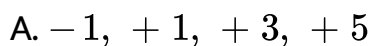


Answer: D



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382. Bromine can exhibit the following oxidation states.

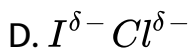
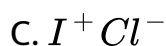
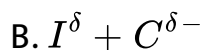


Answer: A



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383. Charge distribution in iodine monochloride is best represented as



Answer: C



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

A. Fluorine

B. Bromine

C. Chlorine

D. Iodine

Answer: A



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385. Which of the following is the strongest oxidant?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: A



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

A. heat of dissociation

B. electron affinity

C. ionization potential

D. heat of hydration

Answer: C



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387. Which of the following is a false statement ?

- A. Halogens are strong oxidizing agent
- B. Halogens show only (-I) oxidation state
- C. HF molecules form intermolecular H-bonds
- D. Fluorine is highly reactive

Answer: B



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

A. dry air

B. moisture

C. sunlight

D. pure oxygen

Answer: B



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389. Pick out the incorrect statement regarding halogens

A. Chlorine is hydrolysed by water to form hydrochloric acid
and hypochlorous acid

B. Bromine and iodine react with NaOH solution to form
halide and halate ion

C. Chlorine reacts with cold dilute NaOH solution to give sodium chloride and sodium chlorate

D. Iodine forms a deep blue colour with starch solution.\

Answer: C



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390. Which one of the following has the highest electron affinity?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: B



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391. Pick out the incorrect statement regarding hydrogen halides.

- A. Hydrogen chloride can be prepared by the reaction of NaCl with conc. H_2SO_4
- B. Reactions of respective ionic halides, i.e., NaBr and KI with conc. H_2SO_4 are employed to produce HBr and HI
- C. Hydrogen halides (X=Cl, Br, I) are prepared by action of phosphorus trihalides with water.

D. A solution of hydrogen chlorides in toluene does affect blue litmus paper.

Answer: B

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392. The halide which is inert to water is

A. F_2

B. Cl_2

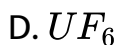
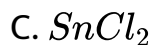
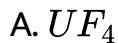
C. Br_2

D. I_2

Answer: D

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393. Which of the following is not an ionic halide ?



Answer: D



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394. Which of the following does not liberate Br_2 from KBr ?



B. Cl_2

C. Conc. H_2SO_4

D. F_2

Answer: A



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395. On heating NaX with H_2SO_4 and MnO_2 the halogen that cannot be prepared is

A. I_2

B. F_2

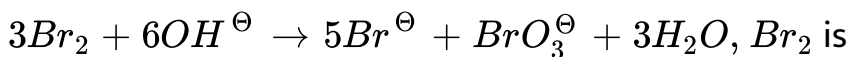
C. Cl_2

D. Br_2

Answer: B

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396. In the reaction:



- A. is reduced
- B. is oxidized
- C. disproportionates
- D. disintegrate

Answer: C

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397. The reaction: $ClO_3^- + I_2 \rightarrow IO_3^- + Cl_2$

- A. is possible
- B. depends upon the state of products
- C. is not possible
- D. depends upon the temperature

Answer: A



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398. The reaction $2KI + Cl_2 \rightarrow 2KCl + I_2$

- A. is possible
- B. depends upon the state of products
- C. is not possible

D. depends upon the temperature

Answer: A



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399. Consider the following substances :

1. OF_2 2. Cl_2O 3. Br_2O

The correct sequence X - O - X bond angle is

A. $1 > 2 > 3$

B. $2 > 1 > 3$

C. $1 > 3 > 2$

D. $3 > 2 >$

Answer: D

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400. The species which undergo disproportionation in alkaline medium is/are

1. Cl_2 2. MnO_4^- 3. NO_2 4. ClO_4^-

The correct statement is/ are

A. Cl_2

B. MnO_4^-

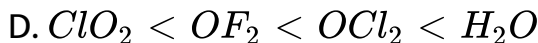
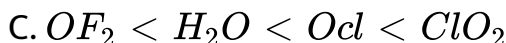
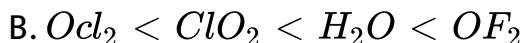
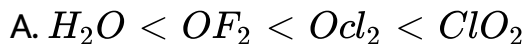
C. NO_2

D. ClO_4^-

Answer: C

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



Answer: C

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402. Pick out the incorrect statement for ClO_3

A. ClO_2 is a powerful oxidizing and chlorinating agent and is prepared in the laboratory from $NaClO_3$ and oxalic

acid.

B. ClO_2 , is used to manufacture $NaClO_2$, which is also used for bleaching textiles and paper.

C. ClO_2 combines with O_3 to form dichlorine hexoxide, a dark red liquid.

D. ClO_2 contains an odd number of electrons and therefore, it dimerizes like NO_2

Answer: D



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403. Pick out the incorrect statement.

A. I_2O_5 is formed by heating HIO_3 , to $170^\circ C$

B. I_2O_5 is stable to heat

C. I_2O_5 is used in the estimation of CO

D. I_2 combines with O_3 to form I_4O_9 . When heated above $75^\circ C$, it (I_4O_9) decomposes to form IOs

Answer: B



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404. Which one of the following halogens forms only one acid?

A. Br_2

B. Cl_2

C. F_2

D. I_2

Answer: C



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405. The following acids have been arranged in the order of decreasing acid strength. Identify the correct order.

$HClO(I)$, $HClO_2(II)$, $HClO_3(III)$, $HClO_4(IV)$

A. $I > II > III$

B. $II > I > III$

C. $III > II > I$

D. $I > III > II$

Answer: A



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406. The following oxo acids have been arranged in the order decreasing acid strength. Identify the correct order.

$\text{ClOH}(I)$, $\text{BrOH}(II)$, $\text{IOH}(III)$

A. $III > IV > II > I$

B. $III > II > I > IV$

C. $I > II > III > IV$

D. $IV > III > II > I$

Answer: D



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407. Which of the following oxo acids of chlorine is the best oxidising agent?

A. HClO

B. HClO_2

C. HClO_3

D. HClO_4

Answer: A



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

A. HCl

B. HBr

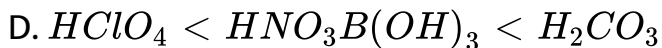
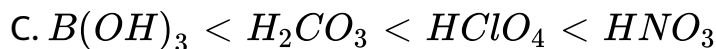
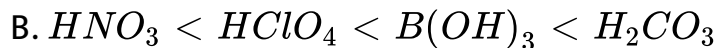
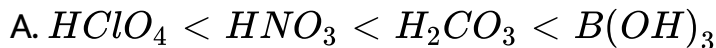
C. HOCl

D. HI

Answer: A

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



Answer: D

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410. Which one is most stable to heat ?

A. HClO

B. HClO_2

C. HClO_3

D. HClO_4

Answer: D



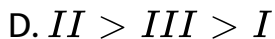
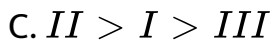
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411. Consider the following perchlorate ions in acidic medium

ClO_4^- (I), BrO_4^- (II), IO_4^- (III)

Arrange these in the decreasing order of oxidizing power

A. $I > II > III$

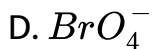
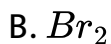


Answer: D



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412. The reaction of BrO_3^- and F_2 in alkaline medium forms

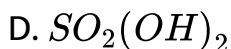
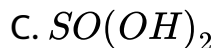
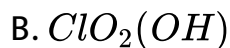
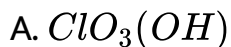


Answer: D



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413. Which of following in the strongest acid ?



Answer: A



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414. When chlorine Water is added to a solution of the solution immediately turns orange red, because

- A. chlorine is reduced to chloride ion
- B. of the formation of BrCl
- C. bromide ion is oxidized to bromine
- D. of the formation of Br_3^-

Answer: B



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415. Pick out the incorrect statement for ClF_3^-

- A. It has trigonal planar geometry
- B. It is used to make gaseous UF_6 , which is useful in making enriched U-235 fuel

C. It is used as powerful fluorinating agent for inorganic compounds

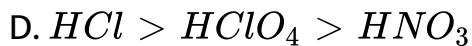
D. ClF_3 has been used as fuel in short range rockets reacting with hydrazine.

Answer: A

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416. $HClO_4$, HNO_3 and HCl are all strong acids in aqueous solution. In glacial acetic acid medium, their acid strength is such that-

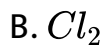




Answer: A

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417. Which of the following halogen exist in solid state?



Answer: D

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418. Halogen molecules are

- A. diatomic and form
- B. diatomic and form X ions
- C. monoatomic and form X-
- D. monoatomic and form X, ions

Answer: B



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419. The main source of bromine is

- A. silver bromide ore

B. sea-water

C. the Frasch process

D. phosphate rock

Answer: B



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420. Which one of the following elements has not been observed to form any compounds ?

A. He

B. Ne

C. Ar

D. All of the above

Answer: D



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421. Chlorine gas is prepared commercially by

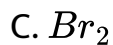
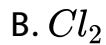
- A. electrolysis of carbon tetrachloride
- B. oxidation of chloride ions with $F_2(g)$
- C. electrolysis of $NaCl(aq)$
- D. oxidation of chloride ions with $Br_2(aq)$

Answer: C



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422. Which can be purified by sublimation ?

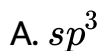
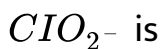


Answer: D



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423. The type of hybrid orbitals used by the chlorine atom in



B. sp^2

C. sp

D. none of these

Answer: A



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424. Which would have trigonal planar shape ?

A. CH_3

B. ClO_2^+

C. H_3O^+

D. ClO_3^-

Answer: A



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425. Halogen are coloured, because

- A. they are strong oxidant.
- B. their molecules are held together by weak vander Waals forces
- C. their atoms absorb radiations from visible range causing the excitation of valence electrons to higher energy levels.
- D. their molecules absorb light radiation forming the excited states.

Answer: D





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426. Fluorine does not exhibit variable oxidation states due to

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

Answer: D



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

- A. bromine

B. mercury

C. gallium

D. all of these

Answer: D



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

A. $N_2 < O_2 < F_2 < Cl_2$

B. $F_2 < Cl_2 < O_2 < N_2$

C. $F_2 < Cl_2 < N_2 < O_2$

D. $N_2 < Cl_2 < F_2 < O_2$

Answer: B



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429. Hydrogen bonding is strongest in

A. O-H.....S

B. S-H.....O

C. F-H.....F

D. F-H.....O

Answer: C



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430. Of the following elements, the one with maximum electropositive character is



Answer: C



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431. Of the following element, the one showing only one oxidation state is



B. F_2

C. Cl_2

D. Br_2

Answer: B



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432. In case of halogens strong oxidising character is favoured by their

A. low dissociation energy

B. low electron affinity

C. low hydration energy of X^-

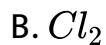
D. low ionization potential

Answer: A



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433. Which one of the following has highest bond energy

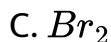


Answer: B



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434. Which one of the following has highest enthalpy of hydration?

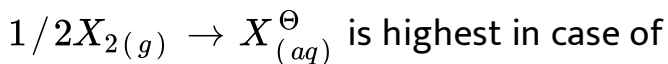


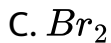
Answer: A



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435. The sum of energy term involved in the reaction:



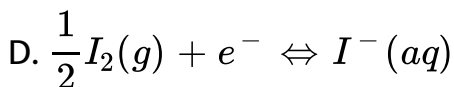
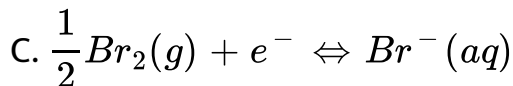
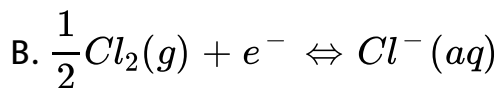
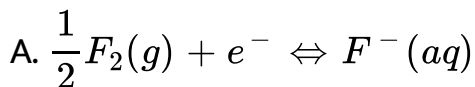


Answer: A



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436. Standard electrode potential is highest for



Answer: A



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437. Similarity of fluorine and oxygen may not be attributed to

- A. their atomic and ionic radii are closely similar
- B. the atoms of both elements are restricted to an octet of electrons in their valence shell
- C. both of them are highly electronegative elements
- D. both form stable pr-pa multiple bonds with themselves

Answer: A



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438. Which one of the following the correct statement?

- A. Bleaching powder is a source of chlorine
- B. Bleaching powder is used to change hard water to soft water
- C. Bleaching powder is obtained by treating calcium carbonate with chlorine
- D. Bleaching powder is green in colour Halogen prepared from sea-weeds is

Answer: A

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439. Halogen prepared from sea-weeds is

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: D



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440. In the reaction $I_2 + 2OH^\ominus \rightarrow I^\ominus + IO^\ominus + H_2OI_2$ is



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441. When conc. HCl is mixed with conc. HNO_3 , the species produced are

A. NO_2 , Cl_2 and H_2O

B. NO , Cl_2 and H_2O

C. $NOCl$, Cl_2 and H_2O

D. NO_2 and $HOCl$

Answer: C



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442. The common oxidation states shown by halogens are

A. +1, +3, +5, +7

B. +1, +2, +4, +6

C. +1, +2, +3, +4

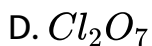
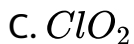
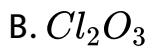
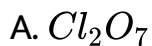
D. +1, +3, +4, +6

Answer: A



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443. Which one of the following is the anhydride of HClO?

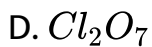
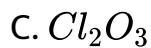
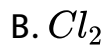
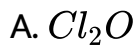


Answer: D



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444. The oxide of chlorine which is a mixed anhydride is

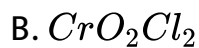


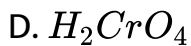
Answer: C



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445. The reddish-brown gas escaping on heating a chloride and $K_2Cr_2O_7$ mixture with conc. H_2SO_4



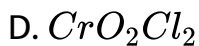
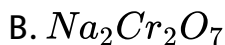
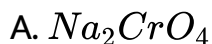


Answer: B



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446. When the vapours of chromyl chloride are passed through NaOH solution, it turns yellow. This is due to the formation of



Answer: A



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

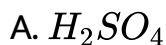
- A. I_2 solution
- B. chlorine-water
- C. sodium chloride
- D. potassium iodide

Answer: B



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



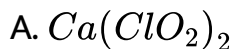
D. none of these

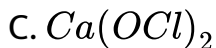
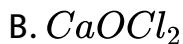
Answer: D



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





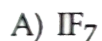
Answer: B



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450. Match the list I with list II and select the correct answer using the codes given below the lists.

List I
(Species)



List II
(Geometry)

1. Octahedral

2. Pentagonal-bipyramidal

3. T-shaped

4. Linear

5. Square pyramidal

A. *a* *b* *c* *d*
a 2 3 4 1

- B. $\begin{matrix} a & b & c & d \\ b & 3 & 2 & 4 & 5 \end{matrix}$
- C. $\begin{matrix} a & b & c & d \\ c & 2 & 3 & 4 & 5 \end{matrix}$
- D. $\begin{matrix} a & b & c & d \\ d & 2 & 3 & 5 & 4 \end{matrix}$

Answer: C



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451. When Cl_2 is passed through hot and concentrated solution of KOH, the following compound is formed.

- A. $KClO$
- B. $KClO_3$
- C. $KClO_3$
- D. $KClO_4$

Answer: B



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452. One of the products of a reaction between solid $KMnO_4$ and conc. HCl is

- A. a red liquid
- B. a greenish yellow gas
- C. MnO_2
- D. $HClO_4$

Answer: B



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453. Arrange the following acids :

1. H_2SO_3 , 2. H_3PO_3 . 3. $HClO_3$

In the increasing order of acid strength

A. $1 > 2 > 3$

B. $1 > 3 > 2$

C. $3 > 2 > 1$

D. $2 > 3 > 1$

Answer: C



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454. Ozonized oxygen can be prepared by the reaction of H_2O with

A. *conc.* H_2SO_4

B. $KMnO_4$

C. K_2MnO_4

D. F_2

Answer: D



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455. The type of hybrid orbitals used by the chlorine atom in

ClO_2^- is

A. sp

B. sp^2

C. sp^3

D. none of these

Answer: C

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456. The type of hybrid orbitals used by OF_2 is

A. dsp^2

B. sp^3

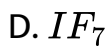
C. sp^2

D. sp

Answer: B

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457. Which one of the following is planar?

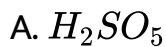


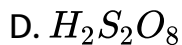
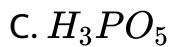
Answer: A



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458. The compound, which does not contain a peroxy linkage is

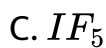




Answer: B

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459. Which of the following is not known ?



Answer: B

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460. The structure of IF_7 is

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

Answer: A



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461. The structure of Cl_2O is

- A. pentagonal bipyramidal

B. square planar

C. T-shaped

D. trigonal planar

Answer: D



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462. The structure of ClF_3 is

A. trigonal bipyramidal

B. square planar

C. T-shaped

D. trigonal planar

Answer: C



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463. The radioactive halogen among the following is

A. Fluorine

B. Bromine

C. Iodine

D. Astatine

Answer: D



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464. Pure HF does not attack

A. glass

B. SiF_4

C. SiO_2

D. polythene

Answer: D



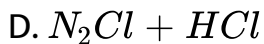
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465. The compounds formed when excess of Cl_2 , reacts with NH_3 are

A. $NCl_3 + N_2$

B. $NH_4Cl + N_2$

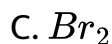
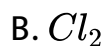
C. $NCl_3 + HCl$



Answer: C

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466. mark the element which displaces three halogens from their compounds



Answer: A

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467. In the disproportionation reaction of Cl_2 with caustic soda, the main reaction products are

A. $NaClO$ and $NaClO_3$

B. $NaCl$ and $NaClO_3$

C. $NaCl$ and $NaClO_2$

D. $NaCl$ and $NaClO$

Answer: B



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468. Which of the following is liberated when cold HCl is treated with $KMnO_4$?

A. H_2

B. Cl_2

C. H_2O

D. O_2

Answer: B



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469. Which of the following is not react with sulphur

A. F_2

B. Cl_2

C. Br_2

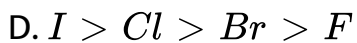
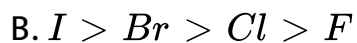
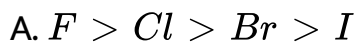
D. I_2

Answer: D



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470. Decreasing order of halogen to form oxide is

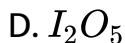
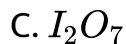
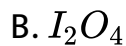
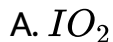


Answer: B



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471. Which of following oxide is used for estimation of carbon monoxide?

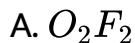


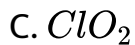
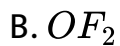
Answer: D



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472. Which of the following oxide is good oxidising agent?





Answer: B



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473. Geometry of IF_5 is

A. linear

B. trigonal planar

C. Bent T-shaped

D. Square pyramidal

Answer: D



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474. Periodic acid is formed by hydrolysis of

A. ICl

B. IP_3

C. IF_5

D. IF_7

Answer: D



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475. The formula of mustard gas

A. Cl_3 . NO

B. $(\text{Cl. C}_2\text{H}_4)_2\text{S}$

C. Cl_2 . F_2

D. COCl_2

Answer: B



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476. Which of the following is correct about interhalogen compounds?

A. These are paramagnetic

B. These are ionic in nature

C. On hydrolysis, less electronegative atom form HX

D. on hydrolysis, more electronegative atom form HX

Answer: D

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477. Cold dilute NaOH react with Cl_2 gives

A. $NaOCl$

B. $NaClO_3$

C. Na_2O_2

D. NaO

Answer: A

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478. The most stable oxyacid of chlorine is



Answer: D



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479. Which oxyacid is possible in fluorine?



C. HOF

D. HO_3F

Answer: C



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480. In known interhalogen compounds maximum number of halogen atoms are

A. 6

B. 7

C. 8

D. 9

Answer: C



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481. Which of the following has tetrahedral geometry?

A. HOBr

B. $HClO_2$

C. $HBrO_3$

D. HIO_4

Answer: D



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482. The property of halogen is not correctly matched

A. $F > Cl > Br > I \rightarrow$ Electron affinity

B. $I > Br > Cl > F \rightarrow$ Density in liquid state

C. $Cl_2 > Br_2 > F_2 > I_2 \rightarrow$ Bond dissociation energy

D. $F > Cl > Br > I \rightarrow$ Ionisation energy

Answer: A



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483. The number of lone pair of electrons in central atom of ClF_5

A. 0

B. 1

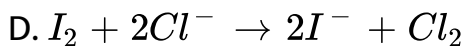
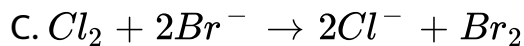
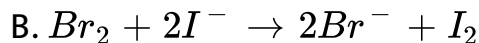
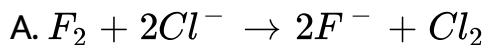
C. 2

D. 3

Answer: B

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484. Which of the following reaction does not occur ?



Answer: D

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485. Which of the following statement is correct ?

- A. All halogen forms oxyacids
- B. Only chlorine and bromine form oxyacids
- C. Only iodine form oxyacids
- D. Only fluorine form oxyacids

Answer: A



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486. Which of the following is more acidic oxyacid ?

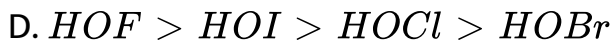
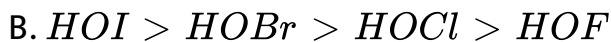
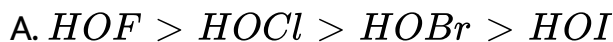
- A. $HClO_4$
- B. $HClO$



Answer: A

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487. The decreasing acidic character of oxyacid is



Answer: A

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488. In perhalic acid oxidation state of halogen is

A. + 3

B. + 5

C. + 6

D. + 7

Answer: D



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489. In which of the following oxyacid halogen atom has + 3 oxidation state



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490. Which of the following has strong oxidising property?

A. HBrO

B. HBrO_2

C. HBrO_3

D. HBrO_4

Answer: A



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491. Paramagnetic oxide of chlorine is

A. ClO_4

B. ClO_3

C. $ClOC$

D. Cl_2O_7

Answer: B



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492. $NaClO_3$ is obtained by reacting Cl_2 and

A. cold dil. NaOH

B. hot conc. NaOH

C. cold Na_2O_2

D. hot Na_2O_2

Answer: B



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493. The property of HX is not properly matched

A. $HF > HCl > HBr > HI \rightarrow$ Thermal stability

B. $HF > HCl > HBr > HI \rightarrow$ acidic nature

C. $HF > HI > HBr > HCl \rightarrow$ Boiling point

D. $HI > HBr > HCl > HF \rightarrow$ Reducing property

Answer: B



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494. Which of the following has highest thermal stability?



Answer: C



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495. The most abundant noble gas in the atmosphere is

A. He

B. Ne

C. Ar

D. Xe

Answer: C



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

A. Kr

B. Ar

C. Rn

D. Xe

Answer: C



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497. Noble gases are sparingly soluble in water, owing to

- A. dipole-dipole interactions
- B. dipole-induced dipole interactions
- C. hydrogen bonding
- D. induced dipole-instantaneous dipole interactions.

Answer: B



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498. Pick out incorrect statements about noble gases.

- A. Ar' is used in metallurgical processes
- B. He' is used in cryoscopy to obtain the very low temperatures required for superconductivity and lasers

C. He' is used in weather balloons and airships

D. He' cannot be used in preference to nitrogen (N_2) to dilute the oxygen in the gas cylinders used by divers.

Answer: D



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499. The increase in boiling points of noble gases from He to Xe is due to the

A. decreases in ionization energy

B. increases in polarizability

C. increase in electron affinity

D. increase in atomic volume.

Answer: B



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

- A. Their ionization energy are very high
- B. Their electron affinities are nearly zero
- C. They do not form any chemical compounds
- D. They are not easily liquefied.

Answer: C



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501. The statement, which prompted Neil Bartlett to prepare the first noble gas compound was

- A. Xe-F bond has high bond energy
- B. F_2 has exceptionally low bond energy
- C. PtF_6 is a strong oxidant
- D. O_2 molecule and Xe atom have very similar ionization energies.

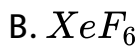
Answer: D



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502. Which of the following is not known ?

- A. KrF_6



Answer: A



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503. Xenon best react with

A. the most electropositive elements

B. the most electronegative elements

C. the hydrogen halides

D. nonmetals

Answer: B



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504. Which one of the following is not correct ?

- A. Ar is used in electric bulbs
- B. Kr is obtained during radioactive decay
- C. Boiling point of He is lowest among all noble gases
- D. Xe forms $XeOF_4$

Answer: D



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505. Which is incorrect statement for XeF_2 ?

A. It has linear structure

B. It is hydrolysed rapidly in aqueous solution of a base

C. It oxidizes Cl^- and I^- to Cl_2 and I_2 respectively

D. It cannot act as F^- donor.

Answer: D



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506. Which one of the following is not formed when an electric discharge passes through helium ?

A. HeH^+

B. HeH^{2+}

C. He_2^+

D. He_2

Answer: C

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507. Pick out the incorrect statement for XeF_4 .

- A. XeF_4 disproportionate violently with water
- B. It is used as fluorinating agent
- C. It has octahedral structure (or geometry)
- D. It oxidizes I^- to I_2

Answer: D

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508. Pick out the incorrect statement for XeF_6

- A. XeF_6 is hydrolysed partially to form $XeOF_4$
- B. It reacts with SiO_2 to form $XEOF_4$
- C. On complete hydrolysis, it forms XeO_3
- D. It acts as F acceptor when treated with alkali metal fluoride, but cannot act as F donor to form complexes.

Answer: A



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509. Which noble gas has the lowest boiling point ?

- A. He

B. Ne

C. Ar

D. Kr

Answer: D



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510. The hydrolysis of XeF_4 at room temperature gives

A. XeO_3

B. Xe

C. XeOF_2

D. both XeO_3 and Xe

Answer: C



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511. Xe reacts directly with

A. O_2

B. Cl_2

C. F_2

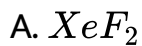
D. Br_2

Answer: C



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512. In which of the following compounds, the oxidation state of xenon is not six ?



Answer: C



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513. The noble gas which is used to measure the thickness of plastic sheet is



D. Ar

Answer: D



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514. The noble gas which is least abundant is

A. Ar

B. Kr

C. Xe

D. Rn

Answer: D



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515. Which of the following statements is false ?

A. Radon is obtained from the decay of radium

B. He_2 does not exist

C. Xenon is the most reactive among the rare gases

D. The most abundant rare gas found in the atmosphere is helium

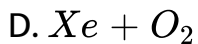
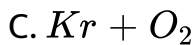
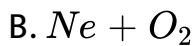
Answer: A



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516. Which mixture is used for respiration by deep sea divers?

A. $He + O_2$



Answer: A



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517. A monoatomic gas lighter than air is

A. helium

B. nitrogen

C. hydrogen

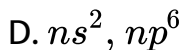
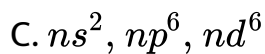
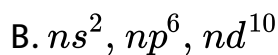
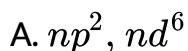
D. neon

Answer: D



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518. All the rare gases, except helium, have for their outermost shell, the general electronic configuration



Answer: A



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519. The rare gases are generally unreactive, because

- A. they have a very high ionisation energy
- B. they are monoatomic
- C. they form diatomic molecules easily
- D. they have high electron affinity

Answer: A

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520. Which of the following statements is incorrect ?

- A. Helium has the lowest boiling point among the elements
- B. Helium is obtained from the decay of radioactive elements
- C. Liquid helium has almost zero viscosity

D. Helium is a combustible gas

Answer: D

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521. The forces of cohesion in liquid helium are

A. covalent

B. ionic

C. none of these

D. vander Waals

Answer: C

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522. Which of the following statements is true ?

- A. Argon forms covalent compounds with fluorine
- B. Argon forms clathrate compounds with quinol?
- C. XeF_8 is formed by coordination between Xe and F_2
- D. XeF_4 has a tetrahedral structure

Answer: B



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523. Noble gases are

- A. monoatomic
- B. diatomic

C. triatomic

D. polyatomic

Answer: A

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524. The electronic configuration of krypton is

A. $[He]2s^22p^6$

B. $[Ne]3s^23p^6$

C. $1s^2$

D. $[Ar]3d^{10}4s^24p^6$

Answer: D

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525. The noble gas which used as a coling agent is

A. He

B. Ne

C. Rn

D. Xe

Answer: A



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526. The ratio of specific heat at constant pressure to specific heat at constant volume (*i. e.* C_p/C_V) for noble gases is

A. 1.66

B. 1.33

C. 1.42

D. 1.83

Answer: A



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527. Among noble gases (from He to Xe) only xenon reacts with fluorine to form stable fluorides because xenon :

A. has the largest size

B. has the lowest ionization energy

C. has highest heat of vaporization

D. is most readily available gas

Answer: B



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528. Which noble gas does not occur in atmosphere?

A. Rn

B. Kr

C. Ne

D. Ar

Answer: A



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529. Which of the following noble gases is used in miner's cap lamp ?

A. Xe

B. Rn

C. Kr

D. Ar

Answer: C



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530. The ease of liquefaction of noble gases increases in the order

A. $He > Ne > Ar > Kr > Xe$

B. $Xe > Kr > Ne > Ar > He$

C. $Kr > Xe > He > Ne > Ar$

D. $Ar > Kr > Xe > Ne > He$

Answer: A



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531. Which of the following statements about noble gases is false ?

- A. They are used to provide inert atmosphere in many chemical reactions
- B. They are sparingly soluble in water
- C. They form diatomic molecule

D. Some of them are used to fill discharge tubes for advertising signs

Answer: C



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532. Noble gases are used in discharge tubes to give different colours. The gas in Beacon lights for pilots used is?

A. Ar

B. Ne

C. Xe

D. Kr

Answer: B



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533. First ever compound of a noble gas was prepared by

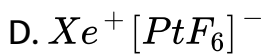
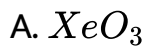
- A. Neil Bartlett
- B. Ramsay
- C. Cavandish
- D. Faraday

Answer: A



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534. The first noble gas compound was

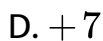
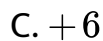
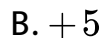
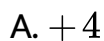


Answer: D



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535. The oxidation state of Pt in $Xe^+ [PtF_6]^-$ is



Answer: B



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

A. helium

B. argon

C. radon

D. krypton

Answer: C



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537. Helium - oxygen mixture is used by deep sea divers in preference to nitrogen-oxygen mixture, because

- A. helium is much less soluble in blood than nitrogen
- B. nitrogen is much less soluble in blood than helium
- C. due to high pressure deep under the sea, nitrogen and oxygen react to give poisonous nitric oxide
- D. nitrogen is highly soluble in water

Answer: A

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538. What is the oxidation number of Xe in $XeOF_2$?

- A. 0

B. + 2

C. + 4

D. + 3

Answer: C



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539. Helium is used in weather balloons and airships instead of H_2 because it is

A. lighter than hydrogen

B. incombustible

C. more abundant than hydrogen

D. radioactive

Answer: B



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

A. helium

B. neon

C. argon

D. xenon

Answer: A



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541. Which of the following has highest ionization energy

A. Oxygen

B. Argon

C. Barium

D. Caesium

Answer: B



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542. The noble gas(s) which does not /do not form any clathrates is/are

A. He

B. Ne

C. Argon

D. both He and Ne

Answer: D



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543. The compound form when PtF_6 oxidised by oxygen d)
both He and Ne is

A. PtO_2

B. $O_2^+ PtF_6^-$

C. $Pt^+ F_4^-$

D. $PtOF_4$

Answer: B



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544. The gas which used in NMR is

A. He

B. Ne

C. Kr

D. Rn

Answer: A



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Competitive Exam

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

A.

$CO_2 < SiO_2 < SnO_2 < PbO_2$, increasing oxidising power

B. $HF < HCl < HBr < HI$ increasing acid strength

C.

$NH_3 < PH_3 < AsH_3 < SbH_3$ increasing basic strength

D. $B < C < O < N$ increasing first ionization enthalpy

Answer: C



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2. Each of the following is true for white and red phosphorus except that they

- A. Are both soluble in CS_2
- B. Can be oxidised by heating in air
- C. Consists of same kind of atoms
- D. Can be converted into one another

Answer: A



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3. Which of the following is not known

- A. NCl_5



Answer: A



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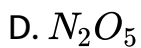
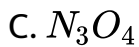
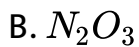
4. Which one of the following elements is most metallic?



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5. Which of the following oxides of nitrogen is the anhydride of HNO_3 ?





Answer: D



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6. Dissociation of H_3PO_4 occurs in following stages

A. 1

B. 2

C. 3

D. 4

Answer: C



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7. Nitrogen forms how many oxides

A. 3

B. 4

C. 5

D. 6

Answer: C



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8. The element which catches fire in air at $30^{\circ}C$ and is stored under water is

A. Calcium

B. Sodium

C. Phosphorus

D. Zinc

Answer: C



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9. A solution of ammonia in water contains

A. H^+

B. OH^-

C. Only NH_4^+

D. OH^- , NH_4^+ and NH_4OH molecules

Answer: D



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10. Which of the following is oxidised in air?

A. White phosphorus

B. CH_4

C. H_2O

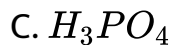
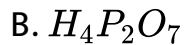
D. NaCl

Answer: A



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11. Which of the following exist in polymeric form ?



D. None of these

Answer: A



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12. Which nitrogen trihalides is least basic

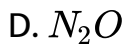
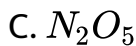
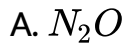




Answer: A

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13. Which of the following oxide of nitrogen is a coloured gas?



Answer: D

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14. Which oxide does not act as a reducing agent?

A. NO

B. NO_2

C. N_2O

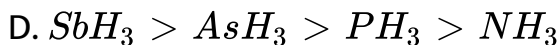
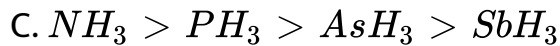
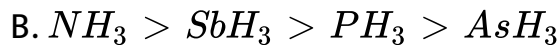
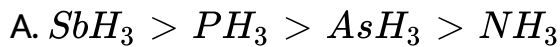
D. N_2O_5

Answer: D



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15. The basic character of hydrides of the 15th-group elements decreases in the order

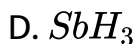


Answer: C



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16. The strongest base is

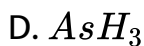
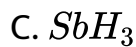


Answer: A



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17. Which has the lowest boiling point?

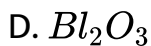
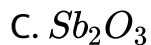
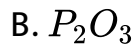
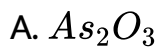


Answer: B



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18. Of the following, the most acidic is



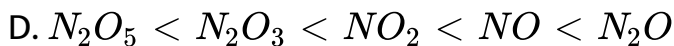
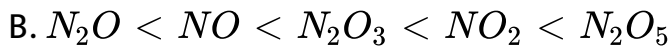
Answer: B



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19. The correct order of the acidic nature of oxides is in the order





Answer: B



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20. Nitrogen is relatively inactive element because its atom has a stable electronic configuration

A. Its atom has a stable electronic configuration

B. It has low atomic radius

C. Its electronegativity is fairly high

D. Dissociation energy of its molecule is fairly high

Answer: D



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21. Which statement is not correct for nitrogen?

- A. It has a small size
- B. It does not readily react with O_2
- C. It is a typical non-metal
- D. d-orbitals are available or bonding

Answer: D



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22. Which of the following statement is wrong?

- A. The stability of hydrides increase from NH_3 to BiH_3 in group 15 of the periodic table
- B. Nitrogen cannot form $d\pi - p\pi$ bond
- C. Single N - N bond is weaker than the single P-P bond
- D. N_2O_4 has two resonance structure

Answer: A



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23. Which of the following is not correct for N_2O ?

- A. It is called laughing gas

B. It is nitrous oxide

C. It is not a linear molecule

D. It is least reactive in all oxides of nitrogen

Answer: C



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24. 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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25. Which of the following phosphorus is most stable?

A. Red

B. White

C. Black

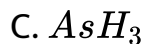
D. All stable

Answer: A



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26. The least stable hydride of 15th group elements is

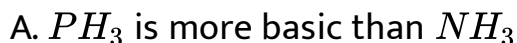


Answer: D



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27. With reference to protonic acids, which of the following statements is correct



B. PH_3 is less basic than NH_3

C. PH_3 is equally basic as NH_3

D. PH_3 is amphoteric while NH_3 is basic

Answer: B



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28. One of the acid listed below is formed $P_2O - (3)$ and the rest are formed from P_2O_5 . The acid formed from phosphorus (III) oxide is

A. HPO_3

B. $H_4P_2O_7$

C. H_3PO_4

D. H_3PO_3

Answer: D

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29. Hypophosphorus acid is

- A. A tribasic acid
- B. A dibasic acid
- C. A monobasic acid
- D. Not acidic at all

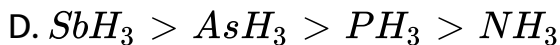
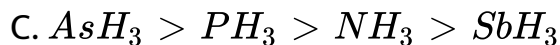
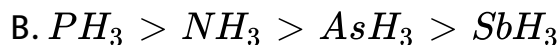
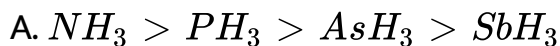
Answer: C

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30. The number of hydroxyl group in pyrophosphoric acid is

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31. Correct order of decreasing thermal stability is



Answer: A

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

- A. Calcium carbonate
- B. Calcium hydroxide
- C. Calcium oxide
- D. Calcium nitrate

Answer: A



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33. Which of the following has the highest proton affinity ?

- A. Stibine (SbH_3)

B. Arsine (AsH_3)

C. Phosphine (PH_3)

D. Ammonia (NH_3)

Answer: D



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34. Atoms in P_4 molecule of white phosphorus are arranged regularly in the following way :

A. At the corners of tetrahedraon

B. At the corners of a cube

C. At the corners of a four membered ring

D. At the centre and corners of an equilateral triangle

Answer: A



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35. In case of nitrogen, NCl_3 is possible but not NCl_5 while in case of phosphorous, PCl_3 as well as PCl_5 are possible.

It is due to

- A. Availability of vacant d-orbital in P but not in N
- B. Lower electronegativity of P than N
- C. Occurrence of P in solid while N in gaseous state at room temperature
- D. Occurrence of P in solid while N in gaseous state at room temperature

Answer: A



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36. Liquid ammonia is used to refrigeration because of its

- A. It has a high dipole moment
- B. It has a high heat of vaporisation
- C. It is basic
- D. It is a stable compound

Answer: B



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37. The decreasing values of bond angles from $NH_3(106^\circ)$ to $SbH_3(101^\circ)$ down the group 15 of the periodic table is due to :

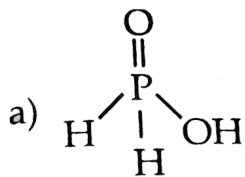
- A. Increasing Bp-Bp repulsion
- B. Increasing p-orbital character in sp^3
- C. Decreasing Lp-Bp repulsion
- D. Decreasing electronegativity

Answer: D

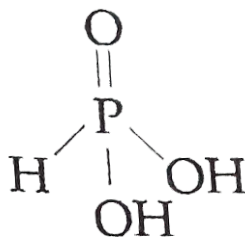


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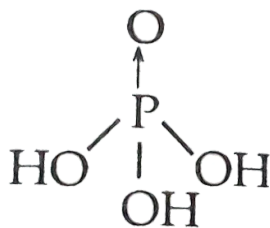
38. The structural formula of hypophosphorous acid is



A.



B.



C.

D. 

Answer: A

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39. Aquaregia is

A. 1:3 conc. HNO_3 and conc. HCl

B. 1:2 conc. HNO_3 and conc. HCl

C. 3:1 conc. HNO_3 and conc. HCl

D. 2:1 conc. HNO_3 and conc. HCl

Answer: A



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40. Which of the following set of properties belong to PCl_5 ?

A. sp^3 , tetrahedral, 4 valence shell pairs of electrons

B. sp^3d , trigonal bipyramidal, 5 valence shell pairs of
electrons

C. sp^3d^2 , square planar, 4 valence shell pairs of electrons

D. sp^3d , square planar, 4 valence shell pairs of electrons

Answer: B

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41. 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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42. $\text{CaC}_2 + \text{N}_2 \rightarrow A$, Product A is

A. CaCN_2

B. CaCN_2 and C

C. $\text{CaCN}_2 + \text{N}_2$

D. None of these

Answer: B



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43. In compounds of type ECI_3 , where $E = \text{BP, As or B}$, the angles $\text{CI} - E - \text{CI}$ for different E are in the order

A. $B > P = \text{As} = \text{Bi}$

B. $B > P > As > Bi$

C. $B < P = As = Bi$

D. $B < P < As < Bi$

Answer: B



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44. 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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45. Which of the following statement is not valid for oxoacids of phosphorus?

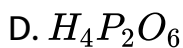
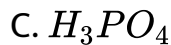
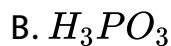
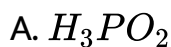
- A. Orthophosphoric acid is used in the manufacture of triple superphosphate
- B. Hypophosphorous acid is a diprotic acid
- C. All oxoacids contain tetrahedral four coordinated phosphorus

D. All oxoacids contain atleast one P=O unit and one P-OH group

Answer: B

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46. Which of the following oxyacids of phosphorus is a reducing agent and monobasic?



Answer: A



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

A. N

B. P

C. As

D. Sb

Answer: A



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48. The total number of P-O bonds in P_4O_{10} is

A. 17

B. 16

C. 15

D. 6

Answer: B



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49. Most acidic oxide is

A. Na_2O

B. ZnO

C. MgO

D. P_2O_5

Answer: D



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50. White phosphorus is

- A. A monoatomic gas
- B. P_4 a tetrahedral solid
- C. P_g a crown shape
- D. A linear diatomic molecule

Answer: B



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51. Sulphur molecule is converted into sulphur ion, when it

- A. gains two electrons
- B. loses two electrons
- C. gains two protons
- D. shares two electrons

Answer: A



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52. Industrial name for $H_2S_2O_7$ is

- A. Pyrosulphuric acid
- B. Marshall's acid

C.

D. All of the above

Answer: C



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53. The number of unpaired electrons in the p-subshell of oxygen atom

A. 1

B. 2

C. 3

D. 4

Answer: B



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54. Electron affinity is positive when

- A. O^- is formed from O
- B. O^{2-} is formed from O^-
- C. O^+ is formed from O
- D. O^{3-} is formed from O^-

Answer: B



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55. Which of the following is most electronegative?

A. O

B. S

C. Te

D. Se

Answer: A



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56. Which of the following statements regarding sulphur is incorrect?

A. S_2 molecule is paramagnetic

B. The vapour at $200^\circ C$ consists mostly of S₈ rings

C. At 600° the gas mainly consists of S_2 molecules

D. The oxidation state of sulphur is never less than +4 in its compounds

Answer: D

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57. Bond angle is minimum for

A. H_2O

B. H_2S

C. H_2Se

D. H_2Te

Answer: D

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58. Oxygen molecule exhibits

- A. Paramagnetism
- B. Diamagnetism
- C. Ferromagnetism
- D. Ferrimagnetism

Answer: A

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59. Ozone is obtained from oxygen

- A. by oxidation at high temperature

B. by oxidation using a catalyst

C. by silent electric discharge

D. by conversion at high pressure

Answer: C



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60. Ozone with K solution produces

A. Cl_2

B. I_2

C. HI

D. IO_3

Answer: B



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61. When H_2S is passed through acidified $KMnO_4$, we get

A. K_2SO_4

B. MnO_2

C. $KHSO_3$

D. Sulphur

Answer: D



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62. Copper turnings when heated with concentrated sulphuric acid will give

A. SO_2

B. SO_3

C. H_2S

D. O_2

Answer: A



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63. Which compounds acts as an oxidising as well as reducing agent?

A. SO_2

B. MgO_2

C. Al_2O_3

D. CrO_3

Answer: A

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64. A solution of sulphur dioxide in water reacts with H_2S precipitating sulphur. Here sulphur dioxide acts as

- A. an oxidising agent
- B. a reducing agent
- C. an acid
- D. a catalyst

Answer: A

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65. When SO_2 is passed through acidified $K_2Cr_2O_7$ solution

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

Answer: D



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66. Bleaching action of SO_2 is due to and is

- A. reduction

B. oxidation

C. hydrolysis

D. its acidic nature

Answer: A



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67. A salt of sulphures acid is called

A. sulphate

B. sulphurate

C. sulphite

D. sulphide

Answer: C



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68. Which of the following is acidic?

A. SO_3

B. N_2O

C. BeO

D. HgO

Answer: A



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69. The final acid obtained during the manufacturing of H_2SO_4 by contact process is

A. H_2SO_4 (conc)

B. H_2SO_4 (dil)

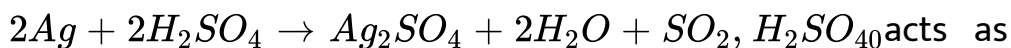
C. H_2SO_4

D. $H_2S_2O_7$

Answer: D

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70. In the reaction



a/an

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71. In the reaction $HCOOH \xrightarrow{H_2SO_4} CO + H_2O$, H_2SO_4 acts as a/an

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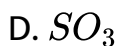
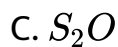
72. Ozone depletion due to the formation of following compound in Antarctica

- A. Acrolein
- B. Peroxy acetyl nitrate
- C. SO_2 and SO_3
- D. Chlorine nitrate

Answer: D

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73. Which one of the gas dissolves in H_2SO_4 to give oleum?

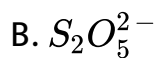
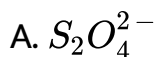


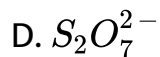
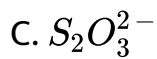
Answer: D



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





Answer: D

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75. Number of unpaired electrons in sulphur is

A. 2

B. 6

C. 8

D. 1

Answer: A

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76. Which of the following mixture gives chromic

A. $K_2Cr_2O_7$ and conc. H_2SO_4

B. $K_2 - Cr_2O_7$ and HCl

C. K_2SO_4 and conc. H_2SO_4

D. H_2SO_4 and HCl

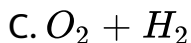
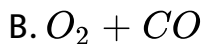
Answer: A



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77. The gas used in artificial respiration is.

A. $O_2 + CO_2$



D. All of these

Answer: A



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78. Amongst H_2O , H_2S , H_2Se and H_2Te the one with highest boiling point is :

A. H_2O because of hydrogen bonding

B. H_2Te because of higher molecular weight

C. H_2S because of hydrogen bonding

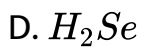
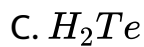
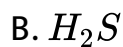
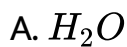
D. H_2Se because of lower molecular weight

Answer: A



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79. Which of the following dissociates to give H^+ most easily?



Answer: C



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80. Among KO_2 , AlO_2^- , BaO_2 and NO_2^+ unpaired electron is present in :

A. NO_2^+ and BaO_2

B. KO_2 and BaO_2

C. KO_2 only

D. BaO_2 only

Answer: C



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81. Point out in which of the following properties oxygen differs from the rest of the members of its family (Group-VIA)

A. High value of ionisation energies

B. Oxidation states (2, 4, 6)

C. Polymorphism

D. Formation of hydrides

Answer: B



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

A. H_2O

B. H_2S

C. H_2Se

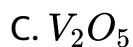
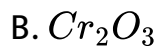
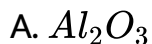
D. H_2Te

Answer: B



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83. The catalyst used in the manufacture of H_2SO_4 by contact process is

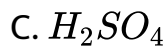


Answer: C



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84. Which of the following acts as pickling agent ?



Answer: C



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85. When H_2S gas is passed through nitric acid, the product is

:

A. Rhombic S

B. Prismatic S

C. Amorphous S

D. Colloidal S

Answer: D

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86. Shape of O_2F_2 is similar to that of

A. C_2F_2

B. H_2O_2

C. H_2F_2

D. C_2H_2

Answer: B

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87. Which of the following is not a chalcogen?

A. O

B. S

C. Se

D. Na

Answer: D



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88. Permono sulphuric acid is known as

A. Marshall's acid

B.

C. Sulphuric acid

D. None of these

Answer: B



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89. $KO_2 + CO_2 \rightarrow ?$ (gas)

A. H_2

B. N_2

C. O_2

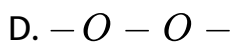
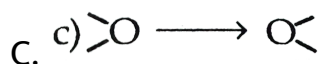
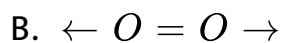
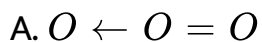
D. CO

Answer: C



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90. Peroxydisulphuric acid has the following bond



Answer: D



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91. In presence of moisture, SO_2 can

- A. act as oxidant
- B. lose electron
- C. gain electron
- D. not act as reductant

Answer: C



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92. A gas that cannot be collected over water is.

- A. N_2
- B. O_2
- C. SO_2
- D. PH_3

Answer: C



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



Answer: C



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94. The most efficient agent for the absorption of SO_3 is

A. 80 % H_2SO_4

B. 98 % H_2SO_4

C. 50 % H_2SO_4

D. 20 % $H_2S_2O_7$

Answer: B



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95. Conc. H_2SO_4 is diluted

A. by adding water in H_2SO_4

B. by adding H_2SO_4 in water

C. by adding glacial acetic acid in H_2SO_4

D. None of these

Answer: B

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96. The smog is essentially caused by the presence of :

A. Oxides of sulphur and nitrogen

B. O_2 and N_2

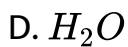
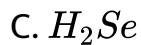
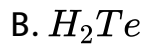
C. O_2 and O_3

D. O_3 and N_2

Answer: A

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97. Oxides of sulphur and nitrogen

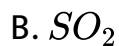
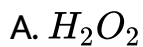


Answer: D



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98. Oxygen is not evolved on reaction of ozone with



C. Hg

D. KI

Answer: B

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99. PbO_2 on heating evolves

A. NO_2

B. O_2

C. N_2

D. N_2O

Answer: B

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100. Sulphur in +3 oxidation state is present in

- A. Sulphurous acid
- B. Pyrosulphuric acid
- C. Dithionous acid
- D. Tiosulphuric acid

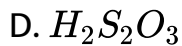
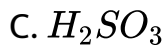
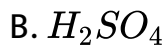
Answer: C



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101. $SO_2 + H_2S \rightarrow$ Product. The final product is

- A. $H_2O + S$



Answer: A



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102. H_2S is not a/an

A. Reducing agent

B. Acidic

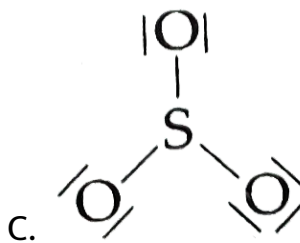
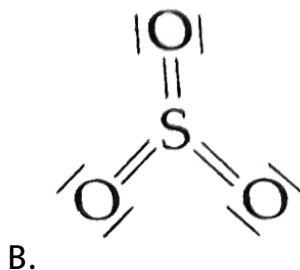
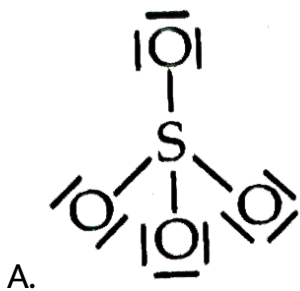
C. Oxidising agent

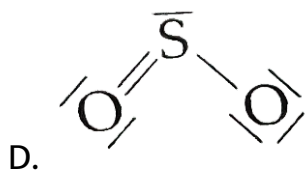
D. None of these

Answer: C



103. Which of the following is the most preferred and hence of the lower energy for SO_3 ?





Answer: B

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104. Which of the following statement regarding ozone is not correct?

- A. The ozone molecule is angular in shape.
- B. The ozone is resonance hybrid of two structures.
- C. The oxygen-oxygen bond length in ozone is identical with that of molecular oxygen.

D. Ozone is used as a germicide and disinfectant for the purification of air.

Answer: C

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105. Which one statement about SO_2 is incorrect

A. It has an angular shape.

B. It decolourised acidified potassium permagnate solution.

C. Two S-O bonds are equal.

D. It is a dehydrating agent.

Answer: D



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106. Which one of the following acid is the weakest? (MP PMT 1985)

A. $HClO$

B. HBr

C. $HClO_3$

D. HCl

Answer: A



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107. Chlorine reacts with sodium hydroxide under various conditions to give

- A. Sodium chloride
- B. Sodium hypochlorite
- C. Sodium chlorate
- D. All of these

Answer: D



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108. When chlorine is passed through concentrated solution of KOH, the compound formed is _____ .

- A. KCl

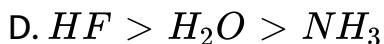


Answer: B



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109. The incorrect order of acidic strength is (DCE 2009)



Answer: B



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110. The stability of interhalogen compounds follows the order



Answer: A



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111. Which statement is false?

- A. Electronegativity of fluorine is maximum
- B. Electron affinity of fluorine is maximum
- C. Melting point of fluorine is minimum
- D. F_2 is gas

Answer: B



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112. Chlorine can remove

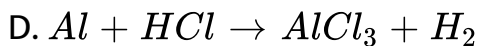
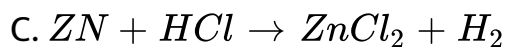
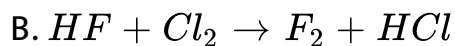
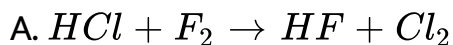
- A. Br from NaBr solution
- B. F from NaF solution
- C. Cl from NaCl solution
- D. F from CaF_2 solution

Answer: A



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113. Which reaction is not valid ?



Answer: B



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114. The electrolysis of a certain liquid resulted in the formation of hydrogen at the cathode and chlorine at the anode. The liquid is (EAMCET 1979)

A. Pure water

B. H_2SO_4 solution

C. NaCl solution in water

D. $CuCl_2$ solution in water

Answer: C



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115. In the preparation of chlorine from HCl , MnO_2 acts as

A. Oxidising agent

B. Reducing agent

C. Catalytic agent

D. Dehydrating agent

Answer: A



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116. chlorine can be manufacturing from

A. Electrolysis of NaCl

B. Electrolysis of brine

C. Electrolysis of bleaching powder

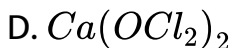
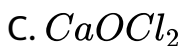
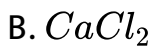
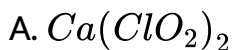
D. All of these

Answer: B



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



Answer: C



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118. Br^- is converted into Br_2 by using

A. Cl_2

B. Conc. HCl

C. HBr

D. H_2S

Answer: A



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

A. NH_3

B. H_2O

C. HI

D. C_2H_5OH

Answer: C



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120. Which has the highest molar heat of vaporisation?

A. HF

B. HCl

C. HBr

D. HI

Answer: D



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

A. O

B. Li

C. F

D. C

Answer: C



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122. The mixture of concentrated HCl and HNO_3 made in 3: 1 ratio contains

A. ClO_2

B. NOCl

C. NCl_3

D. N_2O_4

Answer: B



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123. Which of the following statement is not true

A. HF is a stronger acid than HCl

B. Among halide ions, iodide is the most powerful reducing agent

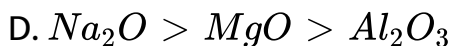
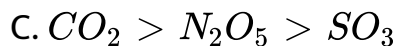
C. Fluorine is the only halogen that does not show a variable oxidation state

D. HOCl is a stronger acid than HOBr

Answer: A

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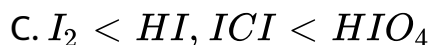
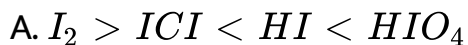
124. The correct order of acidic strength.



Answer: A

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125. Which of the following sequence is correct with reference to the oxidation number of iodine.



Answer: D



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126. The chief source of iodine in which it is present as sodium iodate is

A. Sea weeds

B. Caliche

C. Carnallite

D. Iodine never exists as sodium iodate

Answer: B



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127. Which of the following has least bond angle?

A. HF

B. HCl

C. HBr

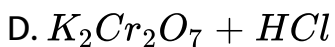
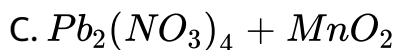
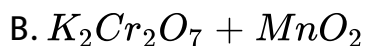
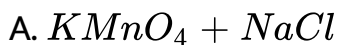
D. HI

Answer: D



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128. Chlorine is liberated, when we heat

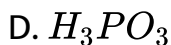


Answer: D



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129. Of the following acids, the one that is strongest is

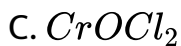


Answer: A



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130. On heating $NaCl + K_2CrO_7 + conc. H_2SO_4$, the gas comes out is

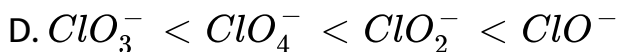
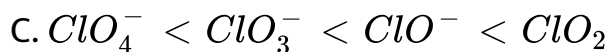
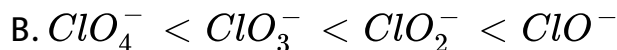
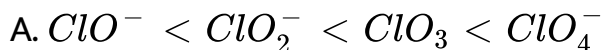




Answer: D

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131. Which of the following arrangements gives the correct order of increasing basic character of the conjugate bases of the oxoacids of chlorine?



Answer: A



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