



CHEMISTRY

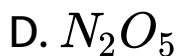
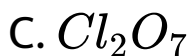
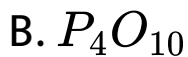
BOOKS - SAI CHEMISTRY (TELUGU ENGLISH)

p-BLOCK ELEMENTS

Mcqs

1. Identify the most acidic oxide among the following oxides based on their reaction with

water



Answer: C



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2. identify the correct statement

- A. Lead forms compounds in +2 oxidation state due to inert pair effect
- B. All halogens form only negative oxidation
- C. Catenation property increases from boron to oxygen
- D. Oxygen oxidation state is -1 in ozonides.

Answer: A



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3. Assertion (A): Noble gases have very low boiling points.

Reason (R): All noble gases have general electronic configuration of ns^2np^6 (except He).

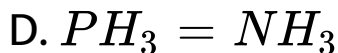
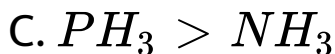
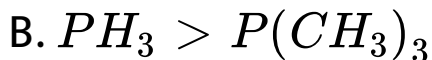
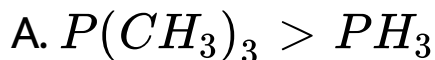
- A. Both (A) and (R) are true and (R) is correct explanation of (A)
- B. (A) is false but (R) is true
- C. (A) is true but (R) is false
- D. Both (A) and (R) are true but (R) is not the correct explanation of (A)

Answer: D



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4. Which one of the following is correct with respect to basic character?



Answer: A



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5. Sea divers use a mixture of

A. O_2, N_2

B. O_2, H_2

C. O_2, He

D. N_2, H_2

Answer: C



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6. Which one of the following elements does not form triiodide on reacting with iodine ?

A. B

B. Tl

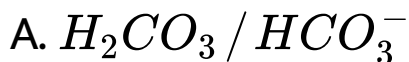
C. Al

D. Ga

Answer: B



7. The buffer system which helps to maintain the pH of blood between 7.26 to 7.42 is



Answer: A



8. The key step in the manufacturing of H_2SO_4 by contact process is

A. Absorption of SO_3 in H_2SO_4 to give oleum

B. dilution of oleum with water

C. Burning of sulphur in air to generate SO_2

D. Catalytic oxidating of SO_2 with O_2 to give SO_3

Answer: D



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9. Ammonia on reaction with chlorine forms an explosive NCl_3 . What is the mole ratio of NH_3 and Cl_2 required for this reaction?

A. 8 : 3

B. 1 : 1

C. 1 : 3

D. 10 : 1

Answer: C



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10. The structure of $XeOF_4$ is

A. Trigonal bipyramidal

B. Square planar

C. Square pyramidal

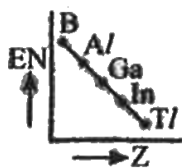
D. Pyramidal

Answer: C

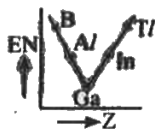


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11. Which one of the following correctly represents the variation of electronegativity (EN) with atomic number (Z) of group 13 elements?

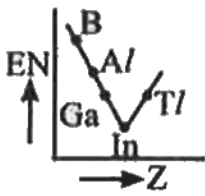


A.

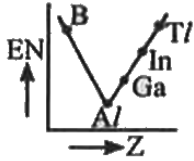


B.

C.



D.



Answer: D



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12. Which one of the following elements reacts with steam?

A. C

B. Ge

C. Si

D. Sn

Answer: D



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13. Which one of the following elements on doping with germanium, make it a p-type semiconductor ?

A. Bi

B. Sb

C. As

D. Ga

Answer: D



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14. Diborane reacts with HCl in the presence of $AlCl_3$ and liberates

A. H_2

B. Cl_2

C. BCl_3

D. Cl_2 and BCl_3

Answer: A



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15. Which one of the following is not correct?

A. Pyrophosphoric acid is atetrabasic acid

B. Pyrophosphoric acid contains P-O-P linkage

C. Pyrophosphoric acid contains two P-H bonds

D. Orthosphoric acid can be prepared by dissolving P_4O_{10} in water

Answer: C



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16. $Na_2S_2O_3$ reacts with moist Cl_2 to form Na_2SO_4 , HCl and X. which one of the following is X?



Answer: D



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17. The role of copper diaphragm in Whytlaw-Gray's method is

- A. Preventing the corrosion of electrolytic cell
- B. preventing the mixing of H_2 and F_2
- C. As anode
- D. As cathode

Answer: B



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18. Liquid X is used in bubble chamber to detect neutral mesons and gamma photons.

Then, X is

A. He

B. Ne

C. Kr

D. Xe

Answer: D



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19. Which of the following cannot form an amphoteric oxide?

A. Al

B. Sn

C. Sb

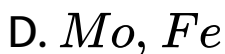
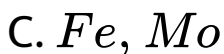
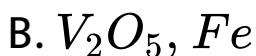
D. P

Answer: D



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20. The catalyst and promoter respectively used in the Haber's process of industrial synthesis of ammonia are

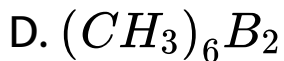
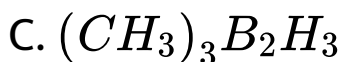
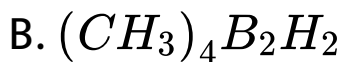
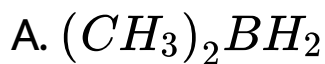
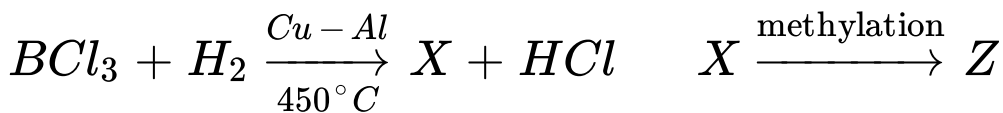


Answer: C



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21. What is Z in the following reactions?



Answer: B



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22. Which one of the following elements reduces NaOH to Na?

A. Si

B. Pb

C. C

D. Sn

Answer: C



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23. Which one of the following used in the preparation of cellulose nitrate?



Answer: B



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24. The oxoacid of sulphur which contains two sulphur atoms in different oxidation state is

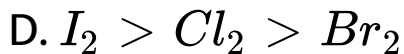
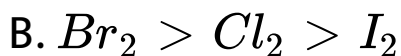
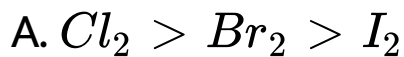
- A. Pyrosulphurous acid
- B. Hyposulphurous acid
- C. Pyrosulphuric acid
- D. Persulphuric acid

Answer: A



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25. Bond energy of Cl_2 , Br_2 and I_2 follow the order



Answer: A



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26. Assertion (A): The boiling points of noble gases increase from He to Xe.

Reason (R): the interatomic van der Waals attractive forces increase from He to Xe.

The correct answer is

A. Both (A) and (R) are true and (R) is correct explanation of (A)

B. Both (A) and (R) are true, and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is not true but (R) is true

Answer: A



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27. Which one of the following statements is not correct?

A. Moissan boron is amorphous

B. The reaction between boron and concentrated HNO_3 gives N_{200}

C. Amorphous boron on heating with oxygen forms B_2O_3 .

D. Boron is a non-conductor of electricity

Answer: B



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28. Which one of the following is a correct set?

A. Diamond, sp^2

B. Graphite, sp^3

C. Diamond, sp

D. Graphite, sp^2

Answer: D



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29. The total number of σ and π -bonds in pyrophosphoric acid are respectively

A. 8,2

B. 10,2

C. 12,2

D. 8,4

Answer: C



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30. What are the products formed when moist chlorine gas is reacted with hypo?

A. Na_2SO_4 , S , HCl

B. Na_2SO_3 , S , HCl

C. $Na_2S_4O_6$, Na_2SO_3 , HCl

D. $Na_2S_4O_6$, $NaCl$, HCl

Answer: A



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31. What is the bond angle in $ClO_2(OCIO)$?

A. 90°

B. 118°

C. 105°

D. 111°

Answer: B



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32. The hybridisation of Xe and the number of lone pairs of electrons on it in XeF_6 are

A. sp^3d^2 , 1

B. sp^3d^3 , 2

C. $sp^3 d^2$, 2

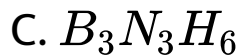
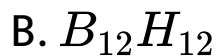
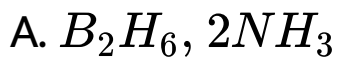
D. $sp^3 d^3$, 1

Answer: D



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33. Diborane reacts with ammonia under different conditions to give a variety of products. Which one among the following is not formed in these reactions?



Answer: B



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34. Which one of the following is the mineral for tin?

A. Galena

B. Cerussite

C. Cassiterite

D. Anglesite

Answer: C



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35. The oxide of nitrogen formed by thermal decomposition of NH_4NO_3 is

A. NO

B. N_2O

C. N_2O_5

D. NO_2

Answer: B



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36. Which one of the following is most acidic?

A. H_2O

B. H_2S

C. H_2Te

D. H_2Se

Answer: C



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37. Which one of the following is formed apart from sodium chloride when chlorine reacts with hot concentrated sodium hydroxide?

A. $NaOCl$

B. $NaOCl_3$

C. $NaClO_2$

D. $NaClO_4$

Answer: B



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38. Helium mixed with oxygen is used in the treatment of

A. Beri Beri

B. Burning feet

C. Joints burning

D. Asthma

Answer: D



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39. The number of $p\pi - d\pi$ 'pi' bonds present in XeO_3 and XeO_4 molecules, respectively are

A. 3,4

B. 4,2

C. 2,3

D. 3,2

Answer: A



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40. The type of bonds present in sulphuric anhydride are

A. 3σ and three $p\pi - d\pi$

B. 3σ , one $p\pi - p\pi$ and two $p\pi - d\pi$

C. 2σ and three $p\pi - d\pi$

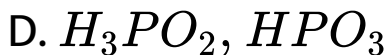
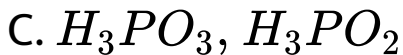
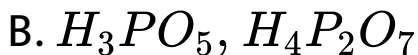
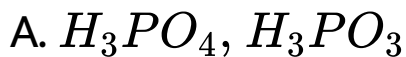
D. 2σ and two $p\pi - d\pi$

Answer: B



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41. Which pair of oxyacids of phosphorus contains 'P-H' bonds ?



Answer: C



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42. $SiCl_4$ on hydrolysis forms 'X' and HCl.

Compound 'X' loses water at $1000^\circ C$ and

gives 'Y' compounds 'X' and 'Y' respectively are

A. H_2SiCl_6 , SiO_2

B. H_4SiO_4 , Si

C. SiO_2 , Si

D. H_4SiO_4 , SiO_2

Answer: D



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43. Match the following

List I

- (A) Feldspar
- (B) Asbestos
- (C) Pyrargyrite
- (D) Diaspore

List II

- (I) $[\text{Ag}_3\text{SbS}_3]$
- (II) $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
- (III) $\text{MgSO}_4 \cdot \text{H}_2\text{O}$
- (IV) $\text{KA/Si}_3\text{O}_8$
- (V) $\text{CaMg}_3(\text{SiO}_3)_4$

The correct answer is

A. A-IV, B-V, C-II, D-I

B. A-IV, B-V, C-I, D-II

C. A-IV, B-I, C-III, D-II

D. A-II, B-V, C-IV, D-I

Answer: B



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44. Boron halides behave as Lewis acids because of their ___ nature.

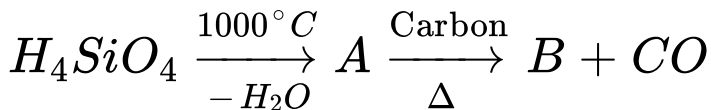
- A. Proton donor
- B. Covalent
- C. Electron deficient
- D. Ionising

Answer: C



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45. Identify B in the following reaction



A. Corundum

B. Quartz

C. Silica

D. Carborundum

Answer: D



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46. The correct order of reducing abilities of hydrides of V group elements is,

A.



B.



C.



D.



Answer: A



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47. The number of sigma and pi bonds in peroxodisulphuric acid are, respectively.

A. 9 and 4

B. 11 and 4

C. 4 and 8

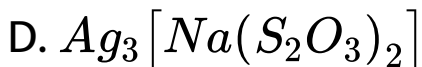
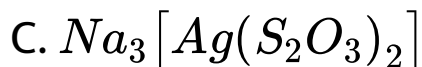
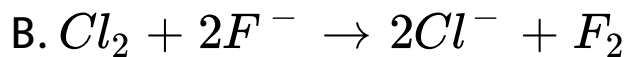
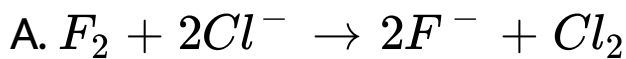
D. 4 and 9

Answer: B



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48. Which one of the following reactions does not occur?

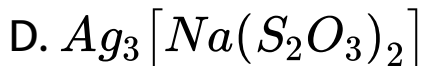
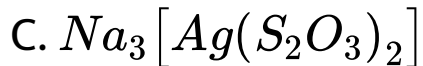
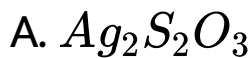


Answer: B



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49. The formula of the product formed, when sodium triosulphite solution is added to silver bromide is

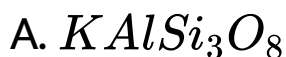


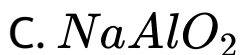
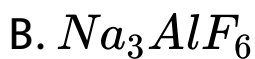
Answer: C



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50. The chemical formula of deldspar is,





Answer: A



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51. An oxide of an element is a gas and dissolves in water to give an acidic solution.

The element belongs to,

A. II group

B. IV group

C. VIII group

D. Zero group

Answer: B



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52. Which one of the following noble gases is used in miner's cap lamps?

A. Helium

B. Neon

C. Argon

D. Krypton

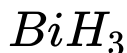
Answer: D



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53. The following are some statements related to VA group hydrides,

I. Reducing property increases from NH_3 to



II. Tendency to donate lone pair decreases from *NH₃* to *BiH₃*.

III. Thermal stability of hydrides decreases from *NH₃* to *BiH₃*.

IV. bond angle of hydrides decreases from *NH₃* to *BiH₃*.

A. I,II,III and IV

B. I, III and IV

C. I, II and IV

D. I and IV

Answer: A



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54. Which of the following is an example of interstitial hydride?



Answer: C



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55. Which of the following is not a peroxy acid?

A. Perphosphoric acid

B. pernitric acid

C. Perdisulphuric acid

D. Perchloric acid

Answer: D



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56. Calorific value of producer gas is low because of

- A. High percent of N_2
- B. Low percent of CO_2
- C. High percent of CO
- D. Low percent of N_2

Answer: A



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57. Among the following, which is water insoluble?

A. sodium fluoride

B. Potassium fluoride

C. Beryllium fluoride

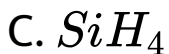
D. Magnesium fluoride

Answer: D



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58. Which of the following is used for making optical instruments?

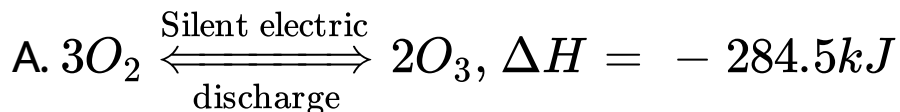


Answer: A



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59. Which of the following is not correct?



B. ozone undergoes addition reaction with unsaturated carbon compounds

C. Sodium thiosulphate reacts with I_2 to form sodium tetrathionate and sodium

iodide

D. ozone oxidises lead sulphide to lead sulphate

Answer: A



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60. Electrolysis of X gives Y at anode. Vacuum distillation of Y gives H_2O_2 . The number of peroxy (O-O_ bonds present in X and Y respectively, are

A. 1,1

B. 1,2

C. 0,1

D. 0,0

Answer: C



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61. What is the correct order of occurrence (% by weight) in air of Ne, Ar and Kr?

A. $Ne > Ar > Kr$

B. $Ar > Ne > Kr$

C. $Ar > Kr > Ne$

D. $Ne > Kr > Ar$

Answer: B



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62. Observe the following statements:

I. Bleaching powder is used in the preparation of chloroform.

II. Bleaching powder decomposes in the presence of $CoCl_2$ to liberate O_2 .

III. Aqueous KHF_2 is used in the preparation of fluorine.

The correct combination is

A. I, II and III are correct

B. Only II is correct

C. Only I and III are correct

D. Only I and II are correct

Answer: D



63. Hydrolysis of NCl_3 gives NH_3 and X.

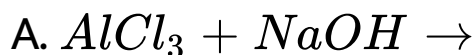
which of the following is X?



Answer: C



64. Which of the following reactions does not liberate gaseous product?



Answer: A



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65. In Fischer-Ringe's method of separation of noble gases mixture from air, . . . Is used

A. 90% CaC_2 + 10 % $CaCl_2$

B. coconum charcoal

C. Soda lime+Potash solution

D. 90% $CaCO_3$ + 10 % urea

Answer: A



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66. Observe the following statements regarding purification of bauxite.

I. During Hall's process, silica is removed as Si (vapour).

II. Bauxite ore contaminated with Fe_2O_3 is purified by Baeyer's process.

III. During Serpeck's process, AlN is formed.

The correct answer is

A. I, II and III are correct

B. Only I and II are correct

C. Only I and III are correct

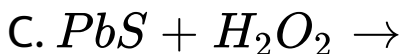
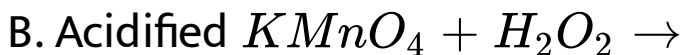
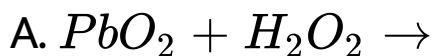
D. Only II and III are correct

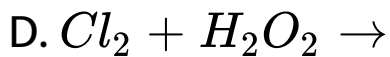
Answer: D



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67. Which one of the following reactions does not form gaseous product?





Answer: C



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68. Which of the following is not correct?

A. SiO_2 is used as acid flux

B. the distance between the layers in graphite is $3.35 \times 10^{-8} \text{ cm}$

C. SiO_2 reacts with Na_2CO_3 and liberates

CO

D. The hybridisation of C in graphite is sp^2

Answer: C



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69. Which of the following is not correct?

A. Ammonia is used as refrigerant

B. A mixture of $Ca(CN)_2$ and C is known as nitrolim

C. A mixture of $Ca(H_2PO_4)_2$ and $CaSO_4 \cdot 2H_2O$ is known as super phosphoate is lime

D. Hydrolysis of NCl_3 gives NH_3 and HOCl

Answer: B



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70. Which of the following is not correct?

A. Iodine oxidises sodium thiosulphate to sodium tetrathionate

B. Sodium thiosulphate is soluble in water

C. Ozone is used to identify the present of unsaturation in alkenes

D. Sodium thiosulphate reacts with iodine to form sodium sulphate

Answer: D



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71. Which one of the following pairs of reactants does not form oxygen, when they react with each other ?

A. F_2 , $NaOH$ solution (hot, conc)

B. F_2 , H_2O

C. Cl_2 , $NaOH$ solution (cold, dilute)

D. $CaOCl_2$, H_2SO_4 (dilute, small amount)

Answer: C



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72. The number of oxygen atoms bonded to one phosphorus atom in P_4O_6 is

A. 4

B. 3

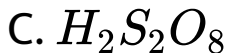
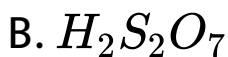
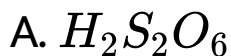
C. 6

D. 5

Answer: B



73. Which of the following has S-S bond?



D. mustard gas

Answer: A



74. Which one of the following is used as an acid flux in metallurgy?

A. CaO

B. SiO_2

C. Na_2CO_3

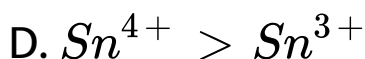
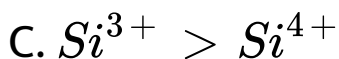
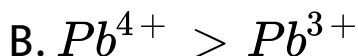
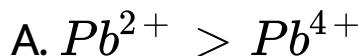
D. SO_2 .

Answer: B



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75. Which one of the following is correct about stability of the given ions?

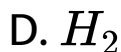
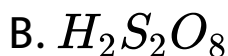
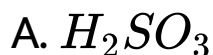


Answer: A



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76. The product obtained at anode when 50% H_2SO_4 aqueous solution is electrolysed using platinum electrodes, is

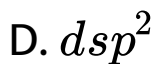
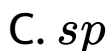
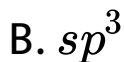
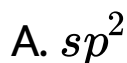


Answer: B



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77. Sulphur trioxide is dissolved in heavy water to form a compound X. The hybridisation state of sulphur X is



Answer: B



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78. Two oxides of nitrogen, NO and NO_2 react together at 253 K and form a compound of nitrogen, X. X reacts with water to yield another compound of nitrogen Y. the shape of the anion of Y molecule is

- A. Tetrahedral
- B. Triangular planar
- C. Square planar
- D. Pyramidal

Answer: B



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79. Chlorine atom, in its third excited state, reacts with fluorine to form compound X. The formula and shape of X are

- A. ClF_5 , pentagonal
- B. ClF_4 , tetrahedral
- C. ClF_4 , pentagonal bipyramidal
- D. ClF_7 , pentagonal bipyramidal

Answer: D



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80. The bond energies (in kJ mol^{-1}) of P-H, as-H and N-H are respectively.

A. 247, 389 and 318

B. 247, 318 and 389

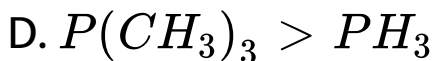
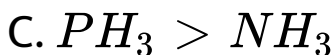
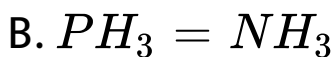
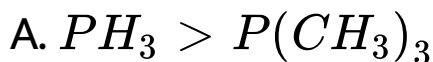
C. 318, 389 and 247

D. 318, 347 and 389

Answer: D



81. Which one of the following statements is correct with respect to basic character?



Answer: D



82. What are the products formed when ammonia reacts with excess chlorine ?



Answer: B



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

A. 1:1:2

B. 2:1:0.5

C. 1:2:1

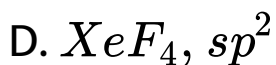
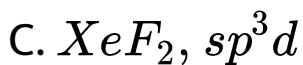
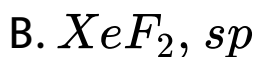
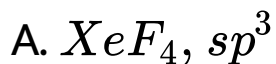
D. 2:1:2

Answer: B



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84. Which one of the following is a correct pair with respect to molecular formula of xenon compound and hybridisation state of xenon in it?

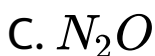


Answer: C



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85. When bauxite powder is mixed with coke and reacted with nitrogen at 2075 K, carbon monoxide and X are formed. What is the gas formed when X is reacted with water?



D. O_2

Answer: A



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86. Thermite is a mixture of X parts of ferric oxide and Y parts of aluminium powder. X, Y respectively, are

A. 3,1

B. 3,2

C. 1,1

D. 2,3

Answer: A



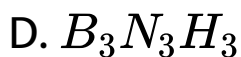
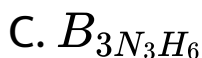
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87. What is the molecular formula of borazole

?

A. B_2H_6

B. $B_6N_6H_6$



Answer: C



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88. The catenation tendency of C, Si and Ge is in the order $Ge < Si < C$. The bond energies (in kJ mol^{-1}) of C-C, Si-Si and Ge-Ge bonds, respectively, are

A. 167180348

B. 180167348

C. 348167180

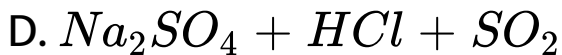
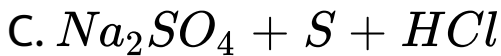
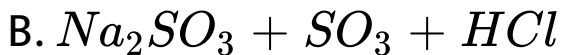
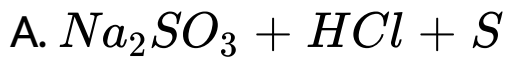
D. 348180167

Answer: D



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89. What are the products formed when chlorine is passed through aqueous hypo solution?

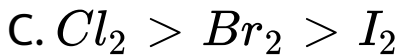
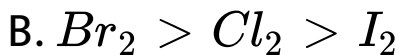
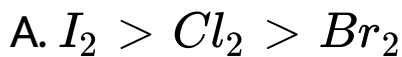


Answer: C



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



Answer: C



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91. Which one of the following halogens liberates oxygen, when passed through hot concentrated KOH solution?

A. I_2

B. Cl_2

C. Br_2

D. F_2

Answer: C



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92. Bond dissociation energies of HF, HCl, HBr

follow the order



Answer: C



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93. What are the oxidation number of nitrogen in NH_4NO_3 ?

A. $+3, -5$

B. $-3, +5$

C. $+3, -6$

D. $+2, +2$

Answer: B



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94. Which of the following is a sulphide ore?

A. Calamine

B. Cryolite

C. Zinc blende

D. Haematite

Answer: C



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95. Which of the following is the strongest oxidising agent?

A. F_2

B. Br_2

C. Cl_2

D. O_2

Answer: A



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96. What is the oxidation state of chlorine in hypochlorous acid?

A. +1

B. + 3

C. + 5

D. + 7

Answer: A



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97. What is the catalyst used in the manufacture of sulphuric acid by contact process?

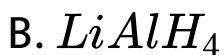
- A. Nickel powder
- B. Platinised asbestos
- C. Anhydrous Al_3O_3
- D. Aluminium powder

Answer: B



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98. Which of the following reacts with BCl_3 to form diborane?



Answer: B



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99. During Serpeck's process, silica is eliminated as

A. Si (solid)

B. SiO_2 (vapour)

C. SiO_2 (solid)

D. Si (vapour)

Answer: D



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100. What is the molecular formula of white phosphorus?

A. P_2

B. P_4

C. P_5

D. P_{16}

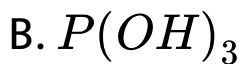
Answer: B



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101. Which of the following is an acid?

A. $Ca(OH)_2$



Answer: B



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102. What is the approximate calorific value of water gas in $\text{kcal } m^{-3}$?

A. 500

B. 2700

C. 4000

D. 1000

Answer: B



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103. Which of the following is used in the preparation of aerated water (soda) ?

A. CO

B. CO_2

C. SO_2

D. HCl

Answer: B



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104. Which one of the VI group element has the highest catenation power?

A. O

B. Se

C. S

D. Te

Answer: C



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105. Which of the following is not true?

A. Aluminium liberates hydrogen on

treating with a base

B. Aluminium is used in the preparation of duralumin

C. aluminium is extracted by the electrolysis of alumina in presence of cryolite

D. Aluminium is a strong oxidising agent

Answer: D



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106. The industrial preparation of nitric acid by Ostwald's process involves ?

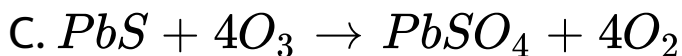
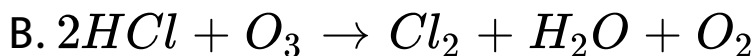
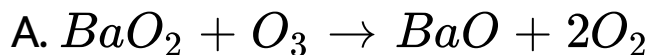
- A. Reduction of NH_3
- B. Oxidation of NH_3
- C. Hydronegation of NH_3
- D. Hydrolysis of NH_3

Answer: B

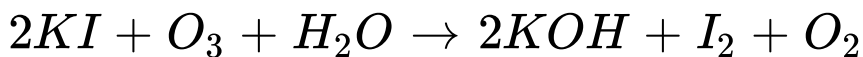


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107. In which of the following reactions ozone acts as a reducing agent?



D.

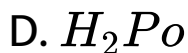
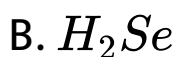
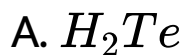


Answer: A



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108. Which of the following is the weakest acid in its aqueous solution ?



Answer: C



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109. Inorganic benzene contains

A. C,H,Al

B. C,H,B

C. B,N,H

D. C,N,H

Answer: C



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110. Which of the following is the anhydride of

HNO_3 ?

A. NO

B. N_2O_3

C. N_2O_4

D. N_3O_5

Answer: D



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111. Chlorine is passed into dilute cold KOH solution. What are the oxidation numbers of chlorine in the products formed ?

A. $-1, +5$

B. $-1, +3$

C. $+1, +7$

D. $-1, +1$

Answer: D



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112. The oxidation number of nitrogen in HN_3 is

A. $+\frac{1}{3}$

B. 0

C. $-\frac{1}{3}$

D. 1

Answer: C



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113. Tin stone is contaminated with wolframite.

Which one of the following methods can be employed to dress the tin stone ore?

A. Levigation

B. Electromagnetic separation

C. Floatation process

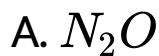
D. Roasting

Answer: B



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



Answer: A



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115. Hg sticks to the surface of the glass, when it comes in contact with

A. H_2O

B. HNO_3

C. Grease

D. O_3

Answer: D



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116. Cassiterite is concentrated by

A. Levigation

B. Electromagnetic separation

C. Floatation

D. Liquation

Answer: B



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117. Carbogen is

A. Pure form of carbon

B. $COCl_2$

C. Mixture of CO and CO_2

D. Mixture of O_2 and CO_2

Answer: D



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118. Silica is soluble in

A. HCl

B. HNO_3

C. H_2SO_4

D. HF

Answer: D



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119. Which one of the following halogens does not exhibit positive oxidation state in its compounds?

A. *I*

B. *Br*

C. *Cl*

D. *F*

Answer: D



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120. Which one of the following ores is chloride?

A. Horn silver

B. Zincite

C. Bauxite

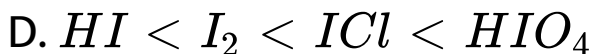
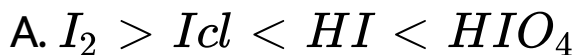
D. Feldspar

Answer: A



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



Answer: D



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122. Quartz is a crystalline variety of

A. Sodium silicate

B. silicon carbide

C. silicon

D. silica

Answer: D



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123. Which one of the following compounds liberates CO_2 from aqueous $NaHCO_3$?

A. Aluminium chloride

B. $CHCl_3$

C. CCl_4

D. CH_3Cl

Answer: A



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124. The bond angle of H_2X (where, X is a sixth group element), as one goes down the group

- A. Increases
- B. Decreases
- C. Does not change
- D. Changes irregularly

Answer: B



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125. With respect to both oxygen and ozone, which one of the following statements is not correct?

A. both have similar reactivity with water

B. Oxygen is colourless and ozone is coloured

C. Oxygen valency is 2 in both

D. Oxygen has 2 bonds and ozone has 3 bonds

Answer: C



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126. The element which can displace three other halogens from their compounds is

A. Cl

B. Br

C. I

D. F

Answer: D



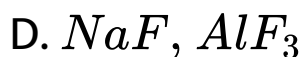
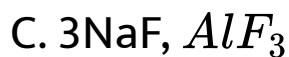
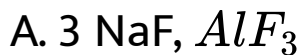
127. Bleaching action of SO_2 is due to its

- A. Oxidising action
- B. Ability to hydrolyse
- C. Acidic nature
- D. Reducing action

Answer: D



128. The molecular formula of cryolite is



Answer: A



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129. Silver containing lead as an impurity is removed by

A. Poling

B. Cupellation

C. Levigation

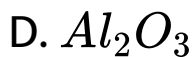
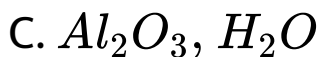
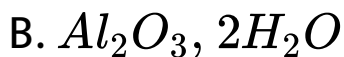
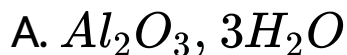
D. Distillation

Answer: B



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130. The chemical formula of diaspor, an ore of aluminium is



Answer: C



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131. The inert form of carbon is

A. Diamond

B. Graphite

C. Coal

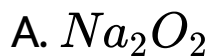
D. Charcoal

Answer: A



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132. Which of the following is not a peroxide ?



Answer: D



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133. The glass which contains PbO mainly is

A. Soda glass

B. Flint glass

C. Pyrex glass

D. Borosil

Answer: B



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134. Which of the following nitrogen halides is most stable?



Answer: D



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135. The following statement is not true as far as BF_3 is concerned

A. Electron deficient compound

B. Lewis acid

C. Ionic compound

D. Covalent compound

Answer: C



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136. The oxy acid of phosphorus in which phosphorus has the lowest oxidation state is

A. Hypophosphorus acid

B. Orthophosphoric acid

C. Pyrophosphoric acid

D. Metaphosphoric acid

Answer: A



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137. The chief product of electrolysis of Al_2O_3 at the anode in the Hall's process is

A. H_2

B. Na

C. AlF_3

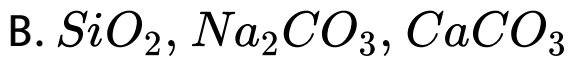
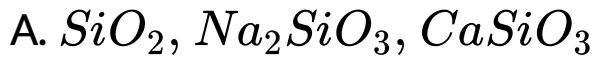
D. O_2

Answer: D



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138. Ordinar glass is a combination of the following



Answer: A



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139. Which of the following is correct with respect to Vth group elements?

A. All the elements exhibit allotropy

B. allotropy

C. all the elements except nitrogen and bismuth exhibit allotropy

D. All the elements except nitrogen and arsenic exhibit allotropy

Answer: B



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140. Catalyst used in the manufacture of HNO_3 in ostwald process is

A. Platinum gauze

B. V_2O_3

C. Fe / Mo

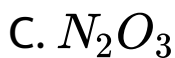
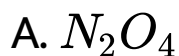
D. MnO_2

Answer: A



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141. Which of the following is paramagnetic?



Answer: B



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142. Preparation of fluorine by direct electrolysis of liquid HF is not practicable because

A. very high temperature is needed

B. Electrolytic products are different from fluorine

C. Very low temperature is required

D. HF is a non-electrolyte

Answer: B





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143. The oxidation state of iodine in ICl_2^- is

A. +1

B. -1

C. +2

D. -3

Answer: A



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144. When 6 volumes of oxygen undergoes complete reaction to ozone, the number of moles of ozone formed are

A. 6

B. 3

C. 4

D. 2

Answer: C



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145. While phosphorus forms PCl_5 , nitrogen does not form NCl_5 because

A. Nitrogen is more electronegative than phosphorus

B. Nitrogen atom is smaller than phosphorus

C. The ionisation energy of nitrogen is greater than that of phosphorus

D. Unlike phosphorus, nitrogen has no 'd' orbital in its valence shell

Answer: D



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146. Which one of the following is not an allotrope of carbon?

A. Graphite

B. Diamond

C. Soot

D. Carborundum

Answer: D



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147. Thermite is a mixture of iron oxide and

A. Sodium shavings

B. Aluminium powder

C. Zinc powder

D. Potassium metal

Answer: B



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148. Which one of the following statements is not correct with respect to BF_3 ?

A. it is an electron deficient compound

B. It is a lewis acid

C. It is an ionic compound

D. It forms adducts

Answer: C



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149. The gas that is used for sterilising water is

A. SO_2

B. NO_2

C. O_3

D. NH_3

Answer: C



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150. BF_3 forms an adduct with NH_3 because

A. Nitrogen has high electronegativity

B. Boron has smaller atomic radius than
nitrogen

C. Boron has an empty 'p' orbital and
nitrogen has a lone pair of electrons

D. Boron has electropositive character

Answer: C



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151. The crystalline form of sulphur that is stable at room temperature is

- A. Engel's sulphur
- B. Rhombic sulphur
- C. Monoclinic sulphur

D. Plastic sulphur

Answer: B



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152. Bleaching action of chlorine in presence of moisture is an example of

A. Oxidation

B. Reduction

C. Displacement

D. Substitution

Answer: A



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153. In the electrolysis of HF-KF mixture for the production of fluorine, the role of KF is

A. To lower the oxidation potential of fluoride

B. To make HF a conducting solution

C. se corrosion

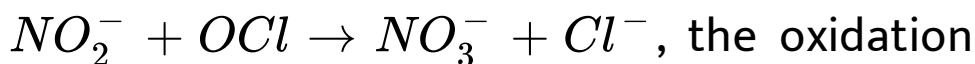
D. To lower the solubility of fluorine

Answer: B



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154. In the reaction,



state of chlorine

A. Does not change

B. Changes from +1 to -1

C. Changes from -2 to -1

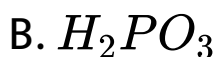
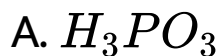
D. Changes from 0 to -1

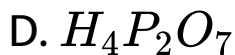
Answer: B



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155. Meta-phosphoric acid is represented by



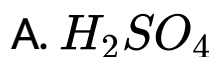


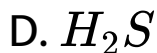
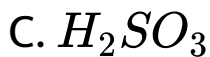
Answer: C



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156. In which of the following, sulphur has the lowest oxidation state?



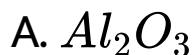


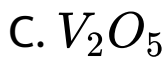
Answer: D



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157. The catalyst used in the manufacture of sulphuric acid by contact process is





Answer: C



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158. The rare gas which is more abundant in atmosphere is

A. Ne

B. Rn

C. Xe

D. Ar

Answer: D



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159. The oxidation number of chlorine in

$KClO_3$ is

A. +5

B. -5

C. +1

D. -1

Answer: A



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160. The melting point of diamond is very high since the type of bonding in it is

A. Two dimensional network

B. Metallic

C. Covalent coordinate

D. Three dimensional giant network

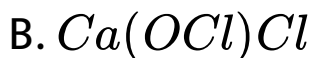
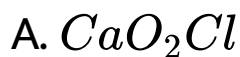
Answer: D



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161. The chemical formula of bleaching powder

is



C. Al

D. $CaCl_2$

Answer: B



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162. Bauxite is a mineral for the extraction of

A. Ca

B. Cu

C. Al

D. Fe

Answer: C



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163. Qhwn NH_4NO_3 is heated, the gas formed is

A. N_2

B. NO_2

C. N_2O

D. NH_3

Answer: C



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164. In diborane, boron atom undergoes ___ hybridisation.

A. sp^3

B. sp^2

C. sp

D. dsp^2

Answer: A



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165. Which of the following statements about halogens is correct?

A. They are all diatomic and form universal ions

B. They are all dioatomic and form divalentions

C. They are all capable of exhibiting several oxidation states

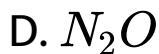
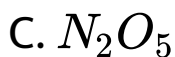
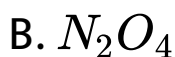
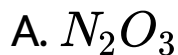
D. They can mutually displace each other from the solution of their compounds with metals

Answer: A



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



Answer: C



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167. The non-metallic element present in the mineral cryolite is,

A. Na

B. Al

C. F

D. Mg

Answer: C



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168. Among the SO_2 , H_2SO_4 and sodium thiosulphate, sulphur has the highest oxidation state in

A. SO_2

B. H_2SO_4

C. Sodium thiosulphate

D. Same in all

Answer: B



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169. Besides SiO_2 and Al_2O_3 , the other major ingredient in portland cement is

A. $CaCO_3$

B. $MgCO_3$

C. Lime

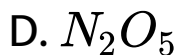
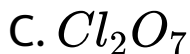
D. Sodium peroxide

Answer: C



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1. Identify the most acidic oxide among the following oxides based on their reaction with water



Answer: C



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2. identify the correct statement

A. Lead forms compounds in +2 oxidation state due to inert pair effect

B. All halogens form only negative oxidation

C. Catenation property increases from boron to oxygen

D. Oxygen oxidation state is -1 in ozonides.

Answer: A



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3. Assertion (A): Noble gases have very low boiling points.

Reason (R): All noble gases have general electronic configuration of ns^2np^6 (except He).

A. Both (A) and (R) are true and (R) is correct explanation of (A)

B. (A) is false but (R) is true

C. (A) is true but (R) is false

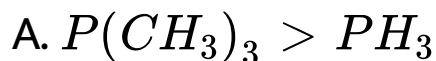
D. Both (A) and (R) are true but (R) is not
the correct explanation of (A)

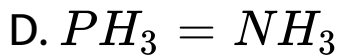
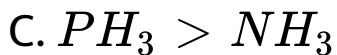
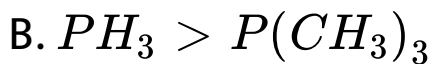
Answer: D



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4. Which one of the following is correct with respect to basic character?



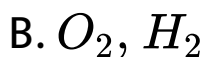
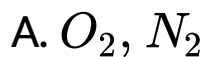


Answer: A



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5. Sea divers use a mixture of



C. O_2 , He

D. N_2 , H_2

Answer: C



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6. Which one of the following elements does not form triiodide on reacting with iodine ?

A. B

B. Tl

C. Al

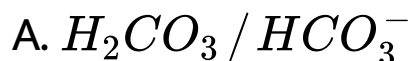
D. Ga

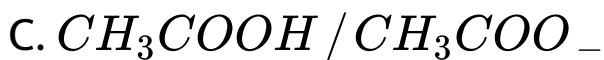
Answer: B



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7. The buffer system which helps to maintain the pH of blood between 7.26 to 7.42 is





Answer: A



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8. The key step in the manufacturing of H_2SO_4 by contact process is

A. Absorption of SO_3 in H_2SO_4 to give oleum

B. dilution of oleum with water

C. Burning of sulphur in air to generate



D. Catalytic oxidating of SO_2 with O_2 to

give SO_3

Answer: D



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9. Ammonia on reaction with chlorine forms an explosive NCl_3 . What is the mole ratio of NH_3 and Cl_2 required for this reaction?

A. 8 : 3

B. 1 : 1

C. 1 : 3

D. 10 : 1

Answer: C



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10. The structure of $XeOF_4$ is

A. Trigonal bipyramidal

B. Square planar

C. Square pyramidal

D. Pyramidal

Answer: C

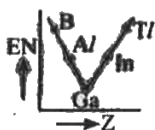


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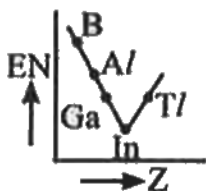
11. Which one of the following correctly represents the variation of electronegativity (EN) with atomic number (Z) of group 13 elements?



A.

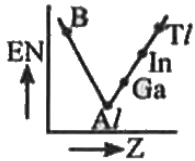


B.



C.

D.



Answer: D



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12. Which one of the following elements reacts with steam?

A. C

B. Ge

C. Si

D. Sn

Answer: D



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13. Which one of the following elements on doping with germanium, make it a p-type semiconductor ?

A. Bi

B. Sb

C. As

D. Ga

Answer: D



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14. Diborane reacts with HCl in the presence of

$AlCl_3$ and liberates

A. H_2

B. Cl_2

C. BCl_3

D. Cl_2 and BCl_3

Answer: A



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15. Which one of the following is not correct?

A. Pyrophosphoric acid is atetrabasic acid

B. Pyrophosphoric acid contains P-O-P linkage

C. Pyrophosphoric acid contains two P-H bonds

D. Orthophosphoric acid can be prepared by dissolving P_4O_{10} in water

Answer: C



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16. $Na_2S_2O_3$ reacts with moist Cl_2 to form Na_2SO_4 , HCl and X. which one of the following is X?



Answer: D



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17. The role of copper diaphragm in Whytlaw-Gray's method is

- A. Preventing the corrosion of electrolytic cell
- B. preventing the mixing of H_2 and F_2
- C. As anode
- D. As cathode

Answer: B



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18. Liquid X is used in bubble chamber to detect neutral mesons and gamma photons.

Then, X is

A. He

B. Ne

C. Kr

D. Xe

Answer: D



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19. Which of the following cannot form an amphoteric oxide?

A. Al

B. Sn

C. Sb

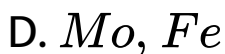
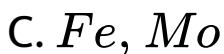
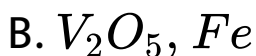
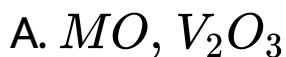
D. P

Answer: D



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20. The catalyst and promoter respectively used in the Haber's process of industrial synthesis of ammonia are

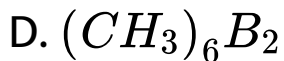
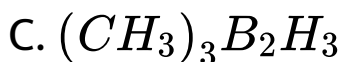
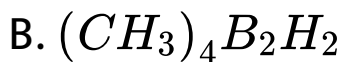
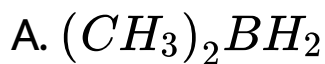
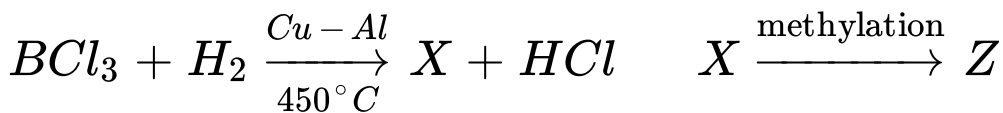


Answer: C



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21. What is Z in the following reactions?



Answer: B



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22. Which one of the following elements reduces NaOH to Na?

A. Si

B. Pb

C. C

D. Sn

Answer: C



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23. Which one of the following used in the preparation of cellulose nitrate?



Answer: B



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24. The oxoacid of sulphur which contains two sulphur atoms in different oxidation state is

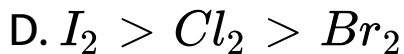
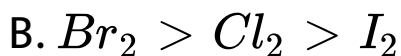
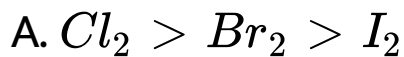
- A. Pyrosulphurous acid
- B. Hyposulphurous acid
- C. Pyrosulphuric acid
- D. Persulphuric acid

Answer: A



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25. Bond energy of Cl_2 , Br_2 and I_2 follow the order



Answer: A



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26. Assertion (A): The boiling points of noble gases increase from He to Xe.

Reason (R): the interatomic van der Waals attractive forces increase from He to Xe.

The correct answer is

A. Both (A) and (R) are true and (R) is correct explanation of (A)

B. Both (A) and (R) are true, and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is not true but (R) is true

Answer: A



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27. Which one of the following statements is not correct?

A. Moissan boron is amorphous

B. The reaction between boron and concentrated HNO_3 gives N_{200}

C. Amorphous boron on heating with oxygen forms B_2O_3 .

D. Boron is a non-conductor of electricity

Answer: B



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28. Which one of the following is a correct set?

A. Diamond, sp^2

B. Graphite, sp^3

C. Diamond, sp

D. Graphite, sp^2

Answer: D



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29. The total number of σ and π -bonds in pyrophosphoric acid are respectively

A. 8,2

B. 10,2

C. 12,2

D. 8,4

Answer: C



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30. What are the products formed when moist chlorine gas is reacted with hypo?

A. Na_2SO_4 , S , HCl

B. Na_2SO_3 , S , HCl

C. $Na_2S_4O_6$, Na_2SO_3 , HCl

D. $Na_2S_4O_6$, $NaCl$, HCl

Answer: A



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31. What is the bond angle in $ClO_2(OClO)$?

A. 90°

B. 118°

C. 105°

D. 111°

Answer: B



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32. The hybridisation of Xe and the number of lone pairs of electrons on it in XeF_6 are

A. sp^3d^2 , 1

B. sp^3d^3 , 2

C. sp^3d^2 , 2

D. $sp^3 d^3, 1$

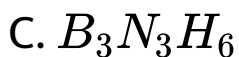
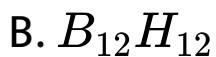
Answer: D



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33. Diborane reacts with ammonia under different conditions to give a variety of products. Which one among the following is not formed in these reactions?

A. $B_2H_6, 2NH_3$



Answer: B



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34. Which one of the following is the mineral for tin?

A. Galena

B. Cerussite

C. Cassterite

D. Anglesite

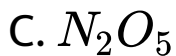
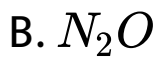
Answer: C



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35. The oxide of nitrogen formed by thermal decomposition of NH_4NO_3 is

A. NO

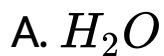


Answer: B



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36. Which one of the following is most acidic?



C. H_2Te

D. H_2Se

Answer: C



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37. Which one of the following is formed apart from sodium chloride when chlorine reacts with hot concentrated sodium hydroxide?

A. $NaOCl$

B. $NaOCl_3$

C. $NaClO_2$

D. $NaClO_4$

Answer: B



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38. Helium mixed with oxygen is used in the treatment of

A. Beri Beri

B. Burning feet

C. Joints burning

D. Asthma

Answer: D



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39. The number of $p\pi - d\pi$ 'pi' bonds present in XeO_3 and XeO_4 molecules, respectively are

A. 3,4

B. 4,2

C. 2,3

D. 3,2

Answer: A



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40. The type of bonds present in sulphuric anhydride are

A. 3σ and three $p\pi - d\pi$

B. 3σ , one $p\pi - p\pi$ and two $p\pi - d\pi$

C. 2σ and three $p\pi - d\pi$

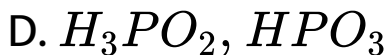
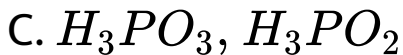
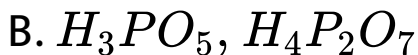
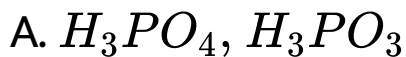
D. 2σ and two $p\pi - d\pi$

Answer: B



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41. Which pair of oxyacids of phosphorus contains 'P-H' bonds ?



Answer: C



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42. $SiCl_4$ on hydrolysis forms 'X' and HCl.

Compound 'X' loses water at $1000^\circ C$ and

gives 'Y' compounds 'X' and 'Y' respectively are

A. H_2SiCl_6 , SiO_2

B. H_4SiO_4 , Si

C. SiO_2 , Si

D. H_4SiO_4 , SiO_2

Answer: D



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43. Match the following

List I

- (A) Feldspar
- (B) Asbestos
- (C) Pyrargyrite
- (D) Diaspore

List II

- (I) $[\text{Ag}_3\text{SbS}_3]$
- (II) $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
- (III) $\text{MgSO}_4 \cdot \text{H}_2\text{O}$
- (IV) $\text{KA/Si}_3\text{O}_8$
- (V) $\text{CaMg}_3(\text{SiO}_3)_4$

The correct answer is

A. A-IV, B-V, C-II, D-I

B. A-IV, B-V, C-I, D-II

C. A-IV, B-I, C-III, D-II

D. A-II, B-V, C-IV, D-I

Answer: B



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44. Boron halides behave as Lewis acids because of their ___ nature.

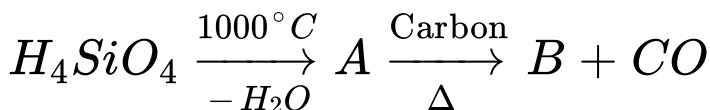
- A. Proton donor
- B. Covalent
- C. Electron deficient
- D. Ionising

Answer: C



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45. Identify B in the following reaction



A. Corundum

B. Quartz

C. Silica

D. Carborundum

Answer: D



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46. The correct order of reducing abilities of hydrides of V group elements is,

A.



B.



C.



D.



Answer: A



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47. The number of sigma and pi bonds in peroxodisulphuric acid are, respectively.

A. 9 and 4

B. 11 and 4

C. 4 and 8

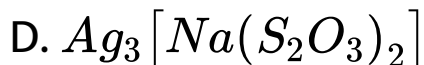
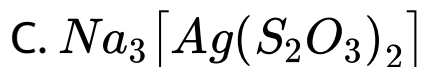
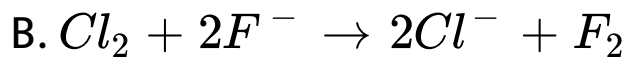
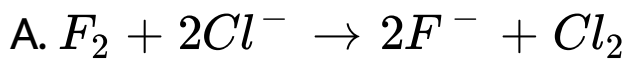
D. 4 and 9

Answer: B



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48. Which one of the following reactions does not occur?

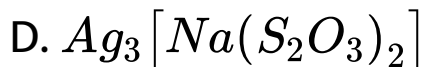
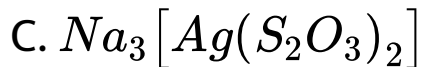
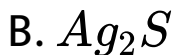
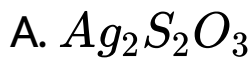


Answer: B



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49. The formula of the product formed, when sodium trisulphite solution is added to silver bromide is

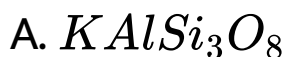


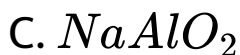
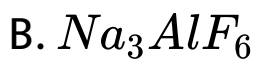
Answer: C



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50. The chemical formula of deldspar is,





Answer: A



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51. An oxide of an element is a gas and dissolves in water to give an acidic solution.

The element belongs to,

A. II group

B. IV group

C. VIII group

D. Zero group

Answer: B



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52. Which one of the following noble gases is used in miner's cap lamps?

A. Helium

B. Neon

C. Argon

D. Krypton

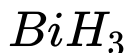
Answer: D



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53. The following are some statements related to VA group hydrides,

I. Reducing property increases from NH_3 to



II. Tendency to donate lone pair decreases from *NH₃* to *BiH₃*.

III. Thermal stability of hydrides decreases from *NH₃* to *BiH₃*.

IV. bond angle of hydrides decreases from *NH₃* to *BiH₃*.

A. I,II,III and IV

B. I, III and IV

C. I, II and IV

D. I and IV

Answer: A



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54. Which of the following is an example of interstitial hydride?



Answer: C



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55. Which of the following is not a peroxy acid?

A. Perphosphoric acid

B. pernitric acid

C. Perdisulphuric acid

D. Perchloric acid

Answer: D



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56. Calorific value of producer gas is low because of

- A. High percent of N_2
- B. Low percent of CO_2
- C. High percent of CO
- D. Low percent of N_2

Answer: A



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57. Among the following, which is water insoluble?

A. sodium fluoride

B. Potassium fluoride

C. Beryllium fluoride

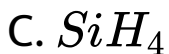
D. Magnesium fluoride

Answer: D



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58. Which of the following is used for making optical instruments?

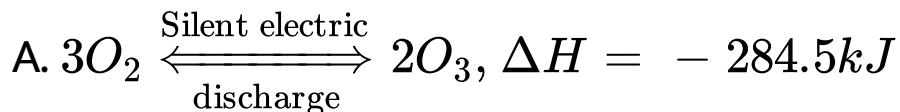


Answer: A



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59. Which of the following is not correct?



B. ozone undergoes addition reaction with unsaturated carbon compounds

C. Sodium thiosulphate reacts with I_2 to form sodium tetrathionate and sodium

iodide

D. ozone oxidises lead sulphide to lead sulphate

Answer: A



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60. Electrolysis of X gives Y at anode. Vacuum distillation of Y gives H_2O_2 . The number of peroxy (O-O_ bonds present in X and Y respectively, are

A. 1,1

B. 1,2

C. 0,1

D. 0,0

Answer: C



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61. What is the correct order of occurrence (% by weight) in air of Ne, Ar and Kr?

A. $Ne > Ar > Kr$

B. $Ar > Ne > Kr$

C. $Ar > Kr > Ne$

D. $Ne > Kr > Ar$

Answer: B



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62. Observe the following statements:

I. Bleaching powder is used in the preparation of chloroform.

II. Bleaching powder decomposes in the presence of $CoCl_2$ to liberate O_2 .

III. Aqueous KHF_2 is used in the preparation of fluorine.

The correct combination is

A. I, II and III are correct

B. Only II is correct

C. Only I and III are correct

D. Only I and II are correct

Answer: D



63. Hydrolysis of NCl_3 gives NH_3 and X.

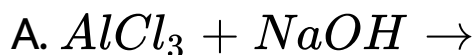
which of the following is X?



Answer: C



64. Which of the following reactions does not liberate gaseous product?



Answer: A



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65. In Fischer-Ringe's method of separation of noble gases mixture from air, . . . Is used

A. 90% CaC_2 + 10 % $CaCl_2$

B. coconum charcoal

C. Soda lime+Potash solution

D. 90% $CaCO_3$ + 10 % urea

Answer: A



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66. Observe the following statements regarding purification of bauxite.

I. During Hall's process, silica is removed as Si (vapour).

II. Bauxite ore contaminated with Fe_2O_3 is purified by Baeyer's process.

III. During Serpeck's process, AlN is formed.

The correct answer is

A. I, II and III are correct

B. Only I and II are correct

C. Only I and III are correct

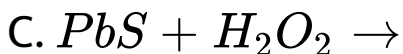
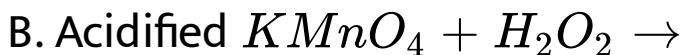
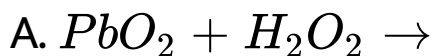
D. Only II and III are correct

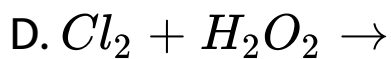
Answer: D



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67. Which one of the following reactions does not form gaseous product?





Answer: C



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68. Which of the following is not correct?

A. SiO_2 is used as acid flux

B. the distance between the layers in

graphite is $3.35 \times 10^{-8} \text{ cm}$

C. SiO_2 reacts with Na_2CO_3 and liberates

CO

D. The hybridisation of C in graphite is sp^2

Answer: C



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69. Which of the following is not correct?

A. Ammonia is used as refrigerant

B. A mixture of $Ca(CN)_2$ and C is known as nitrolim

C. A mixture of $Ca(H_2PO_4)_2$ and $CaSO_4 \cdot 2H_2O$ is known as super phosphoate is lime

D. Hydrolysis of NCl_3 gives NH_3 and HOCl

Answer: B



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70. Which of the following is not correct?

A. Iodine oxidises sodium thiosulphate to sodium tetrathionate

B. Sodium thiosulphate is soluble in water

C. Ozone is used to identify the present of unsaturation in alkenes

D. Sodium thiosulphate reacts with iodine to form sodium sulphate

Answer: D



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71. Which one of the following pairs of reactants does not form oxygen, when they react with each other ?

A. F_2 , $NaOH$ solution (hot, conc)

B. F_2 , H_2O

C. Cl_2 , $NaOH$ solution (cold, dilute)

D. $CaOCl_2$, H_2SO_4 (dilute, small amount)

Answer: C



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72. The number of oxygen atoms bonded to one phosphorus atom in P_4O_6 is

A. 4

B. 3

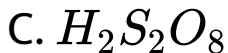
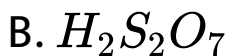
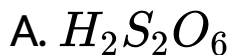
C. 6

D. 5

Answer: B



73. Which of the following has S-S bond?



D. mustard gas

Answer: A



74. Which one of the following is used as an acid flux in metallurgy?

A. CaO

B. SiO_2

C. Na_2CO_3

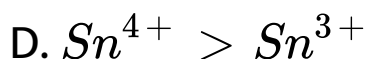
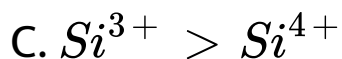
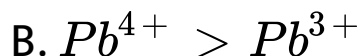
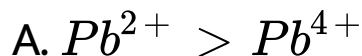
D. SO_2 .

Answer: B



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75. Which one of the following is correct about stability of the given ions?

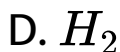
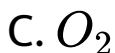
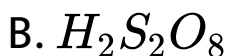
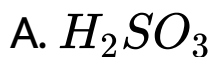


Answer: A



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76. The product obtained at anode when 50% H_2SO_4 aqueous solution is electrolysed using platinum electrodes, is

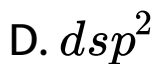
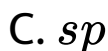
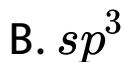


Answer: B



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77. Sulphur trioxide is dissolved in heavy water to form a compound X. The hybridisation state of sulphur X is



Answer: B



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78. Two oxides of nitrogen, NO and NO_2 react together at 253 K and form a compound of nitrogen, X. X reacts with water to yield another compound of nitrogen Y. the shape of the anion of Y molecule is

- A. Tetrahedral
- B. Triangular planar
- C. Square planar
- D. Pyramidal

Answer: B



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79. Chlorine atom, in its third excited state, reacts with fluorine to form compound X. The formula and shape of X are

- A. ClF_5 , pentagonal
- B. ClF_4 , tetrahedral
- C. ClF_4 , pentagonal bipyramidal
- D. ClF_7 , pentagonal bipyramidal

Answer: D



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80. The bond energies (in kJ mol^{-1}) of P-H, as-H and N-H are respectively.

A. 247, 389 and 318

B. 247, 318 and 389

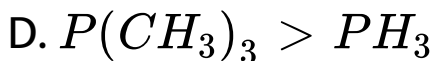
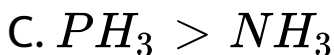
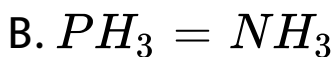
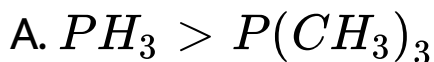
C. 318, 389 and 247

D. 318, 347 and 389

Answer: D



81. Which one of the following statements is correct with respect to basic character?



Answer: D



82. What are the products formed when ammonia reacts with excess chlorine ?



Answer: B



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

A. 1:1:2

B. 2:1:0.5

C. 1:2:1

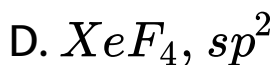
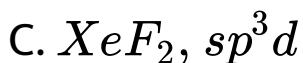
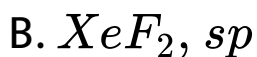
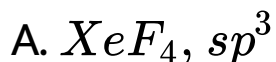
D. 2:1:2

Answer: B



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84. Which one of the following is a correct pair with respect to molecular formula of xenon compound and hybridisation state of xenon in it?

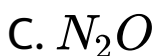


Answer: C



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85. When bauxite powder is mixed with coke and reacted with nitrogen at 2075 K, carbon monoxide and X are formed. What is the gas formed when X is reacted with water?



D. O_2

Answer: A



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86. Thermite is a mixture of X parts of ferric oxide and Y parts of aluminium powder. X, Y respectively, are

A. 3,1

B. 3,2

C. 1,1

D. 2,3

Answer: A



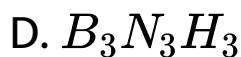
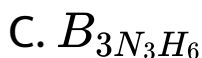
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87. What is the molecular formula of borazole

?

A. B_2H_6

B. $B_6N_6H_6$



Answer: C



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88. The catenation tendency of C, Si and Ge is in the order $Ge < Si < C$. The bond energies (in kJ mol^{-1}) of C-C, Si-Si and Ge-Ge bonds, respectively, are

A. 167180348

B. 180167348

C. 348167180

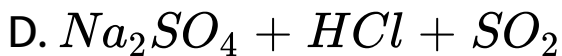
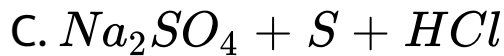
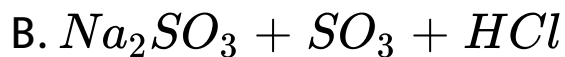
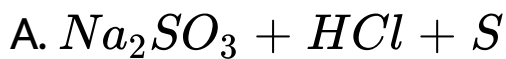
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Answer: D



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89. What are the products formed when chlorine is passed through aqueous hypo solution?

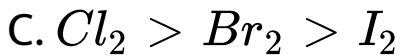
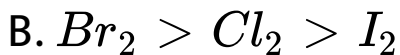
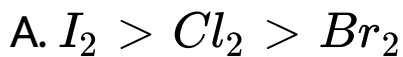


Answer: C



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



Answer: C



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91. Which one of the following halogens liberates oxygen, when passed through hot concentrated KOH solution?

A. I_2

B. Cl_2

C. Br_2

D. F_2

Answer: C



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92. Bond dissociation energies of HF, HCl, HBr

follow the order



Answer: C



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93. What are the oxidation number of nitrogen in NH_4NO_3 ?

A. $+3, -5$

B. $-3, +5$

C. $+3, -6$

D. $+2, +2$

Answer: B



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94. Which of the following is a sulphide ore?

A. Calamine

B. Cryolite

C. Zinc blende

D. Haematite

Answer: C



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95. Which of the following is the strongest oxidising agent?

A. F_2

B. Br_2

C. Cl_2

D. O_2

Answer: A



Watch Video Solution

96. What is the oxidation state of chlorine in hypochlorous acid?

A. +1

B. + 3

C. + 5

D. + 7

Answer: A



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97. What is the catalyst used in the manufacture of sulphuric acid by contact process?

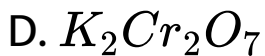
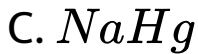
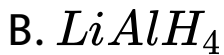
- A. Nickel powder
- B. Platinised asbestos
- C. Anhydrous Al_3O_3
- D. Aluminium powder

Answer: B



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98. Which of the following reacts with BCl_3 to form diborane?



Answer: B



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99. During Serpeck's process, silica is eliminated as

A. Si (solid)

B. SiO_2 (vapour)

C. SiO_2 (solid)

D. Si (vapour)

Answer: D



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100. What is the molecular formula of white phosphorus?

A. P_2

B. P_4

C. P_5

D. P_{16}

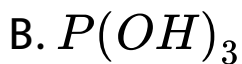
Answer: B



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101. Which of the following is an acid?

A. $Ca(OH)_2$



Answer: B



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102. What is the approximate calorific value of water gas in $\text{kcal } m^{-3}$?

A. 500

B. 2700

C. 4000

D. 1000

Answer: B



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103. Which of the following is used in the preparation of aerated water (soda) ?

A. CO

B. CO_2

C. SO_2

D. HCl

Answer: B



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104. Which one of the VI group element has the highest catenation power?

A. O

B. Se

C. S

D. Te

Answer: C



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105. Which of the following is not true?

A. Aluminium liberates hydrogen on

treating with a base

B. Aluminium is used in the preparation of duralumin

C. aluminium is extracted by the electrolysis of alumina in presence of cryolite

D. Aluminium is a strong oxidising agent

Answer: D



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106. The industrial preparation of nitric acid by Ostwald's process involves ?

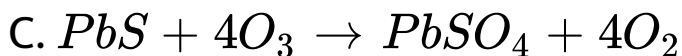
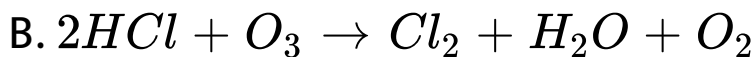
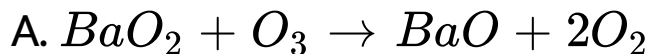
- A. Reduction of NH_3
- B. Oxidation of NH_3
- C. Hydronegation of NH_3
- D. Hydrolysis of NH_3

Answer: B

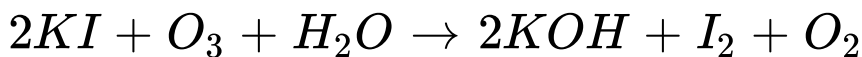


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107. In which of the following reactions ozone acts as a reducing agent?



D.

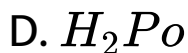
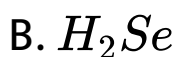
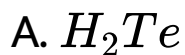


Answer: A



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108. Which of the following is the weakest acid in its aqueous solution ?



Answer: C



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109. Inorganic benzene contains

A. C,H,Al

B. C,H,B

C. B,N,H

D. C,N,H

Answer: C



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110. Which of the following is the anhydride of

HNO_3 ?

A. NO

B. N_2O_3

C. N_2O_4

D. N_3O_5

Answer: D



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111. Chlorine is passed into dilute cold KOH solution. What are the oxidation numbers of chlorine in the products formed ?

A. $-1, +5$

B. $-1, +3$

C. $+1, +7$

D. $-1, +1$

Answer: D



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112. The oxidation number of nitrogen in HN_3 is

A. $+\frac{1}{3}$

B. 0

C. $-\frac{1}{3}$

D. 1

Answer: C



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113. Tin stone is contaminated with wolframite.

Which one of the following methods can be employed to dress the tin stone ore?

A. Levigation

B. Electromagnetic separation

C. Floatation process

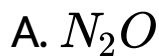
D. Roasting

Answer: B



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



Answer: A



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115. Hg sticks to the surface of the glass, when it comes in contact with

A. H_2O

B. HNO_3

C. Grease

D. O_3

Answer: D



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116. Cassiterite is concentrated by

A. Levigation

B. Electromagnetic separation

C. Floatation

D. Liquation

Answer: B



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117. Carbogen is

A. Pure form of carbon

B. $COCl_2$

C. Mixture of CO and CO_2

D. Mixture of O_2 and CO_2

Answer: D



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118. Silica is soluble in

A. HCl

B. HNO_3

C. H_2SO_4

D. HF

Answer: D



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119. Which one of the following halogens does not exhibit positive oxidation state in its compounds?

A. *I*

B. *Br*

C. *Cl*

D. *F*

Answer: D



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120. Which one of the following ores is chloride?

A. Horn silver

B. Zincite

C. Bauxite

D. Feldspar

Answer: A



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



Answer: D



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122. Quartz is a crystalline variety of

A. Sodium silicate

B. silicon carbide

C. silicon

D. silica

Answer: D



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123. Which one of the following compounds liberates CO_2 from aqueous $NaHCO_3$?

A. Aluminium chloride

B. $CHCl_3$

C. CCl_4

D. CH_3Cl

Answer: A



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124. The bond angle of H_2X (where, X is a sixth group element), as one goes down the group

- A. Increases
- B. Decreases
- C. Does not change
- D. Changes irregularly

Answer: B



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125. With respect to both oxygen and ozone, which one of the following statements is not correct?

A. both have similar reactivity with water

B. Oxygen is colourless and ozone is coloured

C. Oxygen valency is 2 in both

D. Oxygen has 2 bonds and ozone has 3 bonds

Answer: C



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126. The element which can displace three other halogens from their compounds is

A. Cl

B. Br

C. I

D. F

Answer: D



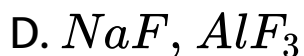
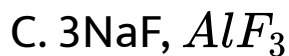
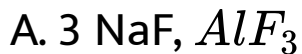
127. Bleaching action of SO_2 is due to its

- A. Oxidising action
- B. Ability to hydrolyse
- C. Acidic nature
- D. Reducing action

Answer: D



128. The molecular formula of cryolite is



Answer: A



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129. Silver containing lead as an impurity is removed by

A. Poling

B. Cupellation

C. Levigation

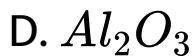
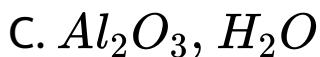
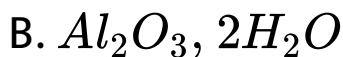
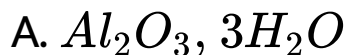
D. Distillation

Answer: B



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130. The chemical formula of diaspore, an ore of aluminium is



Answer: C



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131. The inert form of carbon is

A. Diamond

B. Graphite

C. Coal

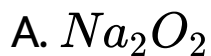
D. Charcoal

Answer: A



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132. Which of the following is not a peroxide ?



Answer: D



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133. The glass which contains PbO mainly is

A. Soda glass

B. Flint glass

C. Pyrex glass

D. Borosil

Answer: B



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134. Which of the following nitrogen halides is most stable?



Answer: D



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135. The following statement is not true as far as BF_3 is concerned

- A. Electron deficient compound
- B. Lewis acid
- C. Ionic compound
- D. Covalent compound

Answer: C



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136. The oxy acid of phosphorus in which phosphorus has the lowest oxidation state is

A. Hypophosphorus acid

B. Orthophosphoric acid

C. Pyrophosphoric acid

D. Metaphosphoric acid

Answer: A



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137. The chief product of electrolysis of Al_2O_3 at the anode in the Hall's process is

A. H_2

B. Na

C. AlF_3

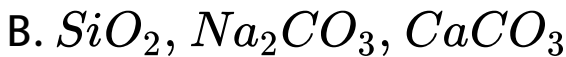
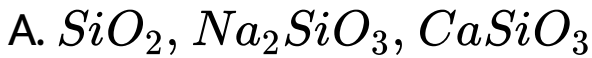
D. O_2

Answer: D



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138. Ordinar glass is a combination of the following



Answer: A



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139. Which of the following is correct with respect to Vth group elements?

A. All the elements exhibit allotropy

B. allotropy

C. all the elements except nitrogen and bismuth exhibit allotropy

D. All the elements except nitrogen and arsenic exhibit allotropy

Answer: B



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140. Catalyst used in the manufacture of HNO_3 in ostwald process is

A. Platinum gauze

B. V_2O_3

C. Fe / Mo

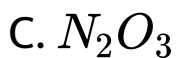
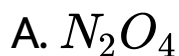
D. MnO_2

Answer: A



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141. Which of the following is paramagnetic?



Answer: B



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142. Preparation of fluorine by direct electrolysis of liquid HF is not practicable because

A. very high temperature is needed

B. Electrolytic products are different from fluorine

C. Very low temperature is required

D. HF is a non-electrolyte

Answer: B





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143. The oxidation state of iodine in ICl_2^- is

A. +1

B. -1

C. +2

D. -3

Answer: A



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144. When 6 volumes of oxygen undergoes complete reaction to ozone, the number of moles of ozone formed are

A. 6

B. 3

C. 4

D. 2

Answer: C



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145. While phosphorus forms PCl_5 , nitrogen does not form NCl_5 because

A. Nitrogen is more electronegative than phosphorus

B. Nitrogen atom is smaller than phosphorus

C. The ionisation energy of nitrogen is greater than that of phosphorus

D. Unlike phosphorus, nitrogen has no 'd' orbital in its valence shell

Answer: D



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146. Which one of the following is not an allotrope of carbon?

A. Graphite

B. Diamond

C. Soot

D. Carborundum

Answer: D



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147. Thermite is a mixture of iron oxide and

A. Sodium shavings

B. Aluminium powder

C. Zinc powder

D. Potassium metal

Answer: B



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148. Which one of the following statements is not correct with respect to BF_3 ?

A. it is an electron deficient compound

B. It is a lewis acid

C. It is an ionic compound

D. It forms adducts

Answer: C



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149. The gas that is used for sterilising water is

A. SO_2

B. NO_2

C. O_3

D. NH_3

Answer: C



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150. BF_3 forms an adduct with NH_3 because

A. Nitrogen has high electronegativity

B. Boron has smaller atomic radius than
nitrogen

C. Boron has an empty 'p' orbital and
nitrogen has a lone pair of electrons

D. Boron has electropositive character

Answer: C



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151. The crystalline form of sulphur that is stable at room temperature is

- A. Engel's sulphur
- B. Rhombic sulphur
- C. Monoclinic sulphur

D. Plastic sulphur

Answer: B



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152. Bleaching action of chlorine in presence of moisture is an example of

A. Oxidation

B. Reduction

C. Displacement

D. Substitution

Answer: A



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153. In the electrolysis of HF-KF mixture for the production of fluorine, the role of KF is

A. To lower the oxidation potential of fluoride

B. To make HF a conducting solution

C. se corrosion

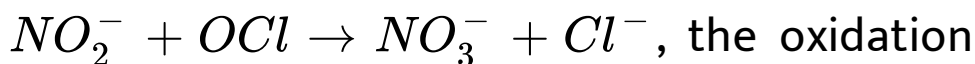
D. To lower the solubility of fluorine

Answer: B



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154. In the reaction,



state of chlorine

A. Does not change

B. Changes from +1 to -1

C. Changes from -2 to -1

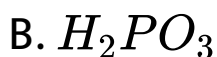
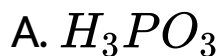
D. Changes from 0 to -1

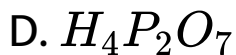
Answer: B



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155. Meta-phosphoric acid is represented by



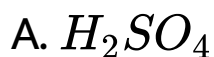


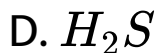
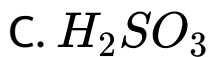
Answer: C



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156. In which of the following, sulphur has the lowest oxidation state?



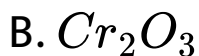
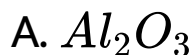


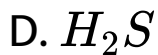
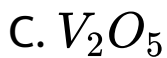
Answer: D



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157. The catalyst used in the manufacture of sulphuric acid by contact process is





Answer: C



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158. The rare gas which is more abundant in atmosphere is

A. Ne

B. Rn

C. Xe

D. Ar

Answer: D



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159. The oxidation number of chlorine in

$KClO_3$ is

A. +5

B. -5

C. +1

D. -1

Answer: A



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160. The melting point of diamond is very high since the type of bonding in it is

A. Two dimensional network

B. Metallic

C. Covalent coordinate

D. Three dimensional giant network

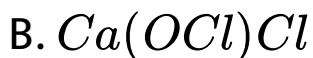
Answer: D



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161. The chemical formula of bleaching powder

is



C. Al

D. $CaCl_2$

Answer: B



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162. Bauxite is a mineral for the extraction of

A. Ca

B. Cu

C. Al

D. Fe

Answer: C



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163. Qhwn NH_4NO_3 is heated, the gas formed is

A. N_2

B. NO_2

C. N_2O

D. NH_3

Answer: C



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164. In diborane, boron atom undergoes ___ hybridisation.

A. sp^3

B. sp^2

C. sp

D. dsp^2

Answer: A



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165. Which of the following statements about halogens is correct?

A. They are all diatomic and form universal ions

B. They are all dioatomic and form divalentions

C. They are all capable of exhibiting several oxidation states

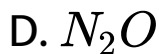
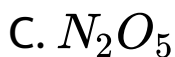
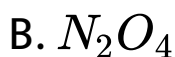
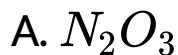
D. They can mutually displace each other from the solution of their compounds with metals

Answer: A



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



Answer: C



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167. The non-metallic element present in the mineral cryolite is,

A. *Na*

B. *Al*

C. *F*

D. *Mg*

Answer: C



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168. Among the SO_2 , H_2SO_4 and sodium thiosulphate, sulphur has the highest oxidation state in

A. SO_2

B. H_2SO_4

C. Sodium thiosulphate

D. Same in all

Answer: B



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169. Besides SiO_2 and Al_2O_3 , the other major ingredient in portland cement is

A. $CaCO_3$

B. $MgCO_3$

C. Lime

D. Sodium peroxide

Answer: C



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