



CHEMISTRY

BOOKS - A2Z CHEMISTRY (HINGLISH)

P BLOCK ELEMENTS (GROUP 15,16,17,18)

Physical And Chemical Properties (Group 15)

1. Nitrogen shows different oxidation states in the range:

A. 0 to 5

B. -3 to $+5$

C. 3 to -5

D. -5 to $+3$

Answer: B



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2. Which of the following does not show allotropy?

A. Nitrogen

B. Phosphorus

C. Arsenic

D. Antimony

Answer: A



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3. Which of the following is true for white and red phosphours except that they

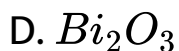
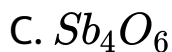
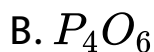
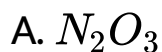
- A. Are both soluble in CS_2
- B. Can be oxidised by heating
- C. Consists of same kind of atoms
- D. Can be converted into one another

Answer: A



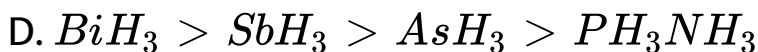
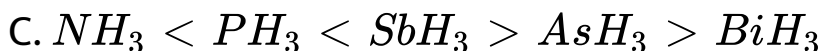
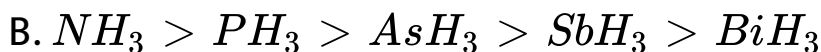
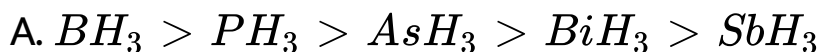
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4. Which of the following oxides is amphoteric in nature ?



Answer: C

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



Answer: B

6. Which of the following is not known?



Answer: A



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7. Which of the following is least reactive?

A. white phosphorus

B. Yellow phosphorus

C. Red phosphorus

D. Black phosphorus

Answer: D



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8. White phosphorus contains

A. P_2 molecules

B. P_6 molecules

C. P_4 molecules

D. P_5 molecules

Answer: C



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9. Which one of the following elements occur free in nature?

A. Nitrogen

B. Phosphorus

C. Arsenic

D. Antimony

Answer: A



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10. Which does not form complex?

A. N

B. P

C. As

D. Bi

Answer: A



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11. Nitrogen is inert because of

- A. Low atomic size
- B. Presence in gaseous state
- C. More electronegativity
- D. Presence of triple bond

Answer: D



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

A. *N*

B. *P*

C. *As*

D. *Sb*

Answer: A



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13. The strongest base is

A. NH_3

B. PH_3

C. AsH_3

D. SbH_3

Answer: A

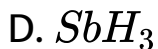
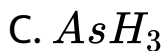


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14. Which has the lowest boiling point?

A. NH_3

B. PH_3

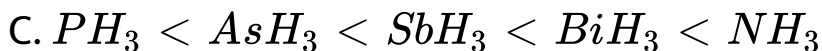
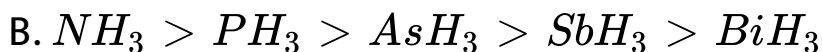
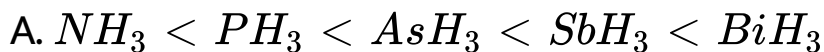


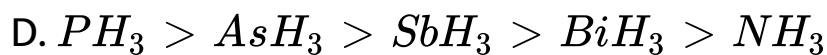
Answer: B



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



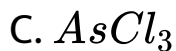


Answer: A



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16. Which is the most explosive?



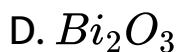
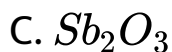
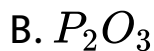
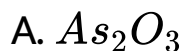
D. All of these

Answer: A



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17. Of the following, the most acidic is



Answer: B



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18. Nitrogen is relatively inactive element because

- A. Its atom has a stable electronic configuration
- B. It has low atomic radius
- C. Its electronegativity is fairly high
- D. Dissociation energy of its molecule is fairly high

Answer: D



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19. Pick out the incorrect statement

A. Red phosphorus consists of a complex chain structure and black phosphorus has a layer structure

B. Nitrogen shows a little tendency for catenation, because $N - N$ single bond is very strong.

C. The maximum number of covalent bonds formed by nitrogen is four, since it has no d -orbitals in its valence shell.

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

through covalent bonding

Answer: B



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20. Which statement is not correct for nitrogen?

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

Answer: D



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21. PCl_5 exists but NCI_5 does not because

A. Nitrogen has no vacant orbitals

B. NCI_5 is unstable Nitrogen atom is much smaller

C. Nitrogen is highly inert

D.

Answer: A



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22. Which of the following phosphorus is most stable?

A. Red phosphorus consists of a complex chain structure and black phosphorus has a layer structure

B. White

C. Black

D. All are stable

Answer: A



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23. White phosphorus when boiled with strong solution of caustic soda produces

- A. Phosphorus
- B. Phosphoric acid
- C. Phosphorus acid
- D. No reaction

Answer: A



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



Answer: A



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25. Phosphine is not obtained by the reaction

A. White P is heated with $NaOH$

B. Red P is heated with with $NaOH$

C. Ca_3P_2 reacts with water

D. Phosphorus trioxide is boiled with water

Answer: B

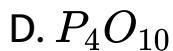
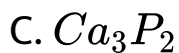


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26. Phosphorus is produced is by adding water to

A. CaC_2

B. HPO_3

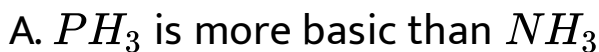


Answer: C



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



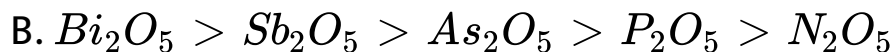
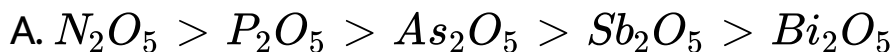
D. PH_3 is amphoteric while NH_3 is basic

Answer: B

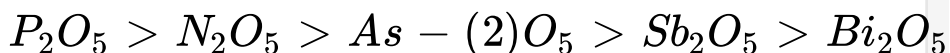


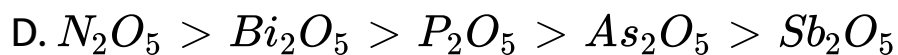
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28. Arrange the oxides of group 15 elements in decreasing order of their acidity



C.



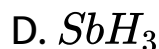


Answer: A



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29. Which of the following exhibits highest solubility in water?

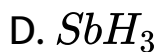
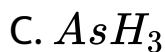


Answer: A



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30. Which of the following has highest boiling point?

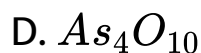
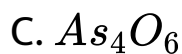
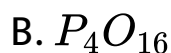
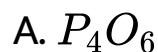


Answer: D



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31. The most common minerals of phosphorus are



Answer: C



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32. Which salt can be classified as an acid salt?

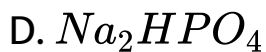
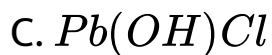
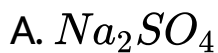
- A. Hydroxy apatite and kernite
- B. Colemanite and fluorapatite
- C. hydroxy apatite and fluorapatite
- D. Hydroxyapatite and colemanite

Answer: D



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33. In compounds of type ECl_3 , where $E = BP, As$ or B , the angles $Cl - E - Cl$ for different E are in the order



Answer: B



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34. which of the following elements forms a strongly acidic oxide?



B. *As*

C. *Sb*

D. *B*

Answer: A



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35. Which of the following tendencies remains unchanged on going down in the nitrogen family (Group-VA)?

A. Highest oxidation state

B. Non-metallic character

C. Stability of hydrides

D. Physical state

Answer: A



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Compounds Of Nitrogen (Group15)

1. Ammonium nitrate decomposes on heating into

A. Ammonia and nitric acid

B. Nitrous oxide and water

C. Nitrogen, hydrogen and ozone

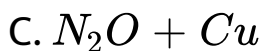
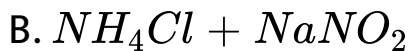
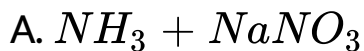
D. Nitric oxide, nitrogen dioxide and hydrogen

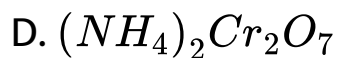
Answer: B



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2. Pure nitrogen is obtain from





Answer: D



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3. In Birkeland-Eyde process, the raw material used is

A. Air

B. NH_3

C. NO_2

D. HNO_3

Answer: A



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4. Nitrogen forms how many oxides

A. 3

B. 4

C. 5

D. 6

Answer: C



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5. Ammonium dichromate on heating gives

A. Chromium oxide and ammonia

B. Chromium acid and nitrogen

C. Chromic acid and ammonia

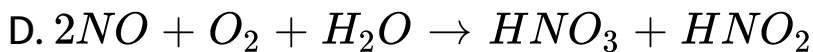
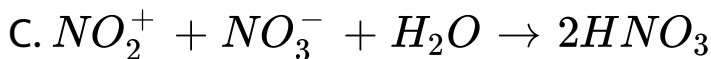
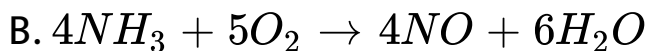
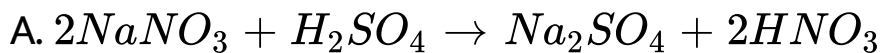
D. Chromic acid and ammonia

Answer: C



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6. Large Scale manufacturing of nitric acid by Ostwald process utilizes the reaction



Answer: B



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7. When concentrated nitric acid is heated, it decomposes to give



B. NO

C. N_2O_5

D. NO_2 and O_2

Answer: D



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8. A solution of ammonia in water contains

A. H^+

B. OH^-

C. Only NH_4^+

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

Answer: D



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9. Nitrous oxide

- A. Is a mixed oxide
- B. Is an acidic oxide.
- C. Is an acidic oxide
- D. Is highly soluble in hot water

Answer: D



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10. Which of the following represent laughing gas?

A. NO

B. N_2O

C. NO_2

D. $N_2)_3$

Answer: B



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11. NO_2 is a mixed oxide is proved by the first that with $NaOH$, it forms

- A. Nitrites salt
- B. Nitrates salt
- C. Mixture of nitrate and nitrite
- D. Ammonia

Answer: C



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12. Which of the following metal produces nitrous oxide with dil. HNO_3 ?

A. Fe

B. Zn

C. Cu

D. Ag

Answer: B



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13. Superphosphate of lime is

A. A mixture of normal calcium phosphate and gypsum

B. A mixture of primary calcium phosphate and gypsum

C. Normal calcium phosphate

D.

Answer: B



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14. Nitrogen combines with metals to form

A. Nitrites

B. Nitrates

C. Nitrosyl chloride

D. Nitrides

Answer: D

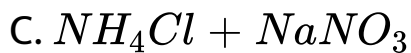


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15. Laughing gas is prepared by heating

A. NH_4Cl

B. $(NH_4)_2SO_4$



Answer: D

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16. Nitrogen (i) oxide is produced by

A. Thermal decomposition of ammonium nitrate

B. Disproportionation of N_2O_4

C. Thermal decomposition of ammonium nitrite

D. Interaction of hydroxyl amine and nitrous acid

Answer: D



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

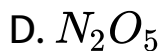
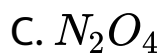
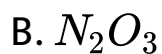
- A. It is called laughing gas
- B. It is nitrous oxide
- C. It is not a linear molecule
- D. It is least reactive in all oxides of nitrogen

Answer: C



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18. Which of the following oxides of nitrogen is the anhydride of nitrous acid?

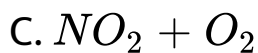


Answer: B



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19. On strongly heating $Pb(NO_3)_2$ crystals, the gas formed is



Answer: c



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20. Nitric oxide is prepared by the action of HNO_3

on

A. Fe

B. Cu

C. Zn

D. Sn

Answer: B



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21. When lightning flash is produced, which gas is formed?

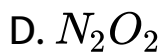
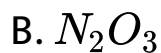
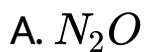
- A. Nitrous oxide
- B. Nitrogen dioxide
- C. Dinitrogen pentoxide
- D. Nitric oxide

Answer: D



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22. Oxidation of NO in air produces

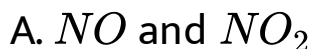


Answer: C



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23. When $AgNO_3$ is heated strongly, the products formed are



B. NO_2 and O_2

C. NO_2 and N_2O

D. NO and O_2

Answer: B



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24. Nitrogen dioxide

A. dissolves in water forming nitric acid

B. Does not dissolve in water

C. Dissolves in water to form nitrous acid and gives off oxygen

D. Dissolves in water to form a mixture of nitrous and nitric acids

Answer: D



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25. concentrated nitric acid oxidises cane sugar to

A. CO_2 and H_2O

B. CO and H_2O

C. CO , CO_2 and H_2O

D. Oxalic acid and water

Answer: D



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26. A mixture of ammonia and air at about $800^\circ C$ in the presence of Pt gauze forms

A. N_2O

B. NO

C. NH_2OH

D. N_2O_3

Answer: B



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27. Cyanamide process is used in the formation of

A. N_2

B. HNO_3

C. NH_3

D. PH_3 is amphoteric while NH_3 is basic

Answer: C



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

- A. calcium carbonate
- B. Calcium hydroxide
- C. Calcium oxide
- D. Calcium bicarbonate

Answer: A



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29. Which statement is wrong for NO ?

A. It is anhydride of nitrous acid

B. its dipole moment is $0.22D$

C. It forms dimer

D. It is paramagnetic

Answer: A



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30. When ammonia is passed over heated copper oxide, the metallic copper is obtained, the reaction

shows that ammonia is

- A. A dehydrating agent
- B. An oxidising agent
- C. A reducing agent
- D. A nitrating agent

Answer: C



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31. Liquid ammonia is used for refrigeration because

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

Answer: B



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32. Action of concentrated nitric acid (HNO_3) on metallic tin produces

- A. Stannic nitrate

B. Stannous nitrate

C. Stannous nitrite

D. Meta stannic acid

Answer: D

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33. How can you synthesize nitric oxide in the laboratory?

A. Zinc with cold and dilute HNO_3

B. Zinc with concentrated HNO_3

C. Copper with cold and dilute HNO_3

D. Heating NH_4NO_3

Answer: C



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34. The reaction, which forms nitric oxide, is

A. C and N_2O

B. Cu and N_2O

C. Na and NH_3

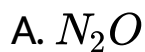
D. Cu and HNO_3

Answer: D



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



Answer: A

36. Which is used in the Haper process for the manufacture of NH_3 ?

A. Pt

B. $Fe + Mo$

C. CuO

D. Al_2O_3

Answer: B

37. The product obtained by heating $(NH_4)_2SO_4$ and $KCNO$ is

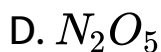
- A. Hydrocyanic acid
- B. Ammonia
- C. Ammonium cyanide
- D. Urea

Answer: D



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38. When HNO_3 is dropped into the palm and washed with water, it turns into yellow. It shows the presence of



Answer: D



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39. Repeated use of which of the following fertilizers would increase the acidity of the soil

A. Urea

B. Potassium nitrate

C. Ammonium sulphate

D. superphosphate of lime

Answer: C



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40. Which gas is obtained when urea is heated with HNO_2 ?

A. N_2

B. H_2

C. O_2

D. NH_3

Answer: A



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1. Which of the following acids is monobasic?

A. Hypophosphorus acid (H_3PO_2)

B. Orthophosphoric acid (H_3PO_4)

C. Pyrophosphoric acid ($H_4P_2O_7$)

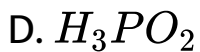
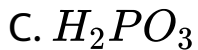
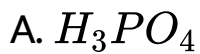
D. Hypophosphoric acid ($H_4P_2O_6$)

Answer: A



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2. Metaphosphoric acid has the formula

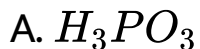


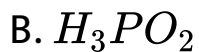
Answer: B



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





Answer: A



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4. Which of the following oxides is a basic oxide?



D. CrO_3

Answer: A



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5. Which of the following is a tetrabasic acid?

A. Orthophosphorus acid

B. Orthophosphoric acid

C. Metaphosphoric acid

D. Pyrophosphoric acid

Answer: D



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6. P_4O_{10} has short and long $P - O$ bonds. The number of short $P - O$ bonds in this compounds is

A. 1

B. 2

C. 3

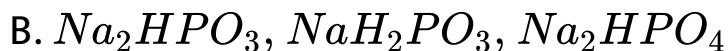
D. 4

Answer: D



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7. Which is a set of acid salts that can react with base?



D. All of these

Answer: C



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8. SO_3 on combining with HCl gives

A. Chlorosulphonic acid

B. Chlorine

C. SO_2Cl_2

D. None

Answer: A



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9. phosphine is generally prepared in the laboratory

A. By heating phosphorus in a current of hydrogen

B. By heating white phosphorus with aqueous solution of caustic potash

C. By decomposition of P_2H_4 at $110^\circ C$

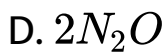
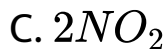
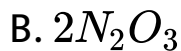
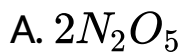
D. By heating red phosphorus with an aqueous solution of caustic soda

Answer: B



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10. Write the missing product in the following reaction



Answer: A



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11. Phosphorus is manufactured by heating in an electric furnace a mixture of

A. Bone ash and coke

B. Bone ash and silica

C. Bone ash, silica and coke

D. None of these.

Answer: C



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12. Dissociation of H_3PO_4 occurs in following stages

A. 1

B. 2

C. 3

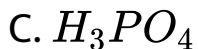
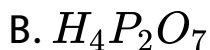
D. 4

Answer: C



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13. Which of the following acid exist in polymeric form?



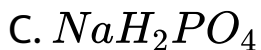
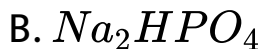
D. none of these

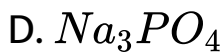
Answer: A



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14. If phosphoric acid is allowed to react with sufficient quantity of $NaOH$, the product obtained is



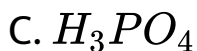
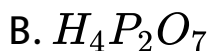


Answer: D



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



D. H_3PO_2

Answer: D



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16. P_2O_5 is heated with water to give

- A. Hypophosphorus acid
- B. Orthophosphorus acid
- C. Hypophosphoric acid
- D. Orthophosphorus acid

Answer: D



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17. Hypophosphorus acid is

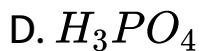
- A. A tribasic acid
- B. A dibasic acid
- C. A monobasic acid
- D. Not acidic at all

Answer: C



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18. PCl_3 reacts with water to yield



Answer: B



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19. H_3PO_3 is

A. A tribasic acid

B. A dibasic acid

C. Neutral

D. A monobasic acid

Answer: B

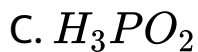


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20. Oxidation state of +1 for phosphorus is found in

A. $H_3PO - (3)$

B. H_3PO_4



Answer: C



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21. By the action of hot conc. H_2SO_4 , phosphorus changes to

A. Phosphorus acid

B. Orthophosphoric acid

C. Metaphosphoric acid

D. Pyrophosphoric acid

Answer: B



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22. The number of hydroxyl group in pyrophosphoric acid is

A. 3

B. 4

C. 5

D. 7

Answer: B



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23. Sodium hydroxide solution reacts with phosphorus to give phosphine. To bring about this reaction, we need

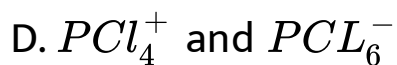
- A. white phosphorus and dil. $NaOH$
- B. whit phosphorus and conc. $NaOH$
- C. Red phosphorus and dil. $NaOH$
- D. Red phosphorus and conc. $NaOH$

Answer: B



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24. Solid PCl_5 exists as



Answer: D



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25. Which is true with regard to the properties of PH_3 ?

- A. PH_3 is not much stable
- B. PH_3 is neutral towards litmus
- C. PH_3 has fishy smell
- D. PH_3 is insoluble in water

Answer: D



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26. The number of $P - O - P$ bridge in the structure of phosphorous pentoxide and phosphorus trioxide are respectively

A. 6, 6

B. 5, 5

C. 5, 6

D. 6, 5

Answer: A



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27. A solution of sodium metal in liquid ammonia is strongly reducing due to the presence of

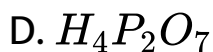
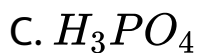
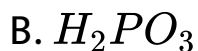
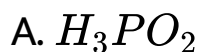
- A. Sodium hydride
- B. Sodium amide
- C. Sodium atoms
- D. Solvated electrons

Answer: D



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28. Which of the following compound is tribasic acid?



Answer: C



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

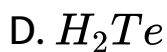
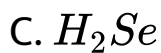
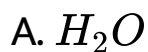
- A. One mole of phosphine
- B. Two moles of phosphoric acid
- C. Two moles of phosphine
- D. One mole of phosphorus pentoxide

Answer: A::C



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1. Which of the following hydrides of the oxygen family shows the lowest boiling point?



Answer: B



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2. Which of the elements listed below occurs in allotropic forms?

A. Iodine

B. Copper

C. Sulphur

D. Silver

Answer: C



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3. Which of following elements is highest electronegative?

A. *S*

B. *Se*

C. *Te*

D. *O*

Answer: D



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

- A. Gains two electrons
- B. Loses two electrons
- C. Gains two protons
- D. Shares two electrons

Answer: A



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5. Which of following elements is highest electronegative?

A. *O*

B. *S*

C. *Te*

D. *Se*

Answer: A



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6. The most stable allotropic form of sulphur is:

A. rhombic

B. monoclinic

C. plastic

D. milk of sulphur

Answer: A



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7. The bond angle around central atom is maximum

for

A. H_2O

B. H_2S

C. H_2Se

D. H_2Te

Answer: D



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8. Oxygen molecule exhibits

A. Paramagnetism

B. Diamagnetism

C. Ferromagnetism

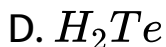
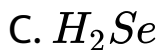
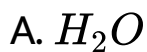
D. Ferrimagnetism

Answer: A



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9. The bond angle around central atom is maximum for

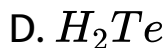
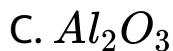
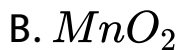


Answer: A



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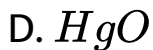
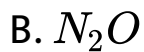
10. Which compound acts as an oxidising as well as reducing agent?



Answer: A

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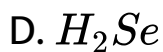
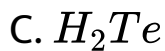
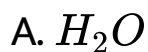
11. Which of the following is acidic?



Answer: A

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



Answer: C



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

A. High value of ionisation energies

B. Oxidation states (2, 4, 6)

C. Polymorphism

D. Formation of hydrides

Answer: B



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

A. H_2O

B. `Spirit

C. Mercury

D. kerosene oil

Answer: A



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15. Which shows polymorphism?

A. O

B. S

C. Se

D. All

Answer: D

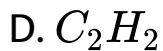
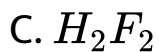


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16. Shape of O_2F_2 is similar to that of

A. C_2F_2

B. H_2O_2



Answer: B



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17. Sulphur is readily soluble in

A. Alcohol

B. Carbon disulphide

C. Ether

D. Water

Answer: B



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18. Which of the following is not a chalcogen?

A. *O*

B. *S*

C. *Se*

D. *Na*

Answer: D



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19. In presence of moisture, SO_2 can

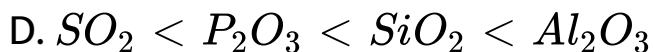
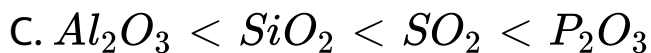
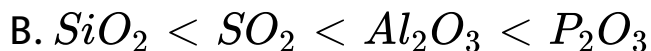
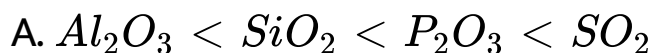
- A. Act as oxidant
- B. Lose electron
- C. Gain electron
- D. Not act as reductant

Answer: B



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20. The correct order of acidic strength of the following is

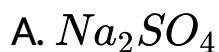


Answer: A



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1. When oxygen is passed through a solution of Na_2SO_3 , we get



Answer: A



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2. Ozone is obtained from oxygen

A. by oxidation at high temperature

B. By oxidation using a catalyst

C. By silent electric discharge

D. By conversion at high pressure

Answer: C



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3. Which of the following is not an allotrope of sulphur?

A. Plastic sulphur

B. Prismatic sulphur

C. Sulphate sulphur

D. Colloidal sulphur

Answer: c

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4. Acidified potassium permanganate is dropped over sodium peroxide taken in a round bottom flask at room temperature, vigorous reaction takes place to produce:

A. hydrogen peroxide

B. mixture of hydrogen and oxygen

C. a colourless gas hydrogen

D. a colourless gas dioxygen.

Answer: D



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5. Ozone depleton due to the fomation of following compound in Antarctica

A. Acrolein

B. Peroxy acety nitrate

C. SO_2 and SO_3

D. Chlorine nitrate

Answer: D



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6. in the electrolysis method of acidified water to give O_2 , the cathode used is

A. graphite

B. lead

C. platinum

D. Nickel

Answer: C



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7. Ozone with K solution produces

A. Cl_2

B. I_2

C. HI

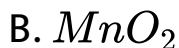
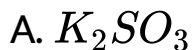
D. IO_3

Answer: B



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8. By passing H_2S in acidified $KMnO_4$ solution we get



D. Sulphur

Answer: D



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9. Ozone is prepared by passing silent electric discharge through oxygen. In this reaction

- A. energy is given out
- B. energy is absorbed
- C. oxygen is dissociated into atom
- D. oxygen is loaded with energy.

Answer: D



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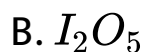
10. Estimation of ozone can be made quantitatively by :

- A. decomposing into and O_2 and absorption of O_2 into pyrogallol
- B. volumetric method using KI and titration of the liberated iodine using hypo solution
- C. oxidative ozonolysis method
- D. all methods given above



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11. In the reaction,

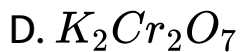
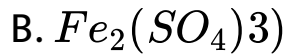
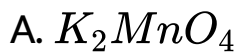


Answer: B::D



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12. Which of the following is oxidised by O_3 ?

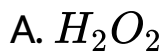


Answer: A



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13. Oxygen is not evolved on reaction of ozone with



C. Hg

D. KI

Answer: B



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14. Which ion cannot be oxidized by ozone?

A. I^-

B. AsO_3^{3-}

C. $[Fe(CN)_6]^{3-}$

D. MnO_4^{2-}

Answer: C



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15. Freezing point of O_2 is $-x^\circ C$, the value of x is ----

A. -183°

B. $-229^\circ C$

C. $-195.8^\circ C$

D. $-186^\circ C$

Answer: B



16. An element forms a gaseous oxide which on dissolving in water gives an acidic solution. The element is

- A. Hydrogen
- B. Sodium
- C. Magnesium
- D. Sulphur

Answer: D

17. Ozone acts as

A. Oxidising agent

B. reducing agent

C. bleaching agent

D. all of these

Answer: D



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18. Which of the following solutions does not change its colour on passing ozone through it ?

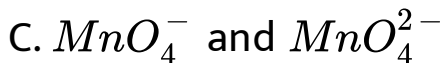
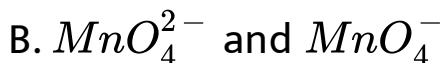
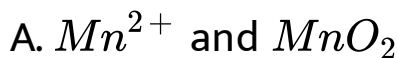
- A. starch iodide solution
- B. alcoholic solution of benzidine
- C. acidic solution of potassium dichromate
- D. acidified solution of $FeSO_4$

Answer: C



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19. A green coloured solution of a salt changes its colour to light pink on passing ozone through it. Which of the following species represent pink and green colour respectively.

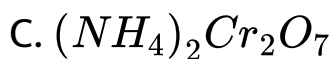


Answer: C



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20. Which compound does not give oxygen on heating?



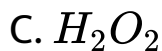
Answer: C



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21. Oxide of a non-metal possesses the following characteristics

- (i) It is both a proton donor and an acceptor
- (ii) It is a poor conductor of electricity
- (iii) It reacts readily with basic and acids
- (iv) It oxidises Fe at its boiling point. This oxide is



Answer: D



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22. Which one of the following property is not correct for ozone?

- A. It oxidises lead sulphide
- B. It oxidises potassium iodide
- C. It oxidises mercury
- D. It cannot act as bleaching agent in dry state.

Answer: D



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23. Mercury loses its meniscus on passing ozone through it. The meniscus can be regained:

- A. by passing ozone for a longer time.
- B. by shaking it with water.
- C. by passing O_2 gas.
- D. by shaking it with solid.

Answer: B



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24. When PbO_2 reacts with conc. HNO_3 the gas evolved is

A. NO_2

B. O_2

C. N_2

D. N_2O

Answer: B



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25. Which of the following is responsible starch-iodide paper blue when it is brought in contact with O_3 ?

- A. Liberation of iodine
- B. Liberation of oxygen
- C. Formation of alkali
- D. Reaction of ozone with litmus paper

Answer: A



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26. Oxygen can be obtained from bleaching powder

by:

A. adding dilute acid

B. adding alkalies

C. heating with lime

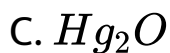
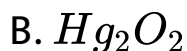
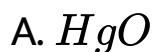
D. heating with a cobalt salt.

Answer: D



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27. What is the product formed when ozone reacts with mercury?



Answer: C



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28. Ozone reacts with neutral KI solution to yield

A. KIO_3

B. KOH

C. KCl

D. KO_2

Answer: B



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Compound Of Sulphur(Group 16)

1. SO_2 is obtained when

A. oxygen reacts with dilute sulphuric acid

B. Hydrolysis of dilute H_2SO_4

C. Hydrolysis of dilute H_2SO_4

D. Concentrated H_2SO_4 reacts with Na_2SO_3

Answer: C



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

A. SO_2

B. SO_3

C. H_2S

D. O_2

Answer: A



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3. H_2S oxidises in presence of excess oxygen, gives-

A. SO_2

B. SO_3

C. S

D. H_2SO_4

Answer: A



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

A. An oxidising agent

B. A reducing agent

C. An acid

D. A catalyst

Answer: A



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

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

Answer: D



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6. Which of the following is oxidised by O_2 ?

A. Mg

B. $K_2Cr_2O_7$

C. $KMnO_4$

D. All of these

Answer: A



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7. The number of lone pairs and the number of $S - S$ bonds in S_8 molecules are respectively

A. 8, 8

B. 16, 8

C. 8, 16

D. 8, 4

Answer: B



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8. A salt of sulphures acid is called

A. sulphate

B. sulphurate

C. sulphite

D. sulphide

Answer: C



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

A. H_2SO_4 (*conc.*)

B. H_2SO_4 (*dil.*)

C. H_2SO_4

D. $H_2S_2O_7$

Answer: D



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10. Which of the following is not the application of sulphur?

A. in the vulcanisation of rubber

B. as an antiseptic

C. in match industry

D. alloying agent

Answer: D



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11. When sulphur is boiled with Na_2SO_3 solution, the compound formed is

A. Sodium sulphide

B. sodium sulphate

C. Sodium persulphate

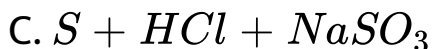
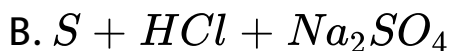
D. Sodium thiosulphate

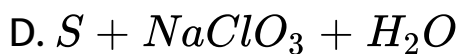
Answer: D



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12. The product of the chemical reaction between $Na_2S_2O_3$, Cl_2 and H_2O are





Answer: B



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13. Hypo is used in photography to

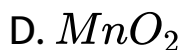
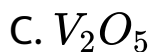
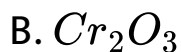
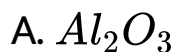
- A. Reduce $AgBr$ grains to metallic silver
- B. Convert the metallic silver to silver salt
- C. Remove undecomposed silver bromide as a soluble complex
- D. Remove reduced silver

Answer: C



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



Answer: C

15. H_2SO_4 has very high corrosive action on skin

because

- A. it reacts with proteins
- B. It acts as an oxidising agent
- C. it acts as a dehydrating agent
- D. it acts as dehydrating agent and absorption of water is highly exothermic

Answer: D

16. Permono sulphuric acid is known as

A. Marshall's acid

B. Caro's acid

C. Sulphuric acid

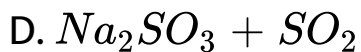
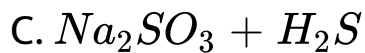
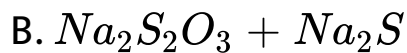
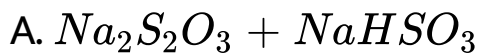
D. None of these

Answer: B



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17. Sulphur on boiling with $NaOH$ solution gives



Answer: B



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18. Bleaching action of SO_2 is due to

A. Reduction

B. Oxidation

C. hydrolysis

D. Its acidic nature

Answer: A



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19. Sulphur in $+3$ oxidation state is present in

A. Sulphurous acid

B. Pyrosulphuric acid

C. Dithionous acid

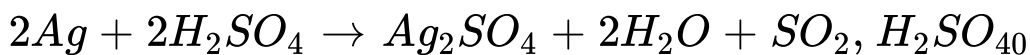
D. Thiosulphuric acid

Answer: C



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20. In the reaction



acts as *a / an*

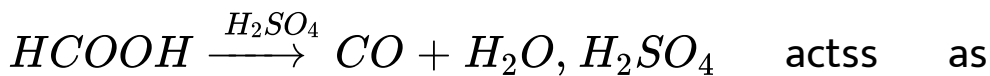
- A. Reducing agent
- B. Oxidising agent
- C. Catalytic agent
- D. Dehydrating agent

Answer: B



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21. In the reaction



a / an

A. Dehydrating agent

B. Oxidising agent

C. Reducing agent

D. all of these

Answer: A



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22. H_2S on incomplete combustion with oxygen forms mainly

A. H_2 and S

B. H_2 and SO_2

C. H_2O and S

D. H_2O and SO_2

Answer: C



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

- A. H_2O and CO_2
- B. CO and CO_2
- C. Oxalic Sulphate
- D. CO_2 and H_2S

Answer: B



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

A. SO_2

B. H_2S

C. S_2O

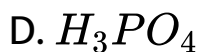
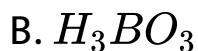
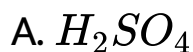
D. SO_3

Answer: D



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25. Which of the following is the most powerful oxidising agent?

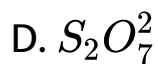
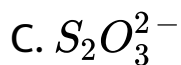
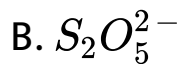
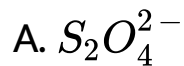


Answer: A



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



Answer: D



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General Physical And Chemical Properties (Group 17)

1. The halogens are:

- A. transition elements
- B. inner-transition elements
- C. noble elements
- D. representative elements

Answer: D



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2. The most powerful oxidising agent is:

- A. fluorine
- B. chlorine

C. bromine

D. iodine

Answer: A



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3. Pick out the incorrect statement regarding halogens

A. chlorine is hydrolysed by water to form hydrochlorine acid and hypochlorous acid

- B. Bromine and iodine react with $NaOH$ solution to form halide and halite ion
- C. Chlorine reacts with cold dilute $NaOH$ solution to give sodium chloride and sodium chlorate
- D. Iodine forms a deep blue colour with starch solution

Answer: C



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

A. HF

B. HCl

C. HBr

D. HI

Answer: A



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5. Which of the following has highest bond strength?

A. HI

B. HCl

C. HF

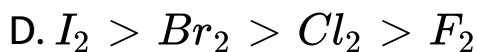
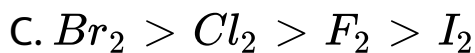
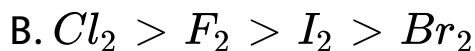
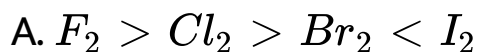
D. HBr

Answer: C



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6. which of the following represent the decreasing order of van der waals forces in halogens?

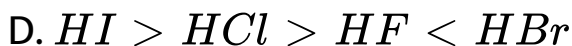
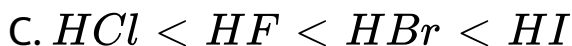
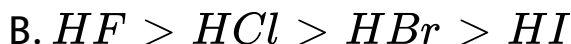
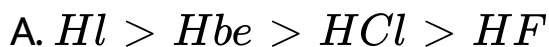


Answer: D



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



Answer: B



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8. Phosgene is the common name of

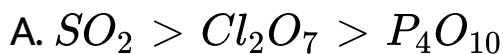
- A. Carbonyl chloride
- B. Phosphine
- C. Phosphorus oxychloride
- D. Phosphorus trichloride

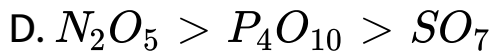
Answer: A



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9. The correct order of acidic strength is





Answer: B



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10. Which of the following has greatest reducing power?



D. HF

Answer: A



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11. Which one of the halogen acid is a liquid?

A. HF

B. HCl

C. HBr

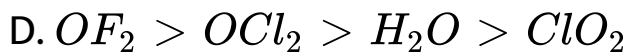
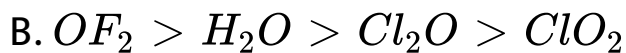
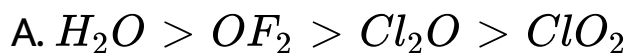
D. H

Answer: A



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12. Correct order of bond angles are in



Answer: C



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13. As the atomic number of halogens increases. The halogens

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

Answer: D



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

A. *F*

B. *Cl*

C. *Br*

D. *I*

Answer: A



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15. Which of the following is correct for $CsBr_3$?

A. It is a covalent compound

B. It contains Cs^{3+} and Br^{-} ions

C. It contains Cs^{+} , Br^{-} and lattice Br_2 molecules.

D. It contains Cs^{+} and Br_3^{-} ions

Answer: C



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16. Which of the following will displace the halogen from the solution of the halide ?

A. Br_2 added to $NaCl$ solution

B. Cl_2 added to KCl solution

C. KCl added to NaF solution

D. Br_2 added to KI solution

Answer: D



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

A. Chlorine

B. Iodine

C. Bromine

D. Fluorine

Answer: B



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18. Astatine is the element below iodine in the group *VIIA* of the periodic table. Which of the following statements is not true for astatine?

A. It is less electronegative than iodine.

B. It will exhibit only -1 oxidation state.

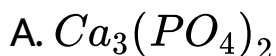
C. Intermolecular forces between the astatine molecules will be larger than that between iodine molecules.

D. None of these

Answer: B

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19. White enamel of our teeth is



B. CaF_2

C. $CaCl_2$

D. $CaBr_2$

Answer: B



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20. The least active halogen with hydrogen is

A. Cl

B. I

C. Br

D. F

Answer: B



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21. Which of the following hydrogen halide is most volatile?

A. HCL

B. HF

C. HI

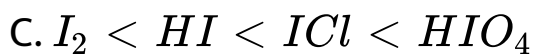
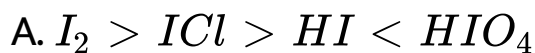
D. HBr

Answer: B



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22. Which has the strongest bond?

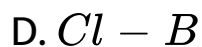
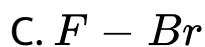
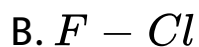
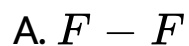


Answer: D



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23. Which has the strongest bond?



Answer: A



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24. One gas bleaches the colour of flowers by reduction and other by oxidation. These gases are

A. NO and VI_2

B. CO_2 and Cl_2

C. SO_2 and Cl_2

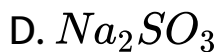
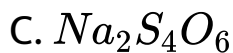
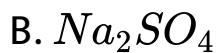
D. H_2S and Br_2

Answer: C



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25. Iodine and hypo react to produce



Answer: C



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



B. Br

C. I

D. F

Answer: D

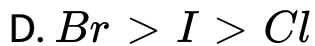
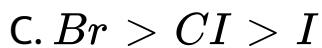


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27. Which of the following trend correctly represent the stability of oxides of halogens?

A. $Cl > I > Br$

B. $I > Cl > Br$

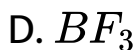
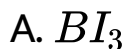


Answer: B



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28. Which one is least basic?

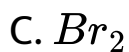


Answer: D



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29. Which halogen does not show variable oxidation state?



Answer: A



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30. Cryolite and Calich are the source of halogens A and B respectively. A and B are

- A. Sodium, Bromine
- B. Sodium, Iodine
- C. Fluorine, Iodine
- D. Fluorine, Bromine

Answer: C



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Fluorine, Chlorine, Bromine, Iodine, And Halogen Acids (Preparation And Properties) (Group 17)

1. Bromine is obtained on commercial scale from

- A. Caliche
- B. Carnallite
- C. Common salt
- D. Fluorine, Bromine

Answer: B



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



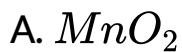
Answer: A



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3. Chlorine cannot be prepared by the action of HCl

on



Answer: C



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4. When KBr is treated with concentrated H_2SO_4 reddish brown gas evolved, gas is

A. Mixture of bromine and HBr

B. HBr

C. Bromine

D. None of these

Answer: C



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5. Chlorine can remove

A. Br from $NaBr$ solution

B. F from NaF solution

C. Cl from $NaCl$ solution

D. F from CaF_2 solution

Answer: A



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6. In K solution, I_2 readily dissolved and forms

A. I^-

B. KI_2

C. K_2I^-

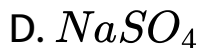
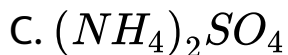
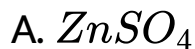
D. KI_3

Answer: D



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



Answer: B



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8. Pure chlorine is obtained:

A. by heating $PtCl_4$

B. by heating MnO_2 with HCl

C. by heating bleaching powder with HCl

D. by heating mixture of $NaCl$, MnO_2 and Conc.



Answer: A



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9. Fluorine reacts with water to give

A. HF and O_2

B. HF and OF_2

C. HF and O_3

D. HF , O_2 and O_3

Answer: D



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10. In the preparation of chlorine from HCl , MnO_2

acts as

A. Oxidising agent

B. reducing agent

C. Catalytic agent

D. Dehydrating agent

Answer: A



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11. chlorine can be manufacturing from

A. Elctrolysis of $NaCl$

B. Elctrolysis of brine

C. Elctrolysis of bleaching powder

D. All of these

Answer: B

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12. HBr / HI are prepared by heating

A. Bromide/iodide respectively with conc. H_2SO_4

B. Bromide/iodide respectively with conc. HPO_3

C. Bromide/iodide respectively with conc. H_3PO_4

D. Bromide/iodide respectively with dil. HPO_3

Answer: A



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13. When chlorine water is exposed to sunlight, O_2 is liberated. Hence

- A. Hydrogen has little affinity to O_2
- B. Hydrogen has more affinity to O_2
- C. Hydrogen has little affinity to Cl_2
- D. It is a reducing agent

Answer: C



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14. When cold $NaOH$ reacts with Cl_2 which of the following is formed

A. $NaClO$

B. $NaClO_2$

C. $NaClO_3$

D. None of these

Answer: A



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15. Which has the highest heat of vaporisation?

A. HF

B. HCl

C. HBr

D. HI

Answer: A



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

A. Dry air

B. Moisture

C. Sunlight

D. Pure oxygen

Answer: B



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

A. CO_2 and H_2O

B. Cl_2

C. I_2

D. SO_2

Answer: B



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18. A salt, which on heating with conc. H_2SO_4 gives violet vapour is

A. Iodide

B. Nitrate

C. Sulphate sulphar

D. Bromide//iodide respectively with dil. HPO_3

Answer: A



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19. Which of the following halogen acid is a liquid ?

A. HF

B. HCl

C. HBr

D. HI

Answer: A



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20. A solution of HCl in water is good conductor while gaseous hydrogen chloride is not. This is due to the reason that

- A. Water is a good conductor of electricity
- B. HCl in water ionises
- C. Gas cannot conduct electricity but water can
- D. None of these

Answer: B



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

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

Answer: B



22. The formula of some fluorides are given below.

Which of them will combine further with fluorine?



Answer: A

23. HBr / HI are prepared by heating

- A. Sodium, Br_2 / I_2 and water
- B. Phosphorus Br_2 / I_2 and water
- C. Potassium, Br_2 / I_2 and water
- D. Selenium, Br_2 / I_2 and water

Answer: B



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24. Which of the following oxidizes H_2O to oxygen?

A. Chlorine

B. Fluorine

C. Bromine

D. Iodine

Answer: B

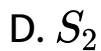
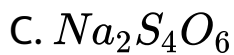


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25. $Na_2S_2O_3 + I_2 \rightarrow$ Product is

A. Na_2S

B. NaI



Answer: C,B



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26. Which one will liberate Br_2 from KBr ?



Answer: D



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27. on exciting Cl_2 molecule by UV light, we get

A. Cl

B. Cl^+

C. Cl^-

D. All

Answer: A



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28. Which of the following statements is not true?

A. HF is a stronger acid than HCl

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

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

D. $HOCl$ is a stronger acid than $HOBr$

Answer: A



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29. HCl cannot form H_2Cl_2 , while HF can form H_2F_2 . The reason is

A. Fluorine is more reactive

B. HF is more reactive

C. Fluorine atom is small and can form hydrogen bonds

D. None

Answer: C



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30. Aqua regia is a mixture of

A. HBr

B. HI

C. HCl

D. HF

Answer: C



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31. Iodine dissolves readily in

A. Water is a good conductor of electricity

B. Potassium iodide

C. Carbon tetrachloride

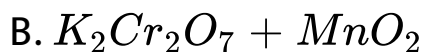
D. Alcohol

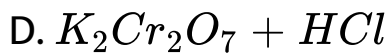
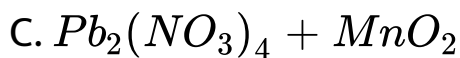
Answer: B



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32. Chlorine is liberated, when we heat



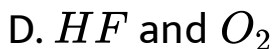
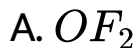


Answer: D



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33. Fluorine with dilute $NaOH$ gives



Answer: A



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34. Which is not oxidised by MnO_2 ?

A. F

B. Cl

C. I_2

D. I

Answer: A



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35. Bromine water reacts with SO_2 to form

A. H_2O and HBr

B. H_2SO_4 and HBr

C. HBr and S

D. S and H_2O

Answer: B



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

A. $NaCl$ and MnO_2

B. $NaCl$ and $HNO_3(\text{conc.})$

C. $NaCl$ and $H_2SO_4(\text{conc.})$

D. $HCl(\text{conc.})$ and $KMnO_4$

Answer: D



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37. Chlorine cannot displace

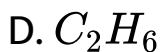
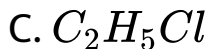
- A. Fluorine from NaF
- B. Iodine from NaI
- C. Bromine from $NaBr$
- D. None of these

Answer: A



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38. Cl_2 reacts with CS_2 in presence of I_2 catalyst to form



Answer: B



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39. Which is formed when fluorine react with hot and concentract sodium hydrocide?



B. O_3

C. NaO

D. HF

Answer: A,D



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40. Which of the following condition is used to find atomic Cl_2 from molecular Cl_2 ?

A. High temperature, high pressure

B. Low temperature, high pressure

C. High temperature, low pressure

D. Low temperature, low pressure

Answer: C

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

A. O_2

B. Cl_2

C. $CrOCl_2$

D. CrO_2Cl_2

Answer: D



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42. Fluorine is prepared by

A. Oxidation of HF

B. Electrolysis of KF

C. Electrolysis of fused KHF_2

D. Decomposition of HgF_2

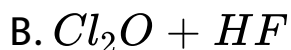
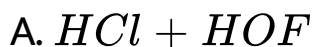
Answer: C



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Oxides, Oxoacids, Polyhalides Ions, Pseudohalides And Interhalogen Compounds

1. ClF on hydrolysis forms



D. None these

Answer: C

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

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

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

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

D. None of these

Answer: B

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3. The relative acidic strength, stability and oxidising agent of oxy-acids of chlorine are

A. $\text{HClO} < \text{HClO}_2 < \text{HClO}_3 < \text{HClO}_4$

B. $\text{HClO}_4 < \text{HClO}_3 < \text{HClO}_2 < \text{HClO}$

C. $\text{HClO}_4 < \text{HClO}_3 < \text{HClO} < \text{HClO}_2$

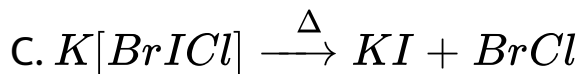
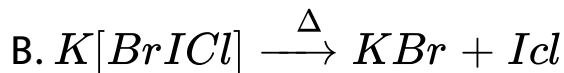
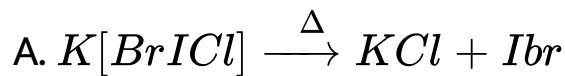
D. None of these

Answer: A



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4. Which of the following reaction *is / are* possible?



D. All of the above\

Answer: A

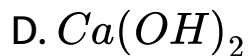
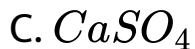


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5. Bleaching powder is prepared by passing chlorine

into

A. CaO



Answer: D



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6. Which of the following is an interpseudoalogen (pseudoalogen analogues of interhalogen)?





Answer: B



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7. Which one of the following acids is the weakest?

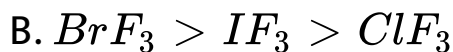


Answer: A



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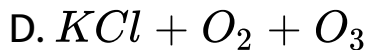
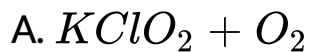
8. The stability of interhalogen compounds follows the order



Answer: C

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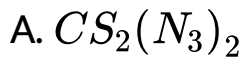
9. On heating $KClO_3$ we get:



Answer: B

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10. The structure of azido carbon disulphide is

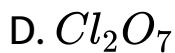
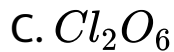
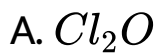


Answer: B



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



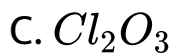
Answer: D



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12. Cl_2O is an anhydride of





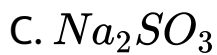
Answer: B



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13. Which of the following product is formed when sulphur dioxide gas is passed through sodium chlorate in strongly acidic solution?



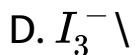
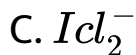
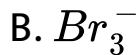


Answer: B



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14. Which one below is a pseudohalide

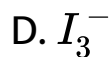
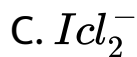
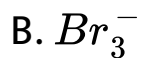
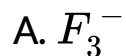


Answer: A



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15. Which of the following does not exist?

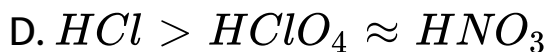


Answer: A



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



Answer: A



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17. Which of the following is incorrect?

A. ClO_4^- has $3d\pi - p\pi$ bonds

B. ClO^- is strong conjugate base

C. Cl_2O_7 is most acidic oxide

D. ClO_3^- and NO_3^- are isostructural

Answer: D



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18. The bleaching action of the bleaching powder is due to the liberation of

- A. Chlorine
- B. Molecular oxygen
- C. Nascent oxygen
- D. Calcium carbonate

Answer: C



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19. ClO_2 reacts with water and alkali to give:

- A. sodium chlorate
- B. sodium chlorite

C. sodium chlorate and sodium chlorite

D. none of the above

Answer: C



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20. Hypochlorous acid readily decomposes into-

A. Cl_2 , H_2 and O_2

B. HCl and H_2O

C. HCl and O_2

D. Cl_2 , HCl and $HClO_3$

Answer: C



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21. ClO_3 is the mixed anhydride of:

A. $HClO_2$ and $HClO_3$

B. $HClO_3$ and $HClO_4$

C. $HClO_4$ and $HClO_3$

D. Cl_2 , HCl and $HClO_3$

Answer: B



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22. Which of the following is not the characteristic of interhalogen compounds?

A. they are more reactive than halogens.

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

C. They are covalent in nature.

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

Answer: D



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23. What is the product obtained in the reaction of

$HgCl_2$ and $Hg(CN)_2$?

A. $(CN)_2$

B. Addition compound $HgCl_2 \cdot Hg(CN)_2$

C. $Hg(CN)Cl$

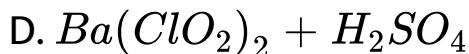
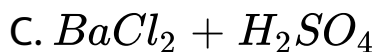
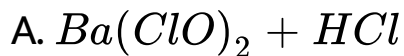
D. $Hg[Hg(CN)_2Cl_2]$

Answer: B



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24. Chlorous acid is prepared by the action of



Answer: D



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25. Consider the following perchlorate ions in acidic medium ClO_4^- (I), BrO_4^- (II), IO_4^- (III)

Arrange these in the decreasing order of oxidizing power

A. $I > II > III$

B. $I > III > II$

C. $II > I > III$

D. $II > III > I$

Answer: D



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26. Interhalogen compound which exists in dimeric form, is:



Answer: D



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General Properties And Fluorides Of Xenon (Group 18)

1. Which of the following gaseous molecules is monoatomic?

A. Chlorine

B. Helium

C. oxygen

D. Nitrogen

Answer: B



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2. Which one of the following noble gases is not found in atmosphere?

A. *Rn*

B. *Kr*

C. *Ne*

D. *Ar*

Answer: A



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3. Maximum number of compounds are known in the case of:

A. neon

B. xenon

C. krypton

D. argon

Answer: B



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4. Helium is added to the oxygen supply used by sea divers because

A. It is less soluble in blood than nitrogen under high pressure

B. It is lighter than nitrogen

C. It is readily miscible with oxygen

D. It is less poisonous than nitrogen

Answer: A



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5. The noble gas which forms maximum number of compound is

A. *Ar*

B. *He*

C. *Xe*

D. Ne

Answer: C



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6. Nuclear fusion produces

A. Argon

B. Deuterium

C. Helium

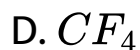
D. Krypton

Answer: C



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7. The fluoride which does not exist is



Answer: B



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8. XeF_2 molecule is

- A. Square planer
- B. Trigonal bipyramidal
- C. Trigonal planer
- D. Linear

Answer: D



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9. Electron affinity for a noble gas is approximately equal to

- A. That of halogens
- B. Zero
- C. That of oxygen family
- D. That of nitrogen family

Answer: B



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10. Which of the noble gases is the least polarized?

- A. *Xe*
- B. *Ar*

C. *Ne*

D. *He*

Answer: D



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11. Which one of the following noble gases is not found in atmosphere?

A. *Rn*

B. *Kr*

C. *Ne*

D. Ar

Answer: A



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12. Which characteristic of zero group element is common?

A. Each of them has the same atomic number

B. Each of them has the same atomic mass

C. The outermost orbit of electron of each is saturated

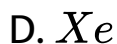
D. Each of them has the same number of electrons

Answer: C



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13. XeF_6 on complete hydrolysis gives



Answer: A



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14. Boiling point is more for

A. *He*

B. *Ne*

C. *Xe*

D. *Ae*

Answer: C



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15. Which of the following noble gases does not form clathrate compounds?

A. *Ne*

B. *Kr*

C. *Ar*

D. *Xe*

Answer: A



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16. Xenon best reacts with

- A. most electropositive metals
- B. most electronegative metals
- C. neutral atoms
- D. none of these

Answer: B



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17. The compound that attacks pyrex glass is



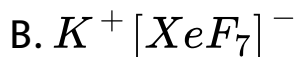
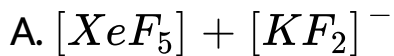
D. Both A and B

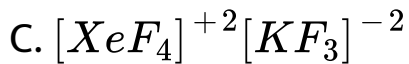
Answer: C



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18. XeF_6 on reaction with KF yields





D. none of these.

Answer: B



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19. XeF_4 reacts with SF_6 to give

A. Xe

B. SF_6

C. $XeSF_4$

D. none

Answer: D



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

A. +4

B. +5

C. +6

D. none

Answer: B



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21. The idea which promoted Bartlett to prepare first ever compound of noble gas was

A. High bond energy of $Xe - F$

B. Low bond energy of $F - F$ in F_2

C. Ionisation energies of O_2 and xenon were almost similar

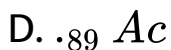
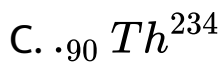
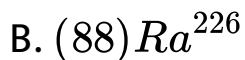
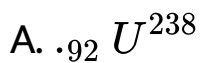
D. None of these

Answer: C



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22. A radioactive element X decays to give two inert gases. X is



Answer: B



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23. If two litres of air is passed repeatedly over heated copper and heated mg till no further reduction in volume takes place, the volume finally obtained will be approximately.

A. $200ml$

B. $20ml$

C. $0ml$

D. $10ml$

Answer: B



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24. The van der waals forces are the greatest in

A. Neon

B. Argon

C. krypton

D. Xenon

Answer: D



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25. In $XeF_2 \cdot 2SbF_5$

A. F is forming bridge between Xe and Sb

B. These are two $Xe - F$ bonds with bond length $184 \pm$ and $235 \pm$

C. Both (a) and (b) are correct

D. neither (a) nor (b) is correct

Answer: C



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26. The poisson's ratio for inert gases is:

A. 1.40

B. 1.66

C. 1.34

D. none of these

Answer: B



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27. The none-existent species is

A. XeF_5

B. BrF_5

C. SbF_5

D. PF_5

Answer: A



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28. Noble gases can be separated by:

A. passing them through some solutions

B. electrolysis of their compounds

C. adsorption and desorption on cocount
charcoal

D. none of the above

Answer: C



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29. The noble gas which behaves abnormally in liquid state is

A. *Xe*

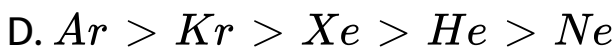
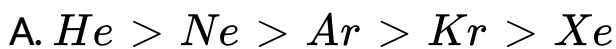
B. *Ne*

C. *He*

D. *Ar*

Answer: C

30. The ease of liquefaction of noble gases decrease in the order:



Answer: B

31. The formation of $O_2^+ [PtF_6]^-$ is the basis for the formation of xenon fluorides. This is because:

A. O_2 and Xe have comparable sizes.

B. Both O_2 and Xe are gases.

C. O_2 and Xe have comparable ionisation energies.

D. O_2 and Xe have comparable electronegativities.

Answer: C



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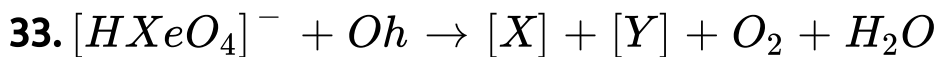
32. Out of (i) XeO_3 (ii) XeO_2F_2 and (iii) XeO_4 , the molecules having same number of lone pairs are

- A. (i) and (ii)
- B. (ii) and (iii)
- C. (i) and (iii)
- D. None of these

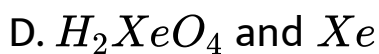
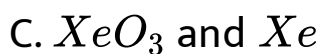
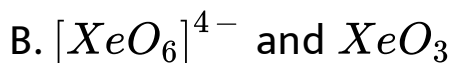
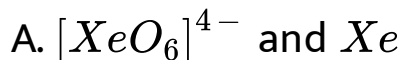
Answer: A



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The products $[X]$ and $[Y]$ in unbalanced reaction are:



Answer: A



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34. The oxidation number of xenon in $XeOF_2$ is

A. Zero

B. 2

C. 4

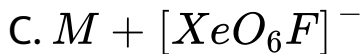
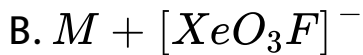
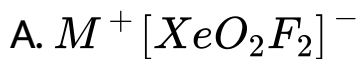
D. 3

Answer: C



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35. When a solution of XeO_3 is treated with metal fluoride, the product obtained is.....



D. None of these

Answer: B



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36. Among the following molecules,

(i) XeO_3 (ii) $XeOF_4$ (iii) XeF_6 those having same

number of lone pairs on Xe are:

A. (i) and (ii) only

B. (i) and (iii)

C. (ii) and (iii)

D. (i), (ii) and (iii)

Answer: D



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37. Helium is used in gas balloon instead of hydrogen because

A. It is lighter than H_2

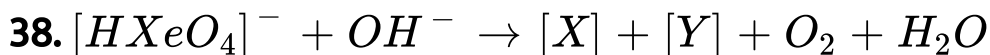
B. It is non-combustible

C. It is more abundant than H_2

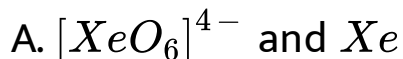
D. Its leakage can be detected easily

Answer: B

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The products $[X]$ and $[Y]$ in unbalanced reaction are:



B. $[XeO_6]^{4-}$ and XeO_3

C. XeO_3 and Xe

D. H_2XeO_4 and Xe

Answer: A

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39. In XeO_3 , Xe is

A. sp^3 hybridised

B. sp^3d hybridized

C. sp^3d^3 hybridised

D. sp^3d^2 hybridised

Answer: A

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40. In Kroll and *Icl* process of the production of titanium, the inert gas used is:

A. *Ne*

B. *Ar*

C. *Kr*

D. *Xe*

Answer: B



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41. Match the shape to the formula. Which pairing is incorrect?

A. XeO_3 =trigonal planar

B. XeO_2F_2 =see-saw

C. $[XeF_3]^+$ = *T* shape

D. $[XeF_5]^-$ =pentagonal planar

Answer: A

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42. Helium gives a characteristic spectrum with:

A. orange and red lines

B. orange lines

C. yellow lines

D. Green lines

Answer: C

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43. The number of $(p\pi - d\pi)$ π -bonds present in XeO_3 and XeO_4 respectively are

A. 3 and 2

B. 2 and 3

C. 4 and 2

D. 3 and 4

Answer: D



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44. Which of the following is planar?



Answer: D



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Section B - Assertion Reasoning

1. Assertion: Although PF_5 , PCl_5 and PBr_5 are known, the pentahalides of nitrogen have

not been observed.

Reason: Phosphorus has lower electronegativity than nitrogen.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B



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2. HNO_3 is a stronger acid than HNO_2

In HNO_3 , there are two nitrogen to oxygen bonds, whereas in HNO_2 there is only one.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the

asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C

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3. Asseration: NH_3 can be dried by $CaCl_2$.

Reason: $CaCl_2$ is a good dehydrating agent.

A. If both asseration and reson are true and the
reason is the correct explanation of the

asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: D



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4. Asseration: lowest oxidation number of N -family is -3 and highest oxidation number of N is $+5$.

Reason: All the member of Nitrogen family show maximum oxidation number $+5$ and minimum oxidation number -3 .

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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5. Assertion: Nitrogen forms $H_2N - NH_2$, N_2 and N_3^- ions whereas phosphorus form P_4 molecule.

Reason: Nitrogen can form of three $N -$ atoms only, P has four catenated atoms.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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6. Assertion: The abnormality in *b. pt.* of NH_3 in hydrides of N – family is due to H – bonding.

Reason: The boiling point of hydrides of N – family

shows

the

order:



- A. If both asseration and reson are true and the reason is the correct explanation of the asseration.
- B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.
- C. If asseration is true but reason is false.
- D. If asseration is false but reason is true.

Answer: C

7. Assertion: The halogens develop $+ve$ charge on N -atom and thus more $+ve$ charge is developed in NF_3 and therefore tendency to lose electron pair decreases.

Reason: The basic nature of trihalides of nitrogen decreases from NF_3 to NI_3 .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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8. Assertion: N in NO_2 and nitrolic acid has +4 and +3 oxidation number respectively.

Reason: NO_2 is acid anhydride of nitroxylic acid.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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9. Assertion: Number of $P - O - P$ bonds in cyclotrimetaphosphoric acid is 3.

Reason: Number of $P = O$ bonds in cyclotrimetaphosphoric acid is three.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If asseration is false but reason is true.

Answer: B



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10. Asseration: NH_3 and PH_3 differ from each other in their reaction with $CuSO_4$ or $AgNO_3$.

Reason: PH_3 acts as oxidising agent in these reacriion but NH_3 not.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

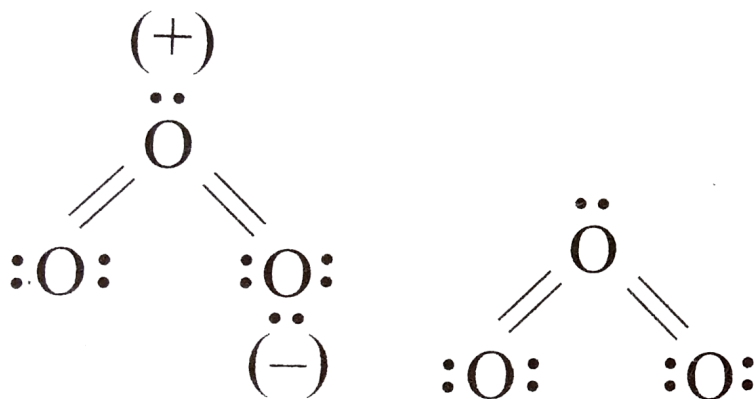
D. If assertion is false but reason is true.

Answer: C

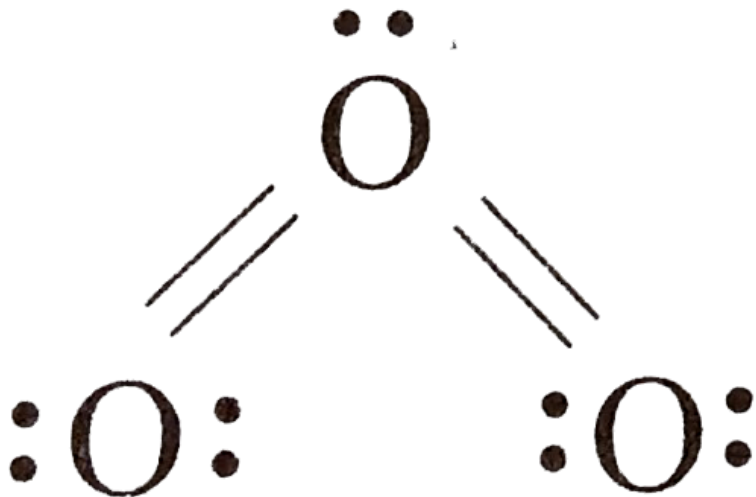


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11. Assertion: The electronic structure of O_3 is:



Reason: structure is not allowed because octet around O cannot be expanded



A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: B



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12. Assertion: Superoxide ion is paramagnetic whereas peroxide ion is diamagnetic.

Reason: Superoxide ion $[O = O]^-$ has one unpaired electron whereas peroxide ion $[O = O]^-$ has no unpaired electron.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A



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13. Assertion: Both are dibasic and permonosulphuric acid does not exist in free state but its salts are reducing agent, whereas perdisulphuric acid salts are oxidant.

Reason: Number of perdisulphuric acid are 1 and 2 respectively.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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14. Assertion: The thermal stability of hydrides of oxygen family decrease with molecular weight.

Reason: The decomposition of $M - H$ bond requires lesser energy in $O - H$ than $S - H$.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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15. Asseration: Number of $S - S$ bonds in $H_2S_nO_6$ is $(n-1)$.

Reason: $H_2S_nO_6$ shows $HO_3S - \underset{(n-2)}{S} - SO_3H$

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

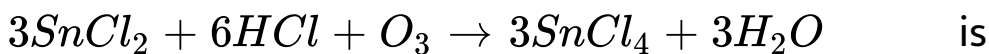
Answer: B



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16.

Assertion:



possible reaction showing oxidising nature of O_3 .

Reason: O_3 whenever used as oxidising agent essentially liberates O_2 .

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C

17. Assertion: Bleaching action of SO_2 is temporary and by reduction.

Reason: The colour of material is regained due to oxidation by air.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the

asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A

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18. Asseration: Cyclic trimer of SO_3 possesses have six membered hetero-cyclic chains made up of S and O -atoms

Reason: Cyclic trimer of SO_3 is referred as $\gamma - SO_3$.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: B



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19. Assertion: F atom has less negative electron gain enthalpy than Cl atom.

Reason: Additional electrons are repelled more effectively by 3 p-electrons in Cl than by 2 p-electrons in F atom.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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20. Asseration: $F - F$ bond in F_2 molecule is strong.

Reason: F -atom is small in size.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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21. Asseration: HF forms two series of salts but HCl not.

Reason: F -atom is more electronegative than Cl -atom.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: B

22. Assertion: Iodine does not displace Cl_2 or Br_2 from their chlorides and bromides but displace them from their oxo-salts.

Reason: E_{op}° of $I_2 > E_{OP}^\circ$ of Cl_2 or Br_2

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the

asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: B



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23. Asseration: A fresh stain of iodine is washed with hypo solution. Reason: Hypo is a bleaching agent and it oxidises I_2 to I^- .

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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24. Assertion: Liquid I_2 conducts current very slightly.

Reason: Iodine in liquid state show partial auto ionisation.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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25. Asseration: Liquid HF is used as non-aqueous solvent and many acid-base reactions occur in this solvent system.

Reason: Liquid HF undergoes self ionisation.

A. If both assertion and reason are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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26. Asseration: Mineral acids on dissolving in liquid HF acts like a base.

Reason: Liquid HF acts as an acid and possesses strong tendency to donate proton.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

27. Assertion: The reaction between $HClO_4$ and liquid HF is: $HClO_4 + HF \rightarrow ClO_4^- + H_2F$

Reason: Liquid HF acts as base.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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28. Assertion: ClO_2 possess odd number of electrons.

Reason: ClO_2 dimerises to provide the pairing of odd electron in it like other odd electron molecules.

A. If both assertion and reason are true and the reason is the correct explanation of the

asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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29. Asseration: Iodine chloride acts as chlorinating as well as iodinating agent.

Reason: The nature of ICl to acts as chlorinating (ICl_{vapour}) or iodinating ICl in nitrobenzene) agent depends upon the conditons.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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30. Assertion: All the zero group members possess 8 electrons in their outermost subshell.

Reason: due to completely filled outermost shell, the zero group members are less reactive or almost inert.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D



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31. Assertion: All clathrate compound of noble gas are the compounds in which the molecules of noble gases are trapped in cavities in the crystal lattice of

other compounds.

Reason: He and Ne having smaller size do not form clatrate compound molecules are small because are small because their ehough to escape from cavities.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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32. Assertion: The first real compound of the noble gases in 1962 was $Xe^+ [PtF_6]^-$.

Reason: The discovery was based on the basis of comparable ionisation energy of O_2 and Xe and a compound $O_2^+ [PtF_6]^-$ was prepared by Bartlett which was later on reported to be $[XeF]^+ [Pt_2F_{11}]^-$.

A. If both assertion and reason are true and the reason is the correct explanation of the

asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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33. Asseration: The geometry of XeO_3F_2 is trigonal bipyramidal.

Reason: Xe shows sp^3d hybridisation with three oxygen atoms at equatorial position and two F atoms at axial positions.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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34. Assertion: On dissolution of xenates, $[HXeO_4]^-$ in alkaline solution perxenate and Xe are obtained.

Reason: Xenates, $[HXeO_4]^-$ shows disproportionation in alkaline solution.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A



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35. Assertion: Perxenate solutions are powerful oxidants.

Reason: these in aqueous solution release O_2 .

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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1. Select the correct statement:

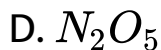
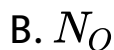
- A. Sodium metal is stored under kerosene
- B. One of the oxides of carbon is a basic oxide
- C. Metals can form only basic oxide
- D. To prevent combination of white phosphorus with oxygen it is kept in kerosene

Answer: A



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2. When HNO_3 is dropped into the palm and washed with water, it turns into yellow. It shows the presence of



Answer: A



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

A. conc. HCl

B. alkaline solution of pyrogallol

C. a solution of K_2CrO_7 acidified with H_2SO_4

D. a solution of $KOH(aq.)$

Answer: D



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4. Which one has the highest percentage of nitrogen?

A. Urea

B. Ammonium sulphate

C. Ammonium nitrate

D. Calcium nitrate

Answer: A



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

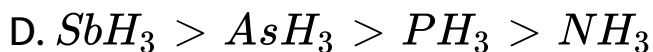
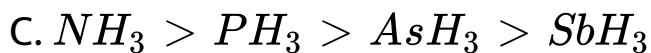
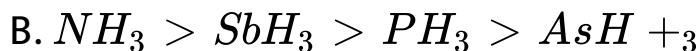
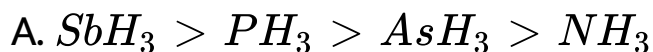
- A. Are both soluble in CS_2
- B. Can be oxidised by heating in air
- C. Consists of same kind of atoms
- D. Can be converted into one another

Answer: A



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



Answer: C



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7. Which hydride is the strongest base?

A. AsH_3

B. NH_3

C. PH_3

D. SbH_3

Answer: B



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8. The BCl_3 is a polar molecule whereas NCl_3 is pyramidal because

- A. BCl_3 is a planar molecule whereas NCl_3 has a lone pair of electrons
- B. $B - Cl$ bond is more polar than $N - Cl$ bond
- C. nitrogen atom is smaller than boron atom
- D. $N - Cl$ bond is more covalent than $B - Cl$ bond

Answer: A



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9. H_3PO_2 has the name and basicity respectively:

- A. phosphorus acid and two
- B. hypophosphorus acid and two
- C. hypophosphorus acid and one
- D. hypophosphoric acid and two

Answer: C



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

- A. 6
- B. 7

C. 5

D. 9

Answer: C



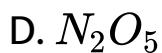
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11. Which of the following combines with Fe^{2+} ions to form brown complex ?

A. N_2O

B. NO

C. N_2O



Answer: B



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12. In NO_3^- ion, the number of bond pair and lone pair of electrons on nitrogen atom are:

A. 4, 0

B. 3, 1

C. 1, 3

D. 2, 2

Answer: A



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13. Which of the following statements is wrong?

A. Nitrogen cannot form $d\pi - p\pi$ bond

B. The stability of hydrides increase from

$NH_3 \rightarrow BiH_3$ in group 15 of the periodic

table

C. Single $N - N$ bond is weaker than the single

$P - P$ bond

D. N_2O_4 has two resonance structure

Answer: B



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14. Which of the following statements is not valid for oxo-acids of phosphorus?

A. Hypophosphorus acid is a diprotic acid

B. All oxo-acid contains atleast one $P = O$ unit
and one $P - OH$ group

C. Orthophosphoric acid is used in the manufacture of triple superphosphate

D. All oxo-acid contain tetrahedral four coordinate phosphorus

Answer: A



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15. Nitrogen dioxide and sulphur dioxide have some properties in common. Which property is shown by one of these compounds, but not by the other?

- A. Is soluble in water
- B. Is used as a food preservative
- C. Forms 'acid-rain'.
- D. Is a reducing agent

Answer: B



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16. Strong reducing behaviour of H_3PO_2 is due to:

- A. High oxidation state of phosphorus

- B. presence of *Two* – *OH* group and two *P – H* bonds
- C. presence of *One* – *OH* group and two *P – H* bonds
- D. High electron gain enthalpy of phosphorus

Answer: C

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17. When copper is heated with conc. HNO_3 it produces?

A. $Cu(NO_3)_2$ and N_2O

B. $Cu(NO_3)_2$ and NO_2

C. $Cu(NO_3)_2$ and NO

D. $Cu(NO_3)_2$, NO and NO_2

Answer: B



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18. Which of the following statement is correct for the given acids?

A. Phosphorus acid is a diprotic acid while phosphonic acid is a monoprotic acid.

B. Phosphinic acid is a monoprotic acid while phosphonic acid is a diprotic acid.

C. Both are diprotic acids.

D. Both are triprotic acids.

Answer: B



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19. The product obtained as a result of a reaction of nitrogen with CaC_2 is

A. $CaCN$

B. $Ca(CN)_2$

C. $CaCN_2$

D. $CaCN_3$

Answer: C



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20. Bleaching action of SO_2 is due to

A. Reduction

B. Oxidation

C. Hydrolysis

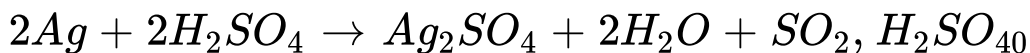
D. Its acidic nature

Answer: A



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21. In the reaction



acts as *a / an*

A. Reducing agent

B. Oxidatising agent

C. Catalytic agent

D. Dehydrating agent

Answer: B



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22. By passing H_2S in acidified $KMnO_4$ solution we get

A. K_2SO_3

B. MnO_2

C. $KHSO_3$

D. Sulphur

Answer: D



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

A. SO_2

B. H_2S

C. S_2O

D. SO_3

Answer: D



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

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

Answer: D



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A. H_2

B. N_2

C. O_2

D. CO

Answer: C

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26. Hypo is used in photography to

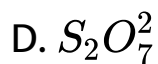
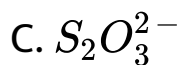
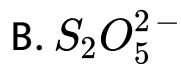
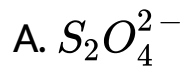
- A. Reduce $AgBr$ grains to metallic silver
- B. Convert the metallic silver to silver salt
- C. Remove undecomposed silver bromide as a soluble complex
- D. Remove reduced silver

Answer: C



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



Answer: D



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28. Which of the following is not a chalcogen?

A. *O*

B. *S*

C. Se

D. Na

Answer: D



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29. Oxygen molecule exhibits

A. Paramagnetism

B. Diamagnetism

C. Ferromagnetism

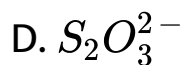
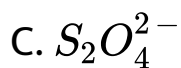
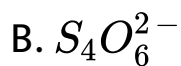
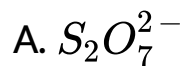
D. Ferrimagnetism

Answer: A



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



Answer: A



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31. Which one is responsible for depletion of ozone layer in the upper strata of the atmosphere?

A. Polyhalogens

B. Ferrocene

C. Fullerenes

D. Freons

Answer: D



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32. Which of the following has $p\pi - d\pi$ bonding?



Answer: C



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33. Bleaching action of SO_2 is due to

A. Oxidising property

B. Acidic property

C. Basic property

D. Reducing property

Answer: D



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34. The angular shape of ozone molecule (O_3)

consists of

A. 2sigma and 1pi-bond

B. 1sigma and 1pi-bond

C. 2sigma and 1pi-bond

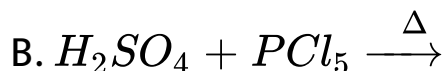
D. 1sigma and 2pi-bonds

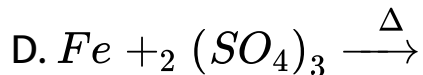
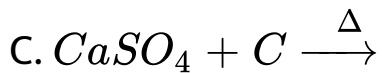
Answer: A



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35. Sulphur trioxide can be obtained by which of the following reactions:



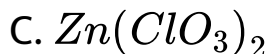
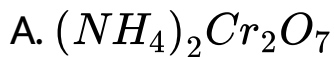


Answer: D



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36. Which of the following does not give oxygen on heating?



D. $KClO_3$

Answer: A



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37. Which of the following statement given below is incorrect?

A. ONF is isoelectronic with O_2N^-

B. OF_2 is an oxide of fluorine

C. Cl_2O_7 is an anhydride of perchloric acid

D. O_3 molecule is bent

Answer: B



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38. Br^- is converted into Br_2 by using

A. Cl_2

B. *Conc. HCl*

C. *HBr*

D. H_2S

Answer: A



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39. A salt, which on heating with conc. H_2SO_4 gives violet vapour is

A. Iodide

B. Nitrate

C. Sulphate

D. Bromide

Answer: A



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40. Which of the following has greatest reducing power?

A. HI

B. HBr

C. HCl

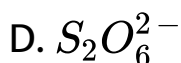
D. HF

Answer: A



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41. When thiosulphate ion is oxidised by iodine, which one of the following ion is produced?

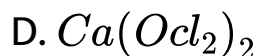
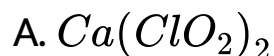


Answer: C



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



Answer: C



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43. in the manufacturing of bromine from sea water, the mother liquor containing bromides is treated with

A. CO_2

B. Cl_2

C. I_2

D. SO_2

Answer: B



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

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

Answer: B



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45. Which has the highest molar heat of vaporisation?

A. HF

B. HCl

C. HBr

D. HI

Answer: D



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46. Which of the following is the weakest acid?

A. HF

B. HCl

C. HBr

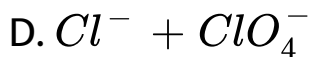
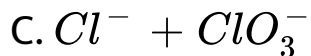
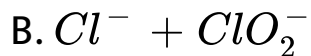
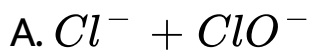
D. HI

Answer: A



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

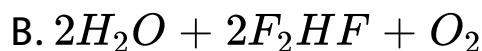
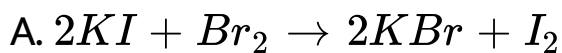


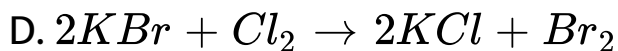
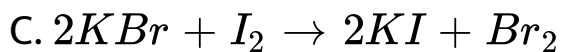
Answer: A



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48. Which of the following reaction is not feasible?





Answer: C



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49. Which of the following statements is not true?

A. HF is a stronger acid than HCl

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

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

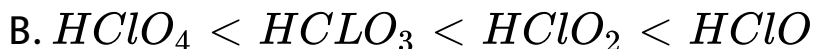
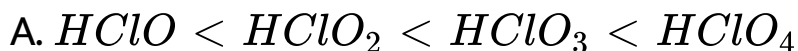
D. HOCl is a stronger acid than HOBr

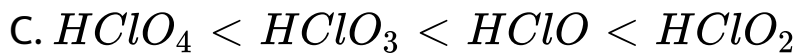
Answer: A



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50. Acid strength of oxy acids of chlorine follows the order:





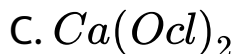
D. None of these

Answer: A



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



D. CaO_2Cl

Answer: B



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52. The variation of the boiling points of the hydrogen halides is in the order $HF > HI > HBr > HCl$.

What explains the higher boiling point of hydrogen fluoride?

A. The bond energy of HF molecules is greater than other hydrogen halides

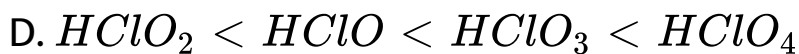
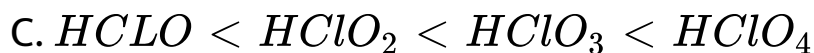
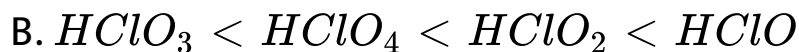
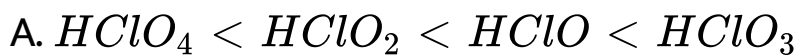
- B. The effect of nuclear shielding is much reduced in fluorine which polarizes the HF molecule.
- C. The electronegativity of fluorine is much higher than for other elements in the group.
- D. There is strong hydrogen bonding between HF molecules

Answer: D



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53. Among the following, the correct order of acidity is:

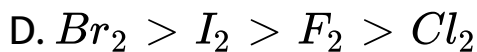
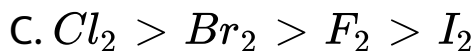
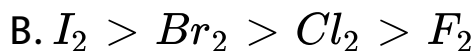
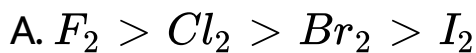


Answer: C



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54. Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?



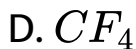
Answer: C



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



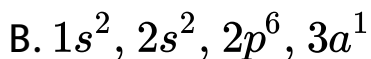
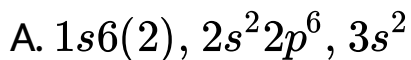


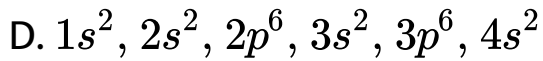
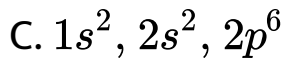
Answer: B



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56. Which one of the following configurations represents a noble gas?





Answer: C



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57. Which of the following is monoatomic?

A. Nitrogen

B. Fluorine

C. Neon

D. Oxygen

Answer: C



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58. The noble gas which forms maximum number of compound is

A. *Ar*

B. *He*

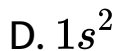
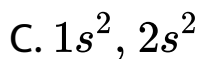
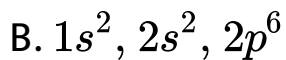
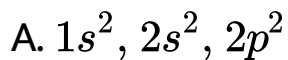
C. *Xe*

D. *Ne*

Answer: C

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59. The electronic configuration of neon is



Answer: B

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60. The inert gases are

A. Polyatomic

B. Triatomic

C. Diatomic

D. Monoatomic

Answer: D



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61. What is the total number of electron present in the last orbit of argon?

A. 6

B. 2

C. 18

D. 8

Answer: D



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62. Which of the following gases *is / are* called rare gas?

A. *Ne*

B. He

C. Kr

D. All of these

Answer: D



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63. Which is planar molecule ?

A. XeO_4

B. $XeOF_4$

C. XeF_4



Answer: C



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64. Which noble gas is more soluble in water ?

A. He

B. Ar

C. Ne

D. Xe

Answer: D



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65. Among the following molecules, (i) XeO_3 (ii) $XeOF_4$ (iii) XeF_6 those having same number of lone pairs on Xe are:

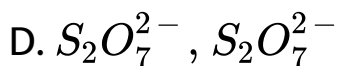
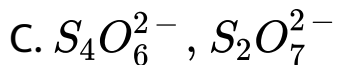
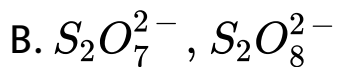
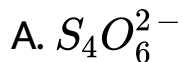
- A. (i) and (ii) only
- B. (i) and (iii) only
- C. (ii) and (iii) only
- D. (i), (ii) and (iii)

Answer: D



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66. In which pair of ions both the species contains $S - S$ bond?



Answer: A



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67. Which of the following statements is not true for halogens?

A. All form monobasic oxyacids.

B. All are oxidizing agents.

C. All but fluorine show positive oxidation states

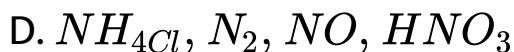
D. Chlorine has the highest electron-gain enthalpy.

Answer: A



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68. Which ordering of compounds is according to the decreasing order of the oxidation state of nitrogen ?



Answer: A



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69. A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. H_2SO_4 . The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be

A. 1.4

B. 3.0

C. 2.8

D. 4.4

Answer: C



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70. The number of lone pairs of electrons present on the central atom of ClF_3 is

A. one

B. two

C. four

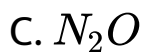
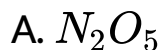
D. three

Answer: B



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71. Which oxide of nitrogen is \rightarrow a common pollutant introduced into the atmosphere both due to natural and human activity?

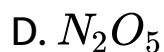
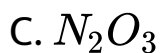
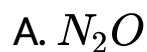


Answer: A



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1. Which of the following combines with Fe^{2+} ions to form brown complex ?



Answer: B



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2. HNO_2 acts as

- A. oxidising agent
- B. reducing agent
- C. both (a) and (b)
- D. its solution is stable

Answer: C

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3. Which of the following is oxidised in air?

- A. white phosphorus

B. CH_4

C. H_2O

D. $NaCl$

Answer: A



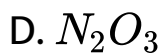
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4. Which of the following represents laughing gas?

A. NO

B. N_2O

C. NO_2



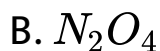
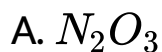
Answer: B



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

This oxide is



D. NO

Answer: D



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6. Which is the most explosive?

A. NCl_3

B. PCl_3

C. $AsCl_3$

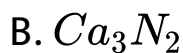
D. All of these

Answer: A



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7. Pure nitrogen can be prepared from



D. All of these

Answer: C



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8. Which statement is not correct for nitrogen?

A. It has a small size

B. It does not readily react with O_2

C. It is a typical non-metal

D. *d*-orbitals are available for bonding

Answer: D



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9. Which of the following oxides of nitrogen is the anhydride of nitrous acid?

A. NO

B. N_2O_3

C. N_2O_4

D. N_2O_4 has two resonance structure

Answer: B

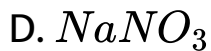
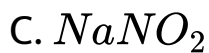


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10. Nitrogen dioxide is released by heating

A. $Ph(NO_3)_2$

B. KNO_3



Answer: A



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11. Nitric oxide is prepared by the action of HNO_3
on



D. Sn

Answer: B



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12. When lightning flash is produced, which gas is formed?

- A. Nitrous oxide
- B. Nitrogen dioxide
- C. Dinitrogen pentoxide
- D. Nitric oxide

Answer: D



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13. Which of the following phosphorus is most stable?

A. Red

B. White

C. Black

D. All stable

Answer: A



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14. Calcium carbide on heating with dinitrogen at $1100^{\circ}C$ gives

- A. Calcium cyanide
- B. calcium cyanamide
- C. calcium carbonate
- D. calcium nitride

Answer: B



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15. Which one has the highest percentage of nitrogen?

A. Urea

B. Ammonium sulphate

C. Ammonium nitrate

D. Calcium nitrate

Answer: A



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16. The number of $P - O - P$ bridge in the structure of phosphorous pentoxide and phosphorus trioxide are respectively

A. 6, 6

B. 5, 5

C. 5, 6

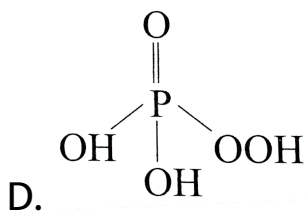
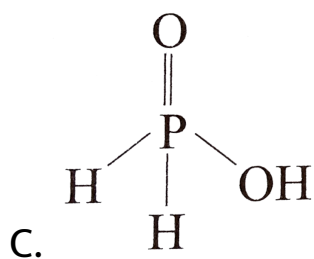
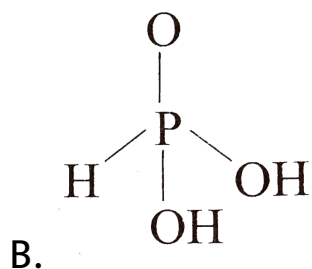
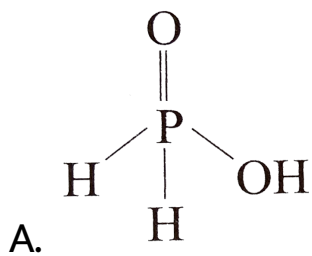
D. 6, 5

Answer: A



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17. the correct structural formula of hypophosphorous acid is



Answer: A



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18. In NH_3 and PH_3 , the common is

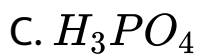
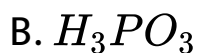
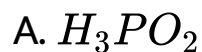
- A. odour
- B. combustibility
- C. basic nature
- D. none of these

Answer: C



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19. Which of the following compound is tribasic acid?



Answer: C



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20. Nitrous oxide is known as

A. breathing gas

B. laughing gas

C. exercising gas

D. laboratory gas

Answer: B



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

A. N

B. P

C. As

D. Sb

Answer: A



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22. Which of the following compound show sublimation?

A. NH_4Cl

B. $CaCO_3$



Answer: A



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23. For H_3PO_3 and H_3PO_4 the correct choice is

A. H_3PO_3 is dibasic and reducing

B. H_3PO_3 is dibasic and non-reducing

C. H_3PO_4 is tribasic and reducing

D. H_3PO_3 is tribasic and non-reducing

Answer: A



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24. Which of the following is true for N_2O_5

A. Paramagnetic

B. Anhydride of HNO_2

C. Brown gas

D. Exist in solid state in form of $[NO_2^+][NO_3^-]$

Answer: D



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25. What happen at increasing pressure at constant temperature

A. Rate of haber process decrease

B. solubility of gas increase in liquid

C. solubility of solid increase in liquid

D. $2C_{(s)} + CO_{2(g)} \rightarrow 2CO_{(g)}$ reaction move forward

Answer: B



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Assertion-Reasoning Questions

1. HNO_3 is a stronger acid than HNO_2

In HNO_3 , there are two nitrogen to oxygen bonds, whereas in HNO_2 there is only one.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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2. Asseration: Ammonia and water are electron rich hydrides.

Reason: They have electrons more than required for bonding.

A. If both asseration and reson are true and the reason is the correct explanation of the

asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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3. Asserarion: Phosphine is prepared in an inert atmoshphere of CO_2 and H_2 .

Reason: Phosphine is highly inflammable in air.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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4. Assertion: Both H_3PO_4 and H_3PO_3 possess the same number of hydrogen atoms, but H_3PO_4 is tribasic acid and H_3PO_3 is dibasic.

Reason: In oxoacids only those H -atoms are replaceable which are attached to $O - a \rightarrow m$.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the

asseration.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A

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5. Asseration: White phosphorus is less stable whereas red phosphorus is more stable.

Reason: White phosphorus exists as individual P_4 having more strained geometry while red

phosphorus has P_4 tetrahedron structure linked together.

A. If both asseration and reson are true and the reason is the correct explanation of the asseration.

B. If both asseration and reason are true ans the reason is the correct explanation of the asseration.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A

6. Assertion: H_3PO_4 and H_3PO_3 both are present in fertilizers.

Reason: H_3PO_3 increases the solubility of fertilizers.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is the correct explanation of the assertion.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: C



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7. Oxygen molecule exhibits

A. paramagnetism

B. diamagnetism

C. ferromagnetism

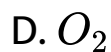
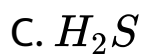
D. ferrimagnetism

Answer: A



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8. Copper molecule exhibits

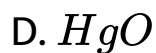
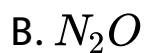
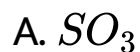


Answer: A



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9. Which of the following is acidic?



Answer: A



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

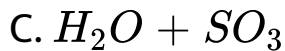
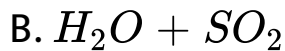
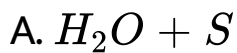
- A. H_2O and CO_2
- B. CO and CO_2
- C. Oxalic Sulphate
- D. CO_2 and H_2S

Answer: B



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11. H_2S reacts with O_2 to form?

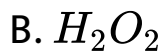


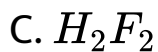
Answer: A



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12. Shape of O_2F_2 is similar to that of





Answer: B



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13. Bleaching action of SO_2 is due to :

A. oxidising property

B. acidic property

C. basic property

D. reducing property

Answer: D



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14. Assertion: $SeCl_4$, does not have a tetrahedral structure.

Reason: Se in $SeCl_4$ has two lone pairs.

A. If both the assertion and reason are true and reason is the true explanation of the assertion.

B. If both the assertion and reason are true but the reason is not the correct explanation of assertion.

C. If the asseration is true but reason is false.

D. If asseration is false bit reason is true.

Answer: C



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Exercise

1. Asseration: H_2S can be dried by H_2SO_4

Reason: A basic drying agent absorbs moisture from basic substance and an acidic drying agent is needed for acidic substance to be dried.

- A. If both the asseration and reason are ture and reason is the true explation of the assertion.
- B. If both the asseration and reason are ture but the reason is not the correct explanation of assertion.
- C. If the asseration is true but reason is false.
- D. If asseration is false bit reason is true.

Answer: D



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2. Assertion: Equivalent mass of H_2SO_4 in lead storage battery is 49.

Reason: In lead storage battery, H_2SO_4 acts both as oxidant and reductant.

A. If both the assertion and reason are true and reason is the true explanation of the assertion.

B. If both the assertion and reason are true but the reason is not the correct explanation of assertion.

C. If the assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D



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3. Statement SO_2 can be used as reductant as well as oxidant.

Explanation The oxidation number of S is $+4$ in SO_2 which lies between its minimum (-2) and maximum ($+6$) values.

A. If both the assertion and reason are true and reason is the true explanation of the assertion.

B. If both the asseration and reason are ture but the reason is not the correct explanation of asseration.

C. If the asseration is true but reason is false.

D. If asseration is false bit reason is true.

Answer: A

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4. Asseration: O_3 has higher boiling point than O_2 .

Reason: O_3 is allotrope of oxygen

- A. If both the asseration and reason are ture and reason is the true explation of the assertion.
- B. If both the asseration and reason are ture but the reason is not the correct explanation of assertion.
- C. If the asseration is true but reason is false.
- D. If asseration is false bit reason is true.

Answer: B



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5. Assertion: Iodine is liberated when KI is added to Cu^{2+} ions but Cl_2 is not liberated when KCl added to Cu^{2+} ions.

Reason: The reducing power of I^- is more than Cl^- .

A. If both assertion and reason are true and reason is the true explanation of the assertion.

B. If both assertion and reason are true but the reason is not the correct explanation of assertion.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: A



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6. Asseration: Iodine is sparingly soluble in water but fairly soluble in KI .

Reason: Iodine is non-polar in nature.

A. If both assertion and reason are true and reason is the true explanation of the

asseraton.

B. If both asseration and reason are true but the reason is not the correct explanation of asseration.

C. If the asseration is true but reason is false.

D. If asseration is false but reason is true.

Answer: B

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7. Assertion : Inert gases are monoatomic.

Reason : Inert gases have stable configuration.

- A. If both assertion and reason are true and reason is the true explanation of the assertion.
- B. If both assertion and reason are true but the reason is not the correct explanation of assertion.
- C. If the assertion is true but reason is false.
- D. If assertion is false but reason is true.

Answer: A



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1. The solubility of iodine in water increases in the presence of

A. alcohol

B. chloroform

C. sodium hydroxide

D. potassium iodide

Answer: D



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2. Which of the following hydrogen halide is most volatile?

A. HF

B. HCl

C. HBr

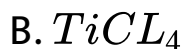
D. HI

Answer: B



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3. Hydrolysis of which of the following does not occur?



Answer: D



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4. When chlorine water is exposed to sunlight, O_2 is liberated. Hence

- A. Hydrogen has little affinity to O_2
- B. Hydrogen has more affinity to O_2
- C. hydrogen has more affinity to Cl_2
- D. it is a reducing agent

Answer: C



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5. When cold NaOH reacts with Cl_2 which of the following is formed

A. NaClO

B. NaClO_2

C. NaClO_3

D. None of these

Answer: A



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6. A gas reacts with CaO , but not with $NaHCO_3$.

The gas is

A. CO_2

B. Cl_2

C. N_2

D. O_2

Answer: B



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

A. brown

B. violet

C. colourless

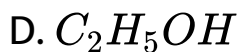
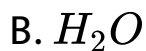
D. bluish green

Answer: B



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



Answer: C



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

A. HF

B. HCl

C. HBr

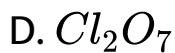
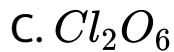
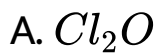
D. HI

Answer: A



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



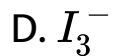
Answer: D



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11. Which one below is a pseudohalide





Answer: A



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12. Which one is the highest melting halide ?



Answer: C



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13. Beilstein test is used for

A. N_2

B. Cl

C. Na

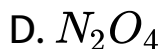
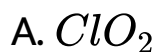
D. CO_2

Answer: B



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



Answer: B



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15. Metal halide which is insoluble in water is

A. AgI

B. KBr

C. $CaCl_2$

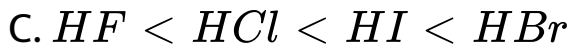
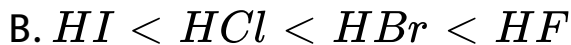
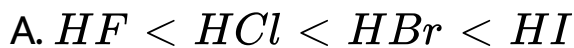
D. AgF

Answer: A



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16. The correct order of acidic strength is



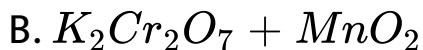
D. None

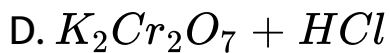
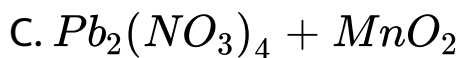
Answer: A



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17. Chlorine is liberated, when we heat





Answer: D



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

A. *Cl*

B. *Br*

C. *I*

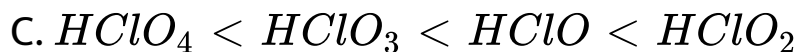
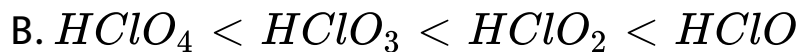
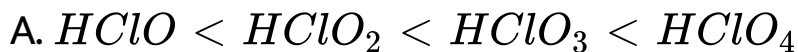
D. F

Answer: D



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19. Acid strength of oxy acids of chlorine follows the order



D. None of these

Answer: B



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20. Bromine water reacts with SO_2 to form

A. H_2O and HBr

B. H_2SO_4 and HBr

C. HBr and S

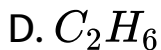
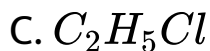
D. S and H_2O

Answer: B



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21. Cl_2 reacts with CS_2 in presence of I_2 catalyst to form



Answer: B



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22. The odd decomposition of carbon chlorine bond
from

- A. two free ions
- B. two-carbabium ion
- C. two carbanium
- D. a cation and an anion

Answer: D



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1. XeF_4 on partial hydrolysis produces



Answer: B



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2. The correct order of solubility in water for

He, Ne, Ar, Kr, Xe , is

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

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

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

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

Answer: C



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3. Among the following molecule

(i) XeO_3 (ii) $XeOF_4$ (iii) XeF_6

Those having same number of lone pairs on Xe are

- A. (i) and (ii) only
- B. (i) and (iii) only
- C. (ii) and (iii) only
- D. (i), (ii) and (iii)

Answer: D



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Section D - Chapter End Test

1. In Birkeland-Eyde process, the raw material used is

A. Air

B. NH_3

C. NO_2

D. HNO_3

Answer: A



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

- A. Lead nitrate
- B. Ammonium nitrate
- C. Silver nitrate
- D. Sodium nitrate

Answer: B



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3. Which compound acts as an oxidising as well as reducing agent?

A. SO_2

B. MnO_2

C. Al_2O_3

D. CrO_3

Answer: A



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

A. 80 % H_2SO_4

B. 98 % H_2SO_4

C. 50 % H_2SO_4

D. 20 % $H_2S_2O_7$

Answer: B



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5. The solubility of iodine in water increases in the presence of

A. Alcohol

B. Chloroform

C. sodium hydroxide

D. potassium iodide

Answer: D



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6. HI cannot be prepared by the action of conc.

H_2SO_4 on KI because

A. HI is stronger than H_2SO_4

B. HI is more volatile than H_2SO_4

C. H_2SO_4 is an oxidising agent

D. H_2SO_4 forms complex

Answer: C



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7. Deep sea divers used to respire in a mixture of

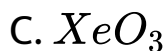
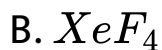
- A. Oxygen and argon
- B. Oxygen and helium
- C. Oxygen and nitrogen
- D. Oxygen and hydrogen

Answer: B



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

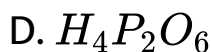
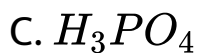
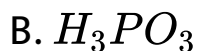
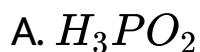


Answer: C



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

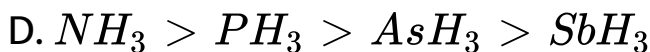
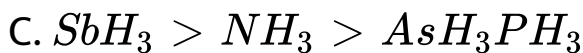
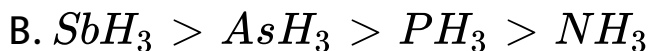
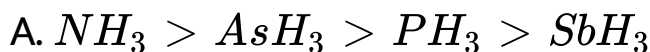


Answer: A



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10. Boiling/melting points of the following hydrides follow in order.



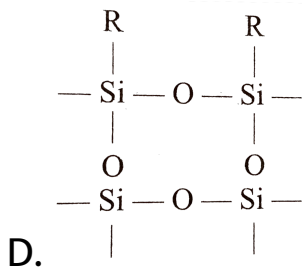
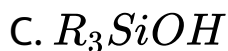
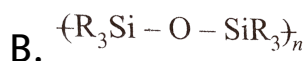
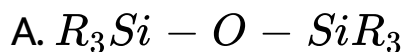
Answer: C



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11. On controlled hydrolysis and condensation,

R_3SiCl yields



Answer: A



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12. Bleaching action of SO_2 is due to

A. oxidising property

B. Acidic property

C. basic property

D. Reducing property

Answer: D



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13. One gas bleaches the colour of flowers by reduction and other by oxidation. These gases are

A. CO and Cl_2

B. SO_2 and $Cl - (2)$

C. H_2 and Br_2

D. NH_3 and SO_2

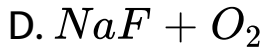
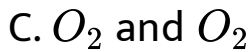
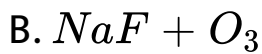
Answer: B



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14. With cold and dilute sodium hydroxide fluorine reacts to give

A. NaF and OF_2



Answer: A



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15. Which one of the following statements regarding helium is incorrect?

A. It is used to produce and sustain powerful superconducting magnets

B. It is used to as a cryogenic agent for crrying
out experiments at low tempretures

C. It is used to fill gas balloons insteat of
hydrogen because it is lighter and non-
inflammable

D. It is used in gas-cooled nuclear reactors

Answer: C



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16. Who among the following first prepared a stable
compound of noble gas?

A. Rutherford

B. Rayleigh

C. Ramsay

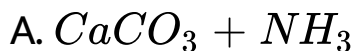
D. Neil Bartlett

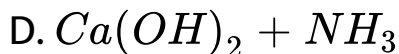
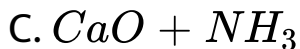
Answer: D



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17. Calcium cyanamide on treatment with steam produce



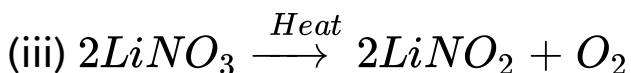
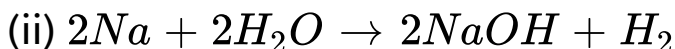
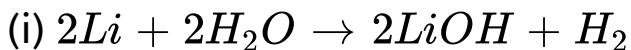


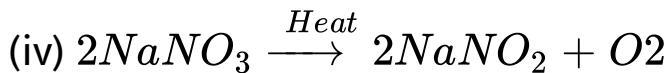
Answer: A



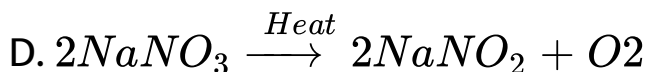
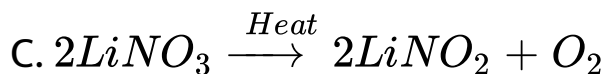
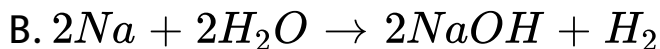
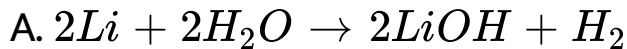
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18. Four reaction are given below





Which of the above, if any, is wrong



Answer: B



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

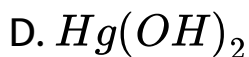
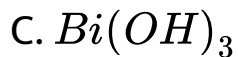
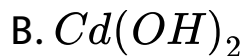
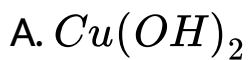
- A. Are both soluble in CS_2
- B. Can be oxidised by heating in air
- C. Consists of same kind of atoms
- D. Can be converted into one another

Answer: A



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20. VA group precipitate was dissolved in HNO_3 and treated with excess of NCl_5 . It gives a white ppt. because of



Answer: C



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21. PCl_5 exists but NCl_5 does not because

A. Nitrogen has no vacant orbitals

B. NCl_5 is unstable

C. Nitrogen atom is much smaller

D. Nitrogen is highly inert

Answer: A



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22. the pentavalence in phosphorus is more stable as compared to that of nitrogen even though they belong to the same group. It is due to

A. Inert nature of nitrogen

B. Reactivity of phosphorus

C. Larger size of phosphorus atom

D. Dissimilar electronic configuration

Answer: C



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

A. The mixture only cools down

B. PCl_3 and HCl are formed and the mixture warms up

C. PCl_5 and HCl are formed and the mixture
cools down

D. PH_3 . Cl_2 is formed with warming up

Answer: C



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

A. H_2O because of hydrogen bonding

B. H_2Te because of higher molecular weight

C. H_2S because of hydrogen bonding

D. H_2Se because of lower molecular weight

Answer: A



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25. Fluorine is prepared by

A. Oxidation of HF

B. Electrolysis of KF

C. Electrolysis of fused KHF_2

D. Deomposition of HgF_2

Answer: C



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26. Which of the following halides is least stable and has doubtful existence?



Answer: D



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27. XeF_2 molecule is

- A. Square planer
- B. Trigonal bipyraidal
- C. Trigonal planer
- D. Linear

Answer: D



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28. Assertion: PCl_5 is covalent in gaseous and liquid states but ionic in solid state.

Reason: PCl_5 in solid state consists of tetrahedral PCl_4^+ cation and octahedral PCl_6^- anion.

A. If both assertion and reason are true and reason is the true explanation of the assertion.

B. If both assertion and reason are true and reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B



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29. Statement-1 : Among nitrogen halides NX_3 , the dipole moment is higher for NI_3 and lowest for NF_3 .

Statement-2 : Nitrogen halides NX_3 , have trigonal pyramidal structure.

A. If both assertion and reason are true and reason is the true explanation of the

asseraton.

B. If both assertion and reason are true and reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B



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30. Assertion: SCl_4 , does not have a tetrahedral structure.

Reason: Se in $SeCl_4$ has two lone pairs.

A. If both assertion and reason are true and reason is the true explanation of the assertion.

B. If both assertion and reason are true and reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C



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