

P-Block Elements

VII-A Group Elements

Sub Topic-I: Practice Questions

1. The order of electron affinity of halogens is

1. $F > Cl > Br > I$ 2. $Cl > Br > F > I$ 3. $Cl > F > Br > I$ 4. $I > Br > Cl > F$

2. Halogens are coloured because

1. Their atoms have high electro negativity.
2. Their molecules are held together by weak Van der waals forces.
3. Their molecules absorb visible light causing the excitation of outer electrons to higher energy levels.
4. Their atoms absorb energy causing the excitation of outer electrons to higher energy levels.

3. Fluorine does not show variable oxidation states due to

1. Its high electro negativity
2. Smallest size of its atoms
3. Low bond dissociation energy
4. Non availability of d-orbitals

4. Fluorine is more reactive than chlorine because

1. F – F bond is weaker than Cl-Cl bond.
2. Fluorine does not have d-orbitals.
3. Fluorine has high ionization energy.
4. Electron affinity of fluorine is lesser than that of chlorine/

5. Which of the following is known as a super halogen?

1. Chlorine 2. Bromine 3. Fluorine 4. Iodine

6. Halothane is

1. CF_2Cl_2 2. $CF_3CHClBr$ 3. C_2F_4 4. All

7. The order of bond energy of halogens is

1. $F_2 < Cl_2 < Br_2 < I_2$ 2. $F_2 > Cl_2 > Br_2 > I_2$
3. $Cl_2 > Br_2 > F_2 > I_2$ 4. $Cl_2 > F_2 > Br_2 > I_2$

8. The order of reactivity of halogens with hydrogen is

1. $F_2 < Cl_2 < Br_2 < I_2$ 2. $F_2 > Cl_2 > Br_2 > I_2$
3. $F_2 > Br_2 > Cl_2 > I_2$ 4. $F_2 > I_2 > Br_2 > Cl_2$

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

1. Of these three, chlorine is the lightest and iodine is the heaviest.
2. Chlorine has a lowest specific heat.
3. Chlorine molecule is the least stable.
4. Intermolecular forces are weakest in chlorine and strongest in Iodine.

10. Halogen molecules are

1. Diatomic and form X_2^{-2} ions 2. Diatomic and form X^- ions
3. Monoatomic and form X_2^{2-} ions 4. Monoatomic and form X^- ions

11. Iodine is liberated when chlorine is passed through an acidified solution of potassium iodide because

1. Chlorine is powerful reducing agent than iodide.
2. Chlorine is powerful oxidising agent than iodide.
3. Chlorine is more electronegative than iodide.
4. Chlorine is less electronegative than iodine.

12. One gas bleaches the colours of flowers by reduction and the other by oxidation. The two gases are respectively

1. Cl_2 and SO_2
2. H_2S and Br_2
3. SO_2 and Cl_2
4. NH_3 and SO_3

13. Oxidising action increases in the following order

1. $Cl < Br < I < F$
2. $Cl < I < Br < F$
3. $I < Cl < Br$
4. $I < Br < Cl < F$

14. Which of the following pairs is not correctly matched?

1. A halogen which Liquid is at room temperature – Bromine.
2. The most electronegative element – Fluorine.
3. The most reactive halogen – Fluorine.
4. The strongest oxidising halogen – Iodine.

15. Halogen atoms have

1. High ionization energy, high electron affinity, and low electro negativity.
2. High ionization energy, high electro negativity and high electron affinity.
3. High ionization energy, low electron affinity and high electro negativity
4. Low ionization energy, high electron

- 16. In dilute aqueous solution HF is a weaker acid than HI, because**
1. H – F bond energy is greater than HI bond energy
 2. The hydration energy of F^- is higher than that of I^-
 3. Of the presence of hydrogen bonds in HI
 4. Fluorine is a stronger base as compared to iodine.
- 17. The order $HF < HCl < HI$ corresponds to which of the following properties**
1. Bond length
 2. Thermal stability
 3. Ionic character
 4. Dipole moment
- 18. The manufacture of fluorine is carried out by**
1. Electrolysis of aqueous HF
 2. Electrolysis of anhydrous HF mixed with KHF_2
 3. Heating anhydrous HF and MnO_2
 4. Heating a mixture KF, MnO_2 , and conc. H_2SO_4
- 19. Dry and fused KHF_2 on electrolysis gives**
1. H_2 at anode and F_2 at cathode
 2. H_2 at cathode and F_2 at anode
 3. H_2 at cathode and O_2
 4. Both H_2 and F_2 at cathode
- 20. KF combines with HF to form KHF_2 . The compound contains the species:**
1. K^+ , F^- and H^+
 2. K^+ , F^- and HF
 3. K^+ and $[HF_2]^-$
 4. $[KHF]^+$ and F^-
- 21. The T-shaped interhalogen compound is**
1. ClF_3
 2. ICl
 3. ClF_5
 4. IF_5

22. HF is not stored in glass bottles because

1. It reacts with visible part of light
2. It reacts with sodium oxide of the glass
3. It reacts with the aluminium oxide of the glass
4. It reacts with SiO_2 of the glass

23. Correct order of boiling points of hydrogen halides is

1. $HF > HCl > HBr > HI$
2. $HF > HCl > HBr < HI$
3. $HCl < HBr < HI < HF$
4. $HF < HCl < HBr < HCl$

24. Available chlorine in a good sample of bleaching powder is

1. 75%
2. 20-25%
3. 50-75%
4. 35-38%

25. Cl_2O_6 is the mixed anhydride of

1. $HOCl + HClO_2$
2. $HClO_2 + HClO_3$
3. $HClO_3 + HClO_4$
4. $HClO + HClO_3$

26. The number of lone pairs on chlorine atom in ClO^- , ClO_2^- , ClO_3^- , ClO_4^- ions are

1. 0, 1, 2, 3
2. 1, 2, 3, 4
3. 4, 3, 2, 1
4. 3, 2, 1, 0

27. The order of basic strength of ClO^- , ClO_2^- , ClO_3^- , ClO_4^- is

1. $ClO_4^- > ClO_3^- > ClO_2^- > ClO^-$
2. $ClO_4^- > ClO_2^- > ClO^- > ClO_3^-$
3. $ClO^- > ClO_2^- > ClO_3^- > ClO_4^-$
4. $ClO^- > ClO_4^- > ClO_3^- > ClO_2^-$

28. Decreasing order of the oxidizing strengths of the oxyacids of chlorine

1. $HClO > HClO_2 > HClO_3 > HClO_4$
2. $HClO_4 > HClO_3 > HClO_2 > HClO$
3. $HClO_3 > HClO_2 > HClO > HClO_4$
4. $HClO_2 > HClO > HClO_4 > HClO_3$

29. Chlorine atom, in the third excited state, reacts with fluorine to form a compound 'x'. The formula and shape of 'x' are

1. ClF_5 , pentagonal
2. ClF_4 , Tetrahedral
3. ClF_4 , pentagonal bipyramidal
4. ClF_7 , pentagonal bipyramidal

30. Number of sigma and pi bonds in ClO_2^- ion

1. 2σ and 2π
2. 2σ and 1π
3. 1σ and 2π
4. 3σ and 2π

31. Which one of the following sequences represents the correct increasing order of bond angle in the given molecules?

1. $H_2O < OF_2 < OCl_2 < ClO_2$
2. $OCl_2 < ClO_2 < H_2O < OF_2$
3. $OF_2 < H_2O < OCl_2 < ClO_2$
4. $ClO_2 < OF_2 < OCl_2 < H_2O$

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

1. $HClO_4 < HNO_3 < H_2CO_3 < B(OH)_3$
2. $HNO_3 < HClO_4 < B(OH)_3 < H_2CO_3$
3. $B(OH)_3 < H_2CO_4 < HClO_4 < HNO_3$
4. $HClO_4 < HNO_3 < B(OH)_3 < H_2CO_3$

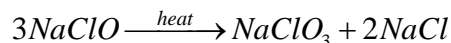
33. Oxidation state of chlorine in hypochlorous acid is

1. +1
2. +2
3. -1
4. -2

34. In the reaction $2Br^- + X_2 \rightarrow Br_2 + 2X^-$, X_2 is

1. Cl_2 2. Br_2 3. I_2 4. N_2

35. Which of the following is correct about the reaction?



1. It is disproportionate reaction.
 2. Oxidation number of Cl decreases as well as increases in this reaction.
 3. This reaction is used for the manufacture of halates.
 4. All of the above.
36. A greenish yellow gas reacts with an alkali metal hydroxide to form a halite which can be used in fireworks and safety matches. The gas and halite respectively are

1. $Br_2, KBrO_3$ 2. $Cl_2, KClO_3$ 3. $I_2, NaIO_3$ 4. $Cl_2, NaClO_3$

37. The reaction of $KMnO_4$ and HCl results in

1. Oxidation of Mn in $KMnO_4$ and production of Cl_2
2. Reduction of Mn in $KMnO_4$ and production of H_2
3. Oxidation of Mn in $KMnO_4$ and production of H_2
4. Reduction of Mn in $KMnO_4$ and production of Cl_2

38. In the oxyacids of chlorine Cl-O bond contains

1. $d\pi - d\pi$ Bonding
2. $p\pi - d\pi$ Bonding
3. $p\pi - p\pi$ Bonding
4. None of the above

39. Which of the following statement is incorrect?

1. ICl is a good conductor of electricity in fused state.
2. Cl_2O_7 is an anhydride of perchloric acid.
3. Melting and boiling points of HBr is less than HCl.
4. F_2 does not form oxy-acids.

40. Auto-oxidation of bleaching powder gives

1. Only Calcium Chlorate
2. Only Calcium Chloride
3. Only Calcium Hypochlorite
4. Both (1) and (2)

41. A halogen (X) reacts with Sulphur gives a compound (y). (y) reacts with ethylene to give Mustard gas. Then

1. $x = Cl_2; y = S_2Cl_2$
2. $x = Cl_2; y = SCl_4$
3. $x = Cl_2; y = S_2Cl$
4. $x = Cl_2; y = SCl_2$

42. Hybridisation of chlorine atom is ClO^- , ClO_2^- , ClO_3^- , and ClO_4^- respectively

1. sp^2, sp^2, sp^2, sp^2
2. sp, sp, sp, sp
3. sp^3, sp^3, sp^3, sp^3
4. sp, sp^2, sp^3, sp^2

43. An easy way of obtaining Cl_2 gas in the laboratory is

1. By heating NaCl and conc. H_2SO_4
2. By heating NaCl and MnO_2
3. By mixing HCl and $KMnO_4$
4. By passing F_2 through NaCl solution

44. Identify the false statement about bleaching powder.

1. Amount of Cl_2 liberated when it is treated with excess of dilute acid is known as available chlorine.
2. Bleaching powder is priced according to its crystal size.

3. Good quality of bleaching powder contains 35 – 38% available chlorine.
4. When stored for longer periods it changes to calcium chlorate and calcium chloride.
- 45. Bleaching powder on treatment with x gives O_2 , with Y gives Cl_2 and with Z gives Chloroform. X, Y and Z are respectively**
1. $H_2SO_4, CoCl_2$ and Ethyl alcohol 2. $CoCl_2, H_2SO_4$ and ethyl alcohol
3. $CoCl_2, H_2SO_4$ and methyl alcohol 4. Ethyl alcohol, $CoCl_2, H_2SO_4$
- 46. $Cl_2 \xrightarrow{\text{Cold, dil NaOH}} x + y + z$. Here x, y and z are**
1. NaCl, $NaClO_3$ and H_2O 2. NaCl, NaOCl and H_2O
3. NaCl, $NaClO_4$ and H_2O 4. NaCl, $NaClO_2$ and H_2O
- 47. Chlorine is passed into dilute, cold KOH solution. What is the oxidation numbers of chlorine in the products formed?**
1. -1 and +5 2. -1 and +3 3. +1 and +7 4. +1 and -1
- 48. In cold water Bleaching powder ionizes to form**
1. Ca^{2+}, Cl^- and ClO^- 2. CaO, Cl^-
3. Ca^{2+}, Cl^- and ClO_3^- 4. Ca^{2+}, Cl^- and ClO_2^-
- 49. Bromine is added to cold dilute aqueous solution of NaOH. The mixture is boiled. Which of the following statements is not true?**
1. During the reaction bromine is present in four different oxidation states.
2. The greatest difference between the various oxidation states of bromine is 5.
3. On acidification of the final mixture, bromine is formed.

4. Disproportionation of bromine occurs during the reaction.

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

1. HIO_4, HI, I_2, ICl_5 2. HIO_4, ICl_5, HI, I_2 3. ICl_5, HIO_4, I_2, HI 4. HIO_4, ICl_5, I_2, HI

VII-A Group Elements

Sub Topic-I Key

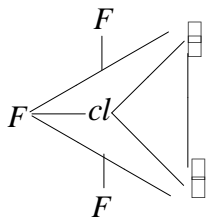
1) 3	2) 3	3) 4	4) 1	5) 3	6) 2	7) 3	8) 2	9) 4	10) 2
11) 2	12) 3	13) 4	14) 4	15) 2	16) 1	17) 1	18) 3	19) 3	20) 3
21) 1	22) 4	23) 3	24) 4	25) 3	26) 4	27) 3	28) 3	29) 4	30) 2
31) 3	32) 1	33) 1	34) 1	35) 4	36) 2	37) 4	38) 2	39) 3	40) 3
41) 1	42) 3	43) 3	44) 2	45) 2	46) 2	47) 4	48) 1	49) 2	50) 4

Sub Topic-I (Solutions)

1. The E.A of F_2 is less than E.A Cl_2

20. $KHF_2 \rightarrow K^+ [HF_2]^-$

21.



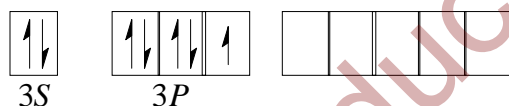
23. Due to hydrogen bonding H_f contains high Boiling Point.

24. The % of available chlorine is good sample of bleaching power is 35-38%

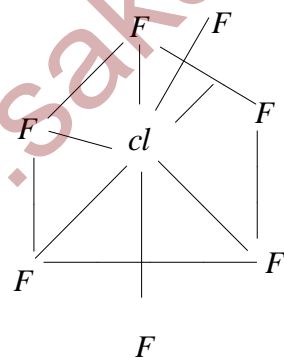
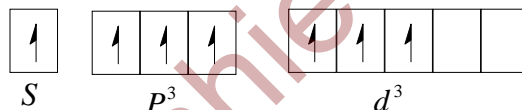


29. $Cl - 1S^2 \quad 2S^2 \quad 6P^6 \quad 3S^2 \quad 3P^5$

Ground State

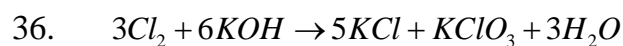
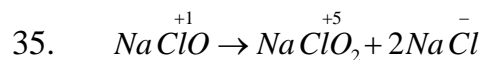
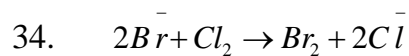
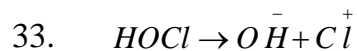


3rd excited state

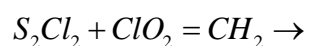
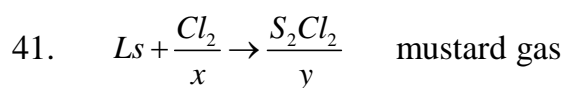


ClF_7 Pentagonal bipyramidal is geometry sp^3d^3 is hybridisations

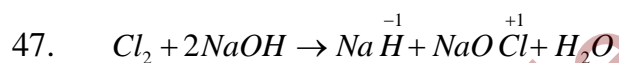
32. $P^{ka} \propto \frac{1}{\text{strength of acid}}$



39. Due to high molecular weight HBr contains high B.P.



42. In all oxy acids chlorine undergoes sp^3 hybridisations.



VIIA Group Elements (Sub Topic-II)

Flourine, Chlorine, Bleaching power, Interhalogen compounds

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

1. They are more reactive than halogens
2. They are quite unstable but none of them is explosive
3. They are covalent in nature
4. They have low boiling points and are highly volatile

2. Which of the following reaction involves redox reaction?

1. $H_2 + Br_2 \rightarrow 2HBr$
2. $HBr + AgNO_3 \rightarrow AgBr + HNO_3$
3. $NaBr + HCl \rightarrow NaCl + HBr$
4. $Na_2O + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$

3. Which of the following statement is incorrect?

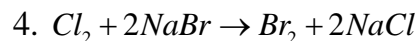
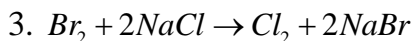
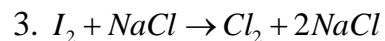
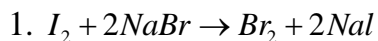
1. ICl is a good conductor of electricity in fused state
2. Cl_2O_7 is an anhydride of perchloric acid
3. Melting and boiling points of HBr is less than HCl
4. F_2 does not form oxy-acids

4. One mole of fluorine is reacted with two moles of hot and concentrated KOH.

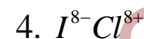
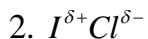
The products formed are HF , H_2O and O_2 . The molar ratio of KF , H_2O and O_2 . respectively is

1. 1:1:2
2. 2:1:0.5
3. 1:2:1
4. 2:1:2

5. Which of the following reactions is possible?



6. Charge distribution in iodine monochloride is best represented as



7. Match the following.

Set-I

Set-II



1) Pale Yellow colour gas



2) Violet colour solid



3) Orange liquid



4) Greenish colour gas

Correct the matching is

	A	B	C	D
1.	1	3	2	4
2.	1	4	3	2
3.	2	3	4	1
4.	3	2	1	4

8. Observe the following statements?

I. Bleaching powder is used in the preparation of Chloroform

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

III. Aqueous KHF_2 is use in the preparation of Fluorine.

1. I, II and III are correct
2. Only II is correct
2. Only I and III are correct
4. Only I and II are correct.

9. Assertion (A): Bleaching powder is also known as calcium chloro hypo chlorite.

Reason (R): Bleaching powder is a mixed salt of calcium chloride and perchlorite.

1. A and R are true, R is correct explanation of A.
2. A and R are true, r is not correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

10. Assertion (A): Fluorine occurs in nature in the combined state only.

Reason (R): Fluorine is very reactive element.

1. A and R are true, R is correct explanation of A.
2. A and R are true, r is not correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

11. **Assertion (A):** ClO_2 is a paramagnetic molecule.

Reason (R): Cl atom in ClO_2 molecule is sp^3 hybridized.

1. A and R are true, R is correct explanation of A.
2. A and R are true, r is not correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

12. **Assertion (A):** In BrF_3 oxidation state of "F" is + 3.

Reason (R): Electro negativity of F is more than that of Bromine.

1. A and R are true, R is correct explanation of A.
2. A and R are true, r is not correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

13. **Match the following.**

Set-I

Set-II

- | | |
|----------------|---------------------|
| A) Teargas | 1) $[C_2H_4Cl]_2 S$ |
| B) Mustard gas | 2) $COCl_2$ |
| C) Phosgene | 3) CCl_3NO_2 |
| D) Teflon | 4) $(C_2F_4)_n$ |

Correct the matching is

	A	B	C	D
1.	3	1	2	4
2.	1	2	4	3
3.	2	3	4	1
4.	4	2	1	3

14. Match the following.

Set-I (Cl – O bond length)

Set-II (\AA)

A) HClO

1) 1.64

B) HClO_2

2) 1.70

C) HClO_3

3) 1.45

D) HClO_4

4) 1.57

Correct the matching is

	A	B	C	D
1.	1	2	3	4
2.	2	3	4	1
3.	2	1	4	3
4.	2	1	3	4

15. The set with correct order of acidic strength is

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

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

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

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

16. The following is incorrect statement.

1. Bleaching powder is used as a germicide.
2. Chlorine is used in the preparation of insecticides like DDT.
3. Fluorine is used in Rocket Fuels.
4. Na_3AlF_6 is not an insecticide.

17. Find the correct statements.

- a) Electron affinity of F is less than that Cl.
- b) Number of lone pairs at central chlorine atom of ClF_3 is 2.
- c) Iodine absorbs radiation of violet colour and appears in yellow colour.
- d) F_2 Oxidizes all other ionic halides to halogens.

Find the correct answer.

1. a, c, d
2. a, b, d
3. Only c
4. All are correct

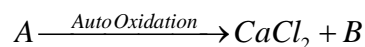
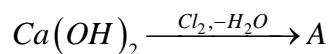
18. A black powder (x) when heated with NaCl and Conc. H_2SO_4 liberates a greenish yellow gas (y). (y) on passing through liquor Ammonia liberates chemically inert gas (Z); and on passing through boiling KOH gives (A) and (B) along with H_2O_2 . (A) When heated with (x) liberates another gas (C) and KCl. Then gases liberated are

1. $y = Cl_2; Z = N_2; C = O_2$
2. $y = Cl_2; C = N_2; C = O_2$
3. $y = O_2; C = Cl_2; Z = O_2$
4. $y = Cl_2; C = NH_3; Z = O_2$

19. A halogen which is used in the preparation of TEL, an anti-knock compound in petroleum is

1. F_2 2. Cl_2 3. Br_2 4. I_2

20. Identify B in the above reaction



1. $CaOCl_2$ 2. $Ca(ClO_3)_2$ 3. $Ca(OH)_2$ 4. $Ca(ClO_2)_2$

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

1. $Br_2, KBrO_3$ 2. $Cl_2, KClO_3$ 3. $I_2, NaIO_3$ 4. I_2, KIO_3

22. When chlorine water is added to an aqueous solution of sodium halide in the presence of chloroform, a violet coloration is obtained. When more of chlorine water is added, the violet colour disappears and solution becomes colorless. This confirms that the halide is sodium.

1. Chloride 2. Fluoride 3. Bromide 4. Iodide

23. A liquid X is treated with Na_2CO_3 solution. A mixture of two salts Y and Z are produced in the solution. The mixture on acidification with Sulphuric acid and distillation produces the liquid X again. Identify X.

1. Cl_2 2. Br_2 3. Hg 4. I_2

24. 10g of bleaching power on reaction with KI required 50 ml of hypo solution. Thus, % bleaching power is

1. 100 2. 80 3. 63.5 4. 35.5

25. On exciting Cl_2 molecule by UV light, we get

1. Cl^{\bullet} 2. Cl^- 3. Cl^+ 4. All of these

26. Which halogens oxidises water to oxygen exothermally?

1. Fluorine 2. Chlorine 3. Bromine 4. Iodine

27. Concentrated HNO_3 reacts with I_2 to gives

1. HI 2. HOI 3. HIO_3 4. $HOIO_2$

28. In KI solution, I_2 readily dissolves and forms

1. I^- 2. KI_2^- 3. KI_3 4. KI_2

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

1. $ZnSO_4$ 2. $CuSO_4$ 3. $(NH_4)_2SO_4$ 4. Na_2SO_4

30. The lattice energy of lithium halides in the following order

1. $LiF > LiCl > LiBr > LiI$ 2. $LiI > LiBr > LiCl > LiF$
3. $LiCl > LiF > LiBr > LiI$ 4. $LiBr > LiCl > LiF > LiI$

31. Metal halide which is insoluble in water is

1. AgF 2. AgI 3. KBr 4. $CaCl_2$

32. The mixture of conc. HCl and HNO_3 mde in 3:1 ratio contains

1. ClO_2 2. NOCl 3. NCl_3 4. N_2O_4

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

1. ClO_2 2. Cl_2O_7 3. Cl_2O 4. Cl_2O_6

34. The reaction of the type $2X_2 + S \rightarrow SX_4$ is shown by sulphur when X is

1. Fluorine or Chlorine 2. Chlorine only
3. Chlorine and Bromine only 4. F, Cl, Br, all

35. The following acids have been arranged in the order of decreasing acid strength. Identify the correct order. $ClOH$ (I) $BrOH$ (II) IOH (III)

1. I > II > III 2. II > I > III 3. III > II > I 4. I > III > II

36. What is a product obtained in the reaction of $HgCl_2$ and $Hg(CN)_2$?

1. $(CN)_2$ 2. $Hg(CN)Cl$
3. $Hg[Hg(CN)_2 Cl_2]$ 4. Addition compound $HgCl_2.Hg(CN)_2$

37. Euchlorine is a mixture of

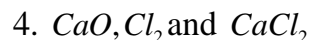
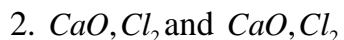
1. $Cl_2 + ClO_2$ 2. $Cl_2 + Cl_2O$ 3. $Cl_2O_3 + ClO_2$ 4. $Cl_2O + Cl_2O_3$

38. A dark brown solid (X) reacts with NH_3 to form a mild explosive which decomposes to give a violet coloured gas. (X) also reacts with H_2 to give an acid (Y). (Y) can also be prepared by heating its salt with H_3PO_4 . X and Y are

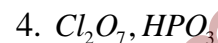
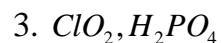
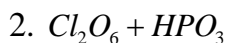
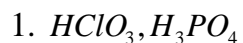
1. Cl_2, HCl 2. SO_2, H_2SO_4 3. Br_2, HBr 4. I_2, HI

39. Bleaching powder is disinfectant for purification of water. When waterborne germs are killed disinfectant activity is destroyed. It is due to its disproportion into

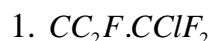
1. $CaCl_2$ and Cl_2 2. $CaCl_2$ and $Ca(ClO_3)_2$



40. $\text{HClO}_4 + \text{P}_2\text{O}_5 \rightarrow (\text{A})$ and (B) A and B are



41. Halon – 1301 is



42. Assertion: Red phosphorous is less volatile than white phosphorous.

Reason: Red phosphorous has a does create tetrahedral structure.

1. A and R are true, R is correct explanation of A.

2. A and R are true, r is not correct explanation of A.

3. A is true, but R is false.

4. A is false, but R is true.

43. Assertion: Pcl_4 is covalent in gaseous and liquid states but ionic is shlid state.

Reason: In solid state it have Pcl_5^+ and Pcl_6^- ions.

1. A and R are true, R is correct explanation of A.

2. A and R are true, r is not correct explanation of A.

3. A is true, but R is false.

4. A is false, but R is true.

44. Assertion: Liquid IF_5 conducts electricity.

Reason: Liquid IF_5 conducts as, $2IF_5 \rightleftharpoons IF_4^+ + IF_6^-$.

1. A and R are true, R is correct explanation of A.
2. A and R are true, r is not correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

45. Assertion: Bond dissociation energy of F_2 molecule is less than that of Cl_2 molecule.

Reason: Due to inter-electronic repulsion between F atom, F – F bond length in F_2 molecule is higher than Cl – Cl bond length in Cl_2 molecule.

1. A and R are true, R is correct explanation of A.
2. A and R are true, r is not correct explanation of A.
3. A is true, but R is false.
4. A is false, but R is true.

VII-A Group Elements

Sub Topic-II Key

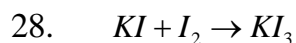
1) 4	2) 1	3) 3	4) 2	5) 4	6) 2	7) 2	8) 4	9) 3	10) 1
11) 2	12) 4	13) 1	14) 3	15) 1	16) 4	17) 2	18) 1	19) 2	20) 2
21) 2	22) 4	23) 2	24) 3	25) 1	26) 1	27) 3	28) 3	29) 2	30) 1
31) 2	32) 2	33) 2	34) 1	35) 1	36) 4	37) 1	38) 4	39) 2	40) 4

41) 2	42) 3	43) 3	44) 1	45) 1
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VII-A Group Elements Sub Topic-II (Solutions)

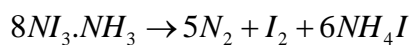
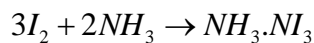
24. 50ml, 2N hypo solution = 50 ml, 2N I_2 solution
 = 50 ml 2N Cl_2 solution
 = 50 ml 2N $CaOCl_2$ solution

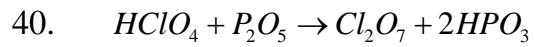
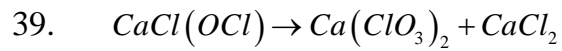
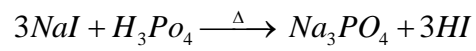
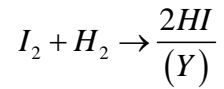
$$\% \text{ of } CaOCl_2 = \frac{6.35}{10} \times 100 = 63.5$$



34. F_2 and Cl_2 more E.N. so they can displace it from its salt.

38. $X = H_2, Y = HI$





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