11 CHAPTER

SALT ANALYSIS

EXERCISE-1

[SINGLE CORRECT CHOICE TYPE]

DRY TEST

Q.1 Borax on heating with cobalt oxide forms a blue bead of:

(A) $Co(BO_2)_2$ (B) $CoBO_2$ (C) $Co_3(BO_3)_2$ (D) $Na_3Co(BO_2)_2$

Q.2 Which salt gives brown colour residue on heating

(A) $Pb(NO_3)_2$ (B) $FeSO_4$ (C) CaC_2O_4 (D) $MgNH_4PO_4$

Q.3 Compound which on heating produces paramagnetic acidic gas

(A) $Mg(NO_3)_2$ (B) $Fe_2(SO_4)_3$ (C) $FeCO_3$ (D) HgC_2O_4

Q.4 Which compound on heating produces coloured metal oxide finally

(A) $Al_2(SO_4)_3$ (B) $HgCO_3 3Hg(OH)_2$ (C) $Cu(NO_3)_2$ (D) $Ba(OH)_2$

Q.5 (P) $\xrightarrow{\Delta}$ (Q) metallic solid + (R)$\uparrow$ + (S)$\uparrow$

(X) $\xrightarrow{\Delta}$ (Y) amphoteric + (R)$\uparrow$ + (S)$\uparrow$

P & X are respectively

(A) $AgNO_3$, $LiNO_3$ (B) $AgNO_3$, $Pb(NO_3)_2$

(C) $Hg_2(NO_3)_2$, $Ca(NO_3)_2$ (D) $NaNO_3$, $Zn(NO_3)_2$

Q.6 Oxygen gas is not produced from the following decomposition reaction:

(A) $K_2Cr_2O_7 \xrightarrow{\Delta}$ (B) $Ag_2C_2O_4 \xrightarrow{\Delta}$

(C) $Pb(NO_3)_2 \xrightarrow{\Delta}$ (D) $Ag_2CO_3 \xrightarrow{\Delta}$

Q.7 Borax is converted to crystalline boron by the following steps

$$\text{Borax} \xrightarrow{(X)} H_3BO_3 \xrightarrow{\Delta} B_2O_3 \xrightarrow[\Delta]{(Y)} \text{B (crystalline)}$$

(X) and (Y) can be respectively

(A) Conc. H_2SO_4, Mg (B) Conc. H_2SO_4, Na

(C) Carbon, Al (D) Conc. H_2SO_4, Al

Q.8 At the occasion of marriage, the fire works are used, which of the following gives green flame?

(A) Ba (B) K (C) Be (D) Na

Q.9 Which of the following cations is detected by the flame test?

(A) NH_4^+ (B) K^+ (C) Mg^{2+} (D)Al^{3+}

Q.10 Which metal salt gives a violet coloured bead in the borax bead test?

(A) Fe^{2+} (B) Ni^{2+} (C) Co^{2+} (D) Mn^{2+}

Q.11 A chloride dissolves appreciably in cold water. When placed on a platinum wire in Bunsen flame no distinctive colour is noticed, the cation would be:

(A) Mg^{2+} (B) Ba^{2+} (C) Pb^{2+} (D) Ca^{2+}

Q.12 Which of the following leaves no residue on heating?

(A) $Pb(NO_3)_2$ (B) NH_4NO_3 (C) $Cu(NO_3)_2$ (D)$NaNO_3$

Q.13 In the borax bead test of Co^{2+}, the blue colour of bead is due to the formation of:

(A) B_2O_3 (B) Co_3B_2 (C) $Co(BO_2)_2$ (D) CoO

Q.14 Which of the following is not a preliminary test used to detect ions:

(A) borax bead test (B) flame test (C) brown ring test (D) cobalt nitrate test

Q.15 The compound formed in the borax bead test of Cu^{2+} ion in oxidising flame is:

(A) Cu (B) $CuBO_2$ (C) $Cu(BO_2)_2$ (D) None of these

Q.16 Potassium chromate solution is added to an aqueous solution of a metal chloride. The precipitate thus obtained are soluble in acetic acid. These are subjected to flame test, the colour of the flame is:

(A) Lilac (B) Apple green (C) Crimson red (D) Golden yellow

Q.17 The salt which finds uses in qualitative analysis in inorganic chemistry.

(A) $CuSO_4 \cdot 5H_2O$ (B) $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$

(C) $Na(NH_4)HPO_4 \cdot 4H_2O$ (D) $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$

Q.18 Which chemical reaction contains **INCORRECT** products ?

(A) $SnSO_4 \xrightarrow{\Delta} SnO_2 + SO_3\uparrow + SO_2\uparrow$ (B) $Ag_2C_2O_4 \xrightarrow{\Delta} Ag + CO_2\uparrow$

(C) $P_4O_{10}(s) + CaO(s) \xrightarrow{\Delta} Ca_3(PO_4)_2$ (D) $PbCl_4 \xrightarrow{\Delta} PbCl_2 + Cl_2\uparrow$

Q.19 Which of the following compound on heating does not produce metal oxide?

(A) $MgCl_2 \cdot 6H_2O$ (B) $K_2Cr_2O_7$ (C) K_2CO_3 (D) $Cu(NO_3)_2$

Q.20 Compound having lowest thermal stability is

(A) $NaHCO_3$ (B) $KHCO_3$ (C) $RbHCO_3$ (D)$CsHCO_3$

Q.21 Thermal decomposition of which of the salt listed below yield a basic and acidic oxides simultaneouly

(A) NH_4ClO_4 (B) $CaCO_3$ (C) $NaNO_3$ (D) NH_4NO_2

Q.22 Which of the following compound does not produce green coloured product on thermal decomposition?

(A) $K_2Cr_2O_7$ (B) $KMnO_4$ (C) $(NH_4)_2Cr_2O_7$ (D) NH_4NO_3

Q.23 Select the **INCORRECT** match for given reaction.

$$\underset{\text{(Oxy salt)}}{P} \xrightarrow[(Y<800^\circ C)]{\Delta} \underset{\text{(Metal salt)}}{Q} + \text{Other product(s)}\uparrow$$

Oxysalt(P)	**Metal Oxide(Q)**
(A) $FeCO_3$	FeO
(B) $Fe_2(SO_4)_3$	Fe_2O_3
(C) FeC_2O_4	Fe_2O_3
(D) $FeSO_4$	Fe_2O_3

Q.24 Which of them does not give green colour in borax bead test in given flame.

(A) $Cr_2(SO_4)_3$ in reducing flame. (B) $Cr_2(SO_4)_3$ in oxidising flame.

(C) $Fe_2(SO_4)_3$ in reducing flame. (D) $Fe_2(SO_4)_3$ in oxidising flame.

ANIONS

Q.25 A salt gives violet vapours when treated with conc. H_2SO_4. It contains

(A) Cl^- (B) I^- (C) Br^- (D) NO_3^-

Q.26 When a mixture of solid NaCl, solid $K_2Cr_2O_7$ is heated with conc. H_2SO_4, orange red vapours are obtained. These are of the compound

(A) chromous chloride (B) chromyl chloride

(C) chromic chloride (D) chromic sulphate

Q.27 Which of the following radical does not liberate gas with (Zn + dil. HCl) on warming?

(A) S^{2-} (B) SO_3^{2-} (C) NO_3^- (D) CH_3COO^-

Q.28 Which of the following reagent does not oxidize HCl?

(A) PbO_2 (B) Conc. H_2SO_4 (C) MnO_2 (D) $K_2Cr_2O_7/H^+$

Q.29 $NaCl(solid) + K_2Cr_2O_7(solid) + \text{conc. } H_2SO_4 \xrightarrow{Warm}$ Reddish brown fumes of 'X'.

The oxidation state of central atom in compound 'X' is

(A) +6 (B) +3 (C) +2 (D) Zero

Q.30 Which of the following reagent can be used to separate AgCl and AgI ?

(A) dil. HNO_3 (B) NH_4OH solution (C) KCN solution (D) $Na_2S_2O_3$ solution

Q.31 Which of the following combination of species does not undergo(es) comproportionation?

(A) $MnO_4^-(aq) + Mn^{2+}(aq) \xrightarrow{ZnO/ZnSO_4}$ (B) $S + \text{conc. } H_2SO_4(\text{excess}) \xrightarrow{Warm}$

(C) $PH_3 + H_3PO_4 \rightarrow$ (D) $NO(g) + NO_2(g) \xrightarrow{Cool}$

Q.32 In a closed container there is a mixture of SO_2, CO_2 and O_2 gas. Which sequence of reagent can be helpful to separate them.

(I) Lime water (II) Acidified potassium dichromate (III) Alkaline pyragallol.

(A) (I), (II), (III) (B) (II), (I), (III) (C) (III), (II), (I) (D) (III), (I). (II)

Q.33 $X(Salt) + AgNO_3(aq) \rightarrow Y\downarrow$ (soluble in excess of NH_3 solution)

yellow ppt.

Salt X, does not contain.

(A) PO_4^{3-} (B) Br^- (C) I^- (D) AsO_3^{3-}

Q.34 $FeSO_4.7H_2O$ (Green Vitriol) salt on thermal decomposition does not produce.

(A) SO_2 (B) O_2 (C) SO_3 (D) H_2O vapour

Q.35 $X(aq.) + Na_2O_2 \rightarrow Y(aq.) \xrightarrow{BaCl_2} Z\downarrow$

Insoluble in dil. HCl

X and Y are different sodium salts, then anion present in the salt (X) is :

(A) $Cr_2O_7^{2-}$ (B) $C_2O_4^{2-}$ (C) SO_3^{2-} (D) SO_4^{2-}

Q.36 Which salt is colorless?

(A) $KMnO_4$ (B) $BaSO_4$ (C) Na_2CrO_4 (D) $CoCl_2$

Q.37 Consider following reaction:

$Cl_2(g) + H_2O \xrightarrow{R.T.} P + Q$

If molecular weight of P is less than Q then **INCORRECT** statement is :

(A) On warming 'P' can form deep red coloured vapours with CrO_3

(B) 'Q' exhibits bleaching property

(C) MnO_2 can change 'P' into Cl_2 gas on warming

(D) 'P' reacts with H_2S gas while 'Q' does not.

Q.38 Comproportionation occurs between:

(A) $Cl^-(aq) + ClO^-(aq) + OH^-(aq)$ (B) $PH_3(g) + H_3PO_4$ acid

(C) $Na_2S(aq) + Na_2SO_3(aq)$ (D) $MnO_4^-(aq) + Mn^{2+}(aq) + ZnSO_4(aq)$

Q.39 Select correct match

Anions	***Separated by reagent***
(A) CO_3^{2-}, SO_3^{2-}	$BaCl_2$
(B) CO_3^{2-}, HCO_3^-	$CaCl_2$
(C) SO_3^{2-}, SO_3^{2-}	$(CH_3COO)_2Pb$
(D) Cl^-, Br^-	$AgNO_3$

Q.40 Which of the following pairs of ions would be expected to form precipitate when dilute solution are mixed?

(A) Na^+, SO_4^{2-} (B) NH_4^+, CO_3^{2-} (C) Na^+, S_2^{2-} (D) Fe^{3+}, PO_4^{3-}

Q.41 M (salt) + dil HCl $\xrightarrow{\text{Warm}}$ N↑ + P↓

gas 'N' changes colour of $FeSO_4$ solution into yellow solution then salt M in above reaction is

(A) BaS_2O_3 (B) Ag_2SO_3 (C) $AgNO_2$ (D) $Pb(NO_3)_2$

Q.42 Nitrate is confirmed by ring test. The brown colour of the ring is due to formation of

(A) ferrous nitrite (B) nitroso ferrous sulphate

(C) ferrous nitrate (D) $FeSO_4NO_2$

Q.43 Which of these reaction is **correct**?

(A) $Cl^- + Br_2 \rightarrow Br^- + Cl_2$

(B) Mohr's salt $\xrightarrow{\text{NaOH soln.}}$ NH_3↑ (g)

(C) $K_2Cr_2O_7$ solution $\xrightarrow{SO_3}$ Green colour solution

(D) $FeCl_2$ $\xrightarrow{\text{NaOH}}$ (ppt. coloured) $\xrightarrow{\text{Excess NaOH}}$ Soluble complex

Q.44 Which of the following will not give positive chromyl chloride test?

(A) Copper chloride, $CuCl_2$ (B) Mercuric chloride, $HgCl_2$

(C) Zinc chloride, $ZnCl_2$ (D) Anillinium chloride, $C_6H_5NH_3Cl$

Q.45 When chlorine water is added to an aqueous solution of potassium halide in presence of chloroform; a violet colour is obtained. On adding more of chlorine water, the violet colour disappears, and a colourless solution is obtained. This test confirms the presence of the following in aqueous solution

(A) Iodide (B) Bromide (C) Chloride (D) Iodide and bromide

Q.46 A substance on treatment with dil. H_2SO_4 liberates a colourless gas which produces

(i) turbidity with baryta water and

(ii) turns acidified dichromate solution green. The reaction indicates the presence of

(A) CO_3^{2-} (B) S^{2-} (C) SO_3^{2-} (D) NO_2^-

Q.47 A white solid is first heated with dil H_2SO_4 and then with conc. H_2SO_4, No action was observed in either case. The solid salt contains

(A) sulphide (B) sulphite (C) thiosulphate (D) sulphate

Q.48 Sodium borate on reaction with conc. H_2SO_4 and C_2H_5OH gives a compound A which burns with a green edged flame. The compound A is

(A) $H_2B_4O_7$ (B) $(C_2H_5)_2B_4O_7$ (C) H_3BO_3 (D) $(C_2H_5)_3BO_3$

Q.49 When $K_2Cr_2O_7$ crystals are heated with conc. HCl, the gas evolved is

(A) O_2 (B) Cl_2 (C) CrO_2Cl_2 (D) HCl

Q.50 Solution of chemical compound X reacts with $AgNO_3$ solution to form a white ppt. Y which dissolves in NH_4OH to give a complex Z. When Z is treated with dil. HNO_3, Y reappears. The chemical compound X can be

(A) NaCl (B) CH_3Cl (C) NaBr (D) NaI

Q.51 A salt on treatment with dil. HCl gives a pungent smelling gas and a yellow precipitate. The salt gives green flame when tested. The solution gives a yellow precipitate with potassium chromate. The salt is:

(A) $NiSO_4$ (B) BaS_2O_3 (C) PbS_2O_3 (D) $CuSO_4$

Q.52 Iodine is not oxidized to iodic acid/iodicanhydride by

(A) conc. HNO_3 (B) conc. H_2SO_4 (C) Excess Cl_2 water (D) conc. H_3PO_4

Q.53 Colourless gas that has oxidising as well as reducing properties

(A) CO_2 (B) SO_2 (C) NO_2 (D) SO_3

Q.54 A white sodium salt dissolves readily in water to give a solution which is neutral to litmus. When silver nitrate solution is added to the solution, a white precipitate is obtained which does not dissolve in dil. HNO_3. The anion could be:

(A) CO_3^{2-} (B) Cl^- (C) SO_4^{2-} (D) S^{2-}

Q.55 A mixture of two salts is not water soluble but dissolves completely in dil HCl to form a colourless solution. The mixture could be:

(A) $AgNO_3$ and KBr (B) $BaCO_3$ and ZnS

(C) $FeCl_3$ and $CaCO_3$ (D) $Mn(NO_3)_2$ and $MgSO_4$

Q.56 The brown ring test for NO_2^- and NO_3^- is due to the formation of complex ion with formula.

(A) $[Fe(H_2O)_6]^{2+}$ (B) $[Fe(NO)(CN)_5]^{2-}$

(C) $[Fe(H_2O)_5(NO)]^{2+}$ (D) $[Fe(H_2O)(NO)_5]^{2+}$

Q.57 When I_2 is passed through KCl, KF, KBr :

(A) Cl_2 and Br_2 are evolved (B) Cl_2 is evolved

(C) Cl_2, F_2 and Br_2 are evolved (D) None of these

Q.58 Which one has the minimum solubility product?

(A) AgCl (B) $AlCl_3$ (B) $BaCl_2$ (D) NH_4Cl

Q.59 Which of the following sulphate is insoluble in water?

(A) $CuSO_4$ (B) $CdSO_4$ (C) $PbSO_4$ (D) $Bi_2(SO_4)_3$

Q.60 **Statement-1**: NO_2^- ion can not be detected by brown ring test in presence of NO_3^- ion.

Statement-2 : Both NO_2^- and NO_3^- ions are confirmed by brown ring test.

(A) Statement-1 is true, statement-2 is true and statement-2 is correct explanation for statement-1.

(B) Statement-1 is true, statement-2 is true and statement-2 is NOT the correct explanation for statement-1.

(C) Statement-1 is true, statement-2 is false.

(D) Statement-1 is false, statement-2 is true.

Q.61 Which statement for $Na_2[Fe(CN)_5NO]$ (sodium nitroprusside) is **INCORRECT**?

(A) Oxidation state of Fe is + 2

(B) It has NO^+ as ligand

(C) It is a heteroleptic complex and has d^2sp^3 hybridisation

(D) It is paramagnetic in nature

Q.62 Which of the following is not obtained as final product on reaction of $KMnO_4$ with $S_2O_3^{2-}$ in basic medium:

(A) SO_4^{2-} (B) S (C) MnO_2 (D) H_2O

Q.63 CO_2 gas can not be identified by passing it into solution of :

(A) $Ca(OH_2)$ (lime water) (B) $Ba(OH)_2$

(C) $KMnO_4$ (D) None

Q.64 When iodine is dissolved in aqueous solution of potassium iodide the shape of species formed is:

(A) Linear (B) Angular (C) See-saw (D) Square planar

Q.65 Which of the following reaction gives observable change?

(A) $KCl(s) + \text{conc. } H_2SO_4 + K_2Cr_2O_7(s) \rightarrow$

(B) $Na_2[Fe(CN)_5NO] + H_2S + HCl \rightarrow$

(C) $K_2HgI_4 + NH_4Cl \rightarrow$

(D) $FeSO_4 + \text{dil. } H_2SO_4 + NaNO_3 \rightarrow$

Q.66 Which anion gives same product when reacts with dil. H_2SO_4 and conc. H_2SO_4 ?

(A) CO_3^{2-} (B) CH_3COO^- (C) S^{2-} (D) I^-

Q.67 Which of following salt **will not give** positive brown ring test?

(A) $Cu(NO_3)_2$ (B) $Pb(NO_3)_2$ (C) $Zn(NO_3)_2$ (D) $Mg(NO_3)_2$

Q.68 A solid mixture of AgCl and $K_2Cr_2O_7$ is heated with con. H_2SO_4 and produces

(A) Greenish yellow gas (B) Colourless gas

(C) Red coloured gas (D) No gas

Q.69 H_2S gas was passed to ammonical solution of salt 'P' and precipitate 'Q' was obtained. Precipitate 'Q' was treated with Na_2O_2 solution and coloured solution was obtained. Then which of the following cation is present in the given salt P'.

(A) Cu^{2+} (aq) (B) Fe^{2+}(aq) (C) Ni^{2+} (aq) (D) Cr^{3+}(aq)

Q.70 $X_2 + Y^- \rightarrow Y_2 + X^-$

$X_2 + Z^- \rightarrow Z_2 + X^-$

$Y_2 + Z^- \rightarrow Z_2 + Y^-$

X, Y, Z are respectively

(A) Cl_2, Br_2, I_2 (B) Cl_2, I_2, Br_2 (C) I_2, Br_2, Cl_2 (D) Br_2, Cl_2, I_2

Q.71 Select incorrect match

(A) $FeSO_4(aq) + NO_2^-(aq) + \text{dil. } H_2SO_4 \longrightarrow$ Brown colouration

(B) $FeSO_4(aq) + NO_3^-(aq) + \text{dil. } H_2SO_4 \longrightarrow$ Brown colouration

(C) $FeSO_4(aq) + NO_2^-(aq) + \text{conc. } H_2SO_4 \longrightarrow$ Brown colouration

(D) $FeSO_4(aq) + NO_3^-(aq) + \text{conc. } H_2SO_4 \longrightarrow$ Brown colouration

Q.72 Sodium nitroprusside is used to detect S^{2-} ion in basic medium and gives purple colour complex compound $Na_x[Fe(CN)_y(NOS)_z]$, Select correct set of value of x, y, z respectively.

(A) 4,5,1 (B) 2, 4, 2 (C) 3, 4, 2 (D) 3,5,1

Q.73 Which of the following does not give any gaseous product when reacts with dil H_2SO_4?

(A) Na_2CO_3 (B) $BaCl_2$ (C) $Pb(NO_2)_2$ (D) $(CH_3COO)_2Ca$

Q.74 Which of the following cannot be precipitated as metal hydroxide by the addition of Na_2CO_3 in aqueous medium?

(A) $FeCl_3$ (B) $ZnCl_2$ (C) $CrCl_3$ (D)$AlCl_3$

Q.75 Which test is applicable in presence of dil. H_2SO_4 for given ion.

(A) S^{2-}, Methylene blue test (B) NH_4^+, Nessler's reagent test

(C) S^{2-}, test by nitroprusside (D) NO_3^-, test by $FeSO_4$

Q.76 S^{2-}(sulphide) ion reacts with sodium nitroprusside, $Na_2[Fe(CN)_5NO]$ to give purple coloured compound $Na_4[Fe(CN)_5NOS]$. In this reaction oxidation state of iron changes from:

(A) +2 to +3 (B) +1 to +2 (C) +2 to +4 (D) No change

Q.77 A sodium salt 'x' produces colourless gas with dil. HCl, and its aqueous solution produces precipitate with $BaCl_2$ but does not produce precipitate with $CaCl_2$. Then salt 'x' contains anion.

(A) CO_3^{2-} (B) SO_3^{2-} (C) $C_2O_4^{2-}$ (D) $S_2O_3^{2-}$

Q.78 Consider the following chemical equation, gas (Y) gives no observable change with

Black sulphide + dil. HCl $\rightarrow$ Salt (X) + (Y) gas

(A) $CuSO_4$ solution (B) $Na_2[Fe(CN)_5(NO)]$ solution

(C) $Cd(NO_3)_2$ solution (D) $AgNO_3$ solution

Q.79 CO_2 gas is detected by its action on

(A) Baryta water (B) Phenolphthalein

(C) Calcium bicarbonate (D) Acidified dicromate

Q.80 The brown ring test for nitrates depends on :

(A) The reduction of nitrate to nitric oxide.

(B) Oxidation of nitric oxide to nitrogen dioxide.

(C) Reduction of ferrous sulphate to iron.

(D) Oxidising action of sulphuric acid

Q.81 When CS_2 layer containing I_2 is shaken with excess of Cl_2 water, the violet colour disappears. The disappearance of violet colour is due to formation of

(A) I_3^- (B) HIO_3 (C) ICl_2 (D) I^-

Q.82 Which of the following conversion is **incorrect** in presence of acidified $K_2Cr_2O_7$ solution :

(A) $H_2S \longrightarrow S$ (B) $SO_2 \longrightarrow H_2SO_4$

(C) $H_3PO_4 \longrightarrow H_3PO_3$ (D) $HI \longrightarrow I_2$

Q.83 Which of the following combination does not give coloured gaseous product ?

(A) When $K_2Cr_2O_7$ sol^n. reacts with KCl (B) When $KMnO_4$ sol^n. reacts with HCl

(C) When MnO_2 sol^n. react with con. HCl (D) When con. H_2SO_4 reacts with KCl

Q.84 Which of the following releases paramagnetic gas on a reaction with concentrated H_2SO_4?

(A) $S_2O_3^{2-}$(aq) (B) NO_2^-(aq) (C) Br^-(aq) (D) $C_2O_4^{2-}$(aq)

Q.85 A salt was first heated with dilute H_2SO_4 and then with conc.H_2SO_4, no action was observed in either case, the given salt will be :

(A) Nitrate salt (B) Sulphite salt (C) Sulphide salt (D) Sulphate salt

Q.86 $K_2Cr_2O_7 + H_2O_2 + H^+ \longrightarrow$ X (Blue colour compound)

Select **correct** statement for 'X'.

(A) Oxidation state of Cr increases with respect to $K_2Cr_2O_7$

(B) Oxidation state of oxygen increases with respect to H_2O_2

(C) Oxidation state of oxygen is higher with respect to $K_2Cr_2O_7$

(D) Oxidation state of Cr decreases with respect to $K_2Cr_2O_7$

CATIONS

Q.87 In the precipitation of the iron group in qualitative analysis. ammonium chloride is added before adding ammonium hydroxide to

(A) decrease concentration of OH^- ions. (B) prevent interference by phosphate ions.

(C) increase concentration of Cl^- ions. (D) increase concentration of NH_4^+ ions.

Q.88 Consider the following reactions

X(aq.) $\xrightarrow{K_4[Fe(CN)_6]}$ Chocolate brown ppt

X(aq.) $\xrightarrow{AgNO_3}$ White ppt (insoluble in dil. HNO_3)

Then 'X' will be :'

(A) $ZnSO_4$ (B) $CuCl_2$ (C) $FeSO_4$ (D) $FeCl_3$

Q.89 $Br_2 + NaOH \xrightarrow{R.T.} Y + Z$

If Y gives precipitate with $AgNO_3$, then Z **does not** undergo reaction with

(A) Cr^{3+}(aq) (B) Fe^{2+}(aq) (C)Al^{3+}(aq) (D) Sn^{++}(aq)

Q.90 The acidic solution of a salt produced a deep blue colour with starch iodide solution. The salt may be

(A) chloride (B) nitrite (C) acetate (D) bromide

Q.91 Nessler's reagent is

(A) K_2HgI_4 (B) K_2HgI_4 + KOH (C) K_2HgI_2+ KOH (D) K_2HgI_4 + KI

Q.92 Which of the following statement is **INCORRECT** regarding Fe^{2+} and Fe^{3+} cations

(A) Fe^{3+} gives brown colour solution with potassium ferricyanide

(B) Fe^{2+} gives blue precipitate with potassium ferricyanide

(C) Fe^{3+} gives red colour solution with potassium thiocyanate

(D) Fe^{2+} gives brown colour with ammonium thiocyanate

Q.93 Metal Sulphate (A) $\xrightarrow{\text{Heat}}$ Oxide (B) + Gas(C) + Gas(D) $\xrightarrow{Cr_2O_7^{2-}/H^+}$

Green Solution $\xrightarrow{Na_2O_2\,(\text{excess})}$ (E) yellow solution

Compound A, B, C, D and E are respectively.

(A) $FeSO_4$, Fe_2O_3, SO_3, SO_2, Na_2CrO_4 (B) $Al_2(SO_4)_3$, Al_2O_3, SO_3, SO_2, Na_2CrO_4

(C) $CuSO_4$, CuO, SO_3, SO_2, Na_2CrO_4 (D) $ZnSO_4$, ZnO, SO_3, SO_2, Na_2CrO_4

Q.94 Which of the following metal nitrate produces gaseous product when reacts with KCN solution?

(A) $Cu(NO_3)_2$ (B) $AgNO_3$ (C) $Cd(NO_3)_2$ (D) $Pb(NO_3)_2$

Q.95 Aqueous solution of $FeSO_4$ does not produce precipitate with

(A) NaOH (B) NH_3 solution (C) Na_2CO_3 (D) None

Q.96 Ferric ion forms a prussian blue coloured ppt. of

(A) $K_4[Fe(CN)_6]$ (B) $Fe_4[Fe(CN)_6]_3$ (C) $KMnO_4$ (D) $Fe(OH)_3$

Q.97 Select incorrect statement :

(A) A metal ion exist which doesn't form complex with excess KI as well as excess KCN.

(B) A metal ion exist which form complex with excess KI but not with excess KCN.

(C) A metal ion exist which form complex with excess KCN but not with excess KI.

(D) A metal ion exist which form complex with both excess KCN as well as excess KI

Q.98 Which of the following combination doesn't evolve Cl_2 gas

(A) HCl(aq) + $KMnO_4$ (B) HCl + MnO_2

(C) HCl + I_2 (D) HCl + F_2

Q.99 $Fe(OH)_3$ can be separated from $Al(OH)_3$ by addition of

(A) dil. HCl (B) NaCl solution (C) NaOH solution (D) NH_4Cl and NH_4OH

Q.100 If NaOH is added to an aqueous solution of zinc ions a white ppt appears and on adding excess NaOH, the ppt dissolves. In this solution zinc exist in the

(A) cationic part (B) anionic part

(C) both in cationic and anionic parts (D) there is no zinc ion in the solution

Q.101 Mark the compound which is soluble in hot water.

(A) Lead chloride (B) Mercurous chloride

(C) Stronsium sulphate (D) Silver chloride

Q.102 Colour of nickel chloride solution is

(A) pink (B) black (C) colourless (D) green

Q.103 Sometimes yellow turbidity appears while passing H_2S gas even in the absence of II-group radicals. This is because of

(A) sulphur is present in the mixture as impurity.

(B) IV group radicals are precipitated as sulphides.

(C) the oxidation of H_2S gas by some acid radicals.

(D) III group radicals are precipitated as hydroxides.

Q.104 The ion that cannot be precipitated by H_2S and HCl is :

(A) Pb^{2+} (B) Cu^{2+} (C)Ag^{+} (D) Ni^{2+}

Q.105 $CuSO_4$ decolourises on addition of excess KCN, the product is

(A) $[Cu(CN)_4]^{2-}$ (B) Cu^{2+} get reduced to form $[Cu(CN)_4]^{3-}$

(C) $Cu(CN)_2$ (D) CuCN

Q.106 Which one among the following pairs of ions cannot be separated by H_2S in dilute HCl?

(A) Bi^{3+}, Sn^{4+} (B) Al^{3+}, Hg^{2+} (C) Zn^{2+}, Cu^{2+} (D) Ni^{2+}, Cu^{2}

Q.107 A metal salt solution gives a yellow ppt with silver nitrate. The ppt dissolves in dil. nitric acid as well as in ammonium hydroxide. The solution contains

(A) bromide (B) iodide (C) phosphate (D) chromate

Q.108 A metal salt solution forms a yellow ppt with potassium chromate in acetic acid, a white ppt with dilute sulphuric acid, but gives no ppt with sodium chloride or iodide, it is :

(A) lead carbonate (B) basic lead carbonate

(C) barium nitrate (D) strontium nitrate

Q.109 Which is soluble in NH_4OH?

(A) $PbCl_2$ (B) AgCl (C) $PbSO_4$ (D)$CaCO_3$

Q.110 Which of the following combines with Fe(II) ions to form a brown complex?

(A) N_2O (B) NO (C) N_2O_3 (D) N_2O_4

Q.111 Nessler's reagent is used to detect

(A) CrO_4^{2-} (B) PO_4^{3-} (C) MnO_4^- (D) NH_4^+

Q.112 Prussian blue is formed when

(A) Ferrous sulphate reacts with $FeCl_3$.

(B) Ferric sulphate reacts with $K_4[Fe(CN)_6]$.

(C) Ammonium sulphate reacts with $FeCl_3$

(D) Ferrous ammonium sulphate reacts with $FeCl_3$.

Q.113 What are formed products, when aqueous solution of $CuCl_2$ and $(NH_4)_2S$ are mixed?

(A) CuS(aq.) and NH_4Cl(s) (B) CuS(s) and NH_4Cl(aq.)

(C) CuS(aq.) and NH_4Cl(g) (D) CuS(s) and NH_4Cl(s)

Q.114 What product is formed by mixing the solution of $K_4[Fe(CN)_6]$ with the solution of $FeCl_3$?

(A) Ferro-ferricyanide (B) Ferri-ferrocyanide

(C) Ferri-ferricyanide (D) None of these

Q.115 A blue colouration is not obtained when

(A) ammonium hydroxide dissolves in copper sulphate.

(B) copper sulphate solution reacts with $K_4[Fe(CN)_6]$.

(C) ferric chloride reacts with sodium ferrocyanide.

(D) anhydrous white $CuSO_4$ is dissolved in water.

Q.116 AgCl dissolves in ammonia solution giving

(A) Ag^+, NH_4^+ and Cl^- (B) $Ag(NH_3)^+$ and Cl^-

(C) $Ag(NH_3)^{2-}$ and Cl^- (D) $Ag(NH_3)_2^+$ and Cl^-

Q.117 A white crystalline substance dissolves in water. On passing H_2S gas in this solution, a black ppt is obtained. The black ppt dissolves completely in hot HNO_3. On adding a few drops of conc. H_2SO_4, a white ppt is obtained. This ppt is that of

(A) $BaSO_4$ (B) $SrSO_4$ (C) $PbSO_4$ (D) $CdSO_4$

Q.118 When excess of $SnCl_2$ is added to a solution of $HgCl_2$, a white ppt turning grey is obtained. The grey colour is due to the formation of

(A) Hg_2Cl_2 (B) $SnCl_4$ (C) Sn (D) Hg

Q.119 An aqueous solution of colourless metal sulphate M, gives a white ppt, with NH_4OH. This was soluble in excess of NH_4OH. On passing H_2S through this solution a white ppt is formed. The metal M in the salt is

(A) Ca (B) Ba (C)Al (D) Zn

Q.120 AgCl is soluble in

(C) Aqua regia (B) H_2SO_4 (C) dil. HCl (D) aq. NH_3

Q.121 A pale green crystalline metal salt of M dissolves freely in water. On standing it gives a brown ppt on addition of aqueous NaOH. The metal salt solution also gives a black ppt on bubbling H_2S in basic medium. An aqueous solution of the metal salt decolourizes the pink colour of the permanganate solution. The metal cation in salt solution is

(A) Cu^{2+} (B)Al^{3+} (C) Fe^{3+} (D) Fe^{2+}

Q.122 On the addition of a solution containing CrO_4^{2-} & CH_3COOH acid to the solution of Ba^{2+}, Sr^{2+} and Ca^{2+} ions, the ppt obtained first will be of :

(A) $CaCrO_4$ (B) $SrCrO_4$ (C) $BaCrO_4$ (D) a mixture of all the three

Q.123 Turnbull's blue is a compound

(A) ferricyanide (B) ferroferricyanide

(C) ferrouscyanide (D) ferriferrocyanide

Q.124 Which is most soluble in water?

(A) AgCl (B) AgBr (C) AgI (D) AgF

Q.125 On passing H_2S gas in II^{nd} group sometimes the solution turns milky. It indicates the presence of

(A) oxidising agent (B) acidic salt (C) thiosulphate (D) reducing agent

Q.126 Dimethyl glyoxime in a suitable solvent was refluxed for 10 minutes with pure pieces of nickel sheet, it will result in

(A) Red ppt· (B) Blue ppt. (C) Yellow ppt (D) No ppt.

Q.127 A mixture of chlorides of copper, cadmium, chromium, iron and aluminium was dissolved in water acidified with HCl and hydrogen sulphide gas was passed for sufficient time. It was filtered, boiled and a few drops of nitric acid were added while boiling. To this solution ammonium chloride and sodium hydroxide were added in excess and filtered. The filtrate shall give test for

(A) sodium and iron ion (B) sodium, chromium and aluminium ion

(C) aluminium and iron ion (D) sodium, iron, cadmium and aluminium ion

Q.128 A white ppt obtained in a analysis of a mixture becomes black on treatment with NH_4OH. It may be

(A) $PbCl_2$ (B) AgCl (C) $HgCl_2$ (D) Hg_2Cl_2

Q.129 An aqueous solution of $FeSO_4$,$Al_2(SO_4)_3$ and chrome alum is heated with excess of Na_2O_2 and filtered. The materials obtained are:

(A) a colourless filtrate and a green residue. (B) a yellow filtrate and a green residue.

(C) a yellow filtrate and a brown residue. (D) a green filtrate and a brown residue

Q.130 Which of the following compound on reaction with NaOH and Na_2O_2 gives yellow colour?

(A) $Cr(OH)_3$ (B) $Zn(OH)_2$ (C)$Al(OH)_3$ (D) None of these

Q.131 An aqueous solution of a substance gives a white ppt. on treatment with dil. HCl. which dissolves on heating. When hydrogen sulphide is passed through the hot acidic solution, a black ppt. is obtained. The substance is a

(A) Hg^{2+} salt (B) Cu^{2+} salt (C) Ag^{+} salt (D) Pb^{2+} salt

Q.132 Which of the following does not react with AgCl?

(A) Na_2CO_3 (B) $NaNO_3$ (C) NH_4OH (D) $Na_2S_2O_3$

Q.133 Which of the following gives a precipitate with $Pb(NO_3)_2$ but not with $Ba(NO_3)_2$?

(A) Sodium chloride (B) Sodium acetate

(C) Sodium nitrate (D) Sodium hydrogen phosphate

Q.134 Which of the following is soluble in yellow ammonium sulphide?

(A) CuS (B) CdS (C) SnS (D) PbS

Q.135 Three separate samples of a solution of a single salt gave these results. One formed a white precipitate with excess of ammonia solution, one formed a white precipitate with dil NaCl solution and one formed a black precipitate with H_2S. The salt could be:

(A) $AgNO_3$ (B) $Pb(NO_3)_2$ (C) $Hg(NO_3)_2$ (D) $MnSO_4$

Q.136 Which is not dissolved by dil HCl?

(A) ZnS (B) MnS (C) $BaSO_3$ (D) $BaSO_4$

Q.137 In Nessler's reagents, the ion present is:

(A) HgI^{2-} (B) HgI_4^{2-} (C) Hg^{+} (D) Hg^{2+}

Q.138 The cations present in slightly acidic solution are Fe^{3+}, Zn^{2+} and Cu^{2+}. The reagent which when added in excess to this solution would identify and separte Fe^{3+} in one step is:

(A) 2 M HCl (B) 6 M NH_3 sol^n. (C) 6 M NaOH (D) H_2S gas

Q.139 A very dilute acidic solution of Cd^{2+}& Ni^{2+} gives only yellow ppt of CdS on passing H_2S, this is due to

(A) Solubility product (K_{sp}) of CdS is more than that of NiS

(B) Solublility product (K_{sp}) of CdS is less than that of NiS

(C) Cd^{2+} belong to II(B) group while Ni^{2+} belongs to IVth group.

(D) CdS is insoluble in yellow ammonium sulphide (YAS)

Q.140 Which of the following gives blood red colour with KCNS?

(A) Cu^{2+} (B) Fe^{3+} (C)Al^{3+} (D) Zn^{2+}

Q.141 Which of the following is insoluble in excess of NaOH?

(A)$Al(OH)_3$ (B) $Cr(OH)_3$ (C) $Fe(OH)_3$ (D) $Zn(OH)_2$

Q.142 The metal ion which is precipitated when H_2S is passed with HCl :

(A) Zn^{2+} (B) Ni^{2+} (C) Cd^{2+} (D) Mn^{2+}

Q.143 Which one of the following metal sulphides has maximum solubility in water?

(A) HgS, $K_{sp} = 10^{-54}$ (B) CdS, $K_{sp} = 10^{-30}$ (C) FeS, $K_{sp} = 10^{-20}$ (D) ZnS, $K_{sp} = 10^{-22}$

Q.144 Read of the following statements and choose the correct code w.r.t **true(T)** and **false(F)**.

(I) manganese salts give a violet borax bead test in reducing flame

(II) from a mixed precipitate of AgCl and AgI ammonia solution dissolves only AgCl

(III) ferric ions give a deep green precipitate, on adding potassium ferrocyanide solution

(IV) on boiling the solution having K^+, Ca^{2+} and HCO_3^- we get a precipitate of $CaCO_3$

(A) TTFF (B) FTFT (C) FTFF (D) TTFT

Q.145 Identify the correct order of solubility of Na_2S, CuS and ZnS in aqueous medium is:

(A) CuS > ZnS > Na_2S (B) ZnS > Na_2S >CuS

(C) Na_2S > CuS > ZnS (D) Na_2S > ZnS > CuS

Q.146 When H_2S gas is passed through the HCl containing aqueous solution of $CuCl_2$, $HgCl_2$, $BiCl_3$ and $CoCl_2$, it does not precipitate out :

(A) CuS (B) HgS (C) Bi_2S_3 (D) CoS

Q.147 Mark the **correct** statement:

(A) I group basic radicals precipitate as chlorides

(B) IV group basic radicals precipitates as sulphides.

(C) V group basic radicals precipitates as carbonates.

(D) All the above statement are correct

Q.148 $MgSO_4$ on reaction with NH_4OH and Na_2HPO_4 forms a white crystalline precipitate. What is its formula?

(A) $Mg(NH_4)PO_4$ (B) $Mg_3(PO_4)_2$ (C) $MgCl_2 \cdot MgSO_4$ (D) $MgSO_4$

Q.149 $Mg_3N_2(s) + H_2O \xrightarrow{R.T.} P\downarrow + Q\uparrow$

Excess 'Q' gas does not form coloured complex with :

(A) $Ni^{2+}(aq)$ (B) $Zn^{2+}(aq)$ (C) $Cr^{3+}(aq)$ (D) $Cu^{2+}(aq)$

Q.150 Which of the following pair of cations can be separated by excess NaOH solution?

(A) $Fe^{3+}(aq)$, $Zn^{2+}(aq)$ (B) $Mn^{2+}(aq)$, $Cd^{2+}(aq)$

(C) $Mg^{2+}(aq)$, $Hg^{2+}(aq)$ (D)$Al^{3+}(aq)$, $Cr^{3+}(aq)$

Q.151 Concentrated sodium hydroxide can seperate a mixture of

(A) Al^{3+} and Cr^{3+} (B) Cr^{3+} and Fe^{3+} (C) Al^{3+} and Zn^{2+} (D) Zn^{2+} and Pb^{2+}

Q.152 Which of the following ion is oxidized by $Cu^{2+}(aq)$ as well as $Fe^{3+}(aq)$ cations?

(A) Cl^- (B) CN^- (C) SCN^- (D) $S_2O_3^{2-}$

Q.153 In analysis of group 3rd cations if NH_4OH is mixed before NH_4Cl then all cations of which group also precipitated along with group 3rd cations.

(A) 4th group (B) 5th group (C) 6th group (D) None of these

Q.154 Sodium salts of pseudohalides x, y and z form colourless solution in water. Solution of x decolourizes I_3^- solution with brisk effervescence, solution of y gives an intense red colour on reaction with Fe^{3+} solution. and solution of z gives an intense blue colour on reaction with a solution containing both Fe^{3+} & Fe^{2+} cations, then pseudo halides x, y and z respectively are

(A) CN^-, N_3^-, SCN^- (B) N_3^-, SCN^-, CN^-

(C) N_3^-, CN^-, SCN^- (D) N_3^- ,SCN^-, OCN^-

Q.155 An aqeous solution contains Ag^+, Ba^{2+}, and Ni^{2+} cations, dilute aqueous solutions of NaCl, Na_2S, and Na_2SO_4 are available as reagent. In what order should these reagent be added to precipitate each of the three cations separately?

(A) Na_2S, Na_2SO_4, NaCl (B) Na_2S, NaCl, Na_2SO_4

(C) Na_2SO_4, Na_2S, NaCl (D) NaCl, Na_2SO_4 , Na_2S

Q.156 An aqueous solution was prepared by dissolving a gas 'P' into water, to this solution $Hg_2(NO_3)_2$ was added and a precipitate was obtained, then gas 'P' is :

(A) NH_3 (B) N_2O (C) Cl_2 (D) None

Q.157 Which of following salt does not give white colour ppt. on reaction with $K_4[Fe(CN)_6]$?

(A) $ZnCl_2$ (B) $AgNO_3$ (C) $FeCl_2$ (D) $Cu(NO_3)_2$

Q.158 $MgCO_3$ is not precipitated with the carbonates of V^{th} group radicals in presence of NH_4Cl and NH_4OH because:

(A) $MgCO_3$ is soluble in NH_4OH

(B) $MgCO_3$ is not precipitated in presence of NH_4Cl

(C) $MgCO_3$ is soluble in water

(D) $MgCO_3$ is soluble in $(NH_4)_2CO_3$

Q.159 $Fe(OH)_3$ can be separated from $Al(OH)_3$ by addition of

(A) NaOH solution (B) $NH_4Cl + NH_4OH$ (C) diluteHCl (D) $(NH_4)_2CO_3$

Q.160 A colourless solid X dissolves in water. The aqueous solution gives a white precipitate Y when NaOH is added. Y dissolves in excess of NaOH but not in excess of NH_4OH. Solution of 'X' give white precipitate with $BaCl_2$ which are insoluble in dilute HCl 'X' can not be :

(A) $SnSO_4$ (B)$Al_2(SO_4)_3$ (C) $ZnSO_4$ (D) None of these

Q.161 Mohr's salt solution **does not** produce precipitate with

(A) Na_2O_2 (B) $BaCl_2$ (C) $(NH_4)_2S$ (D) H_2S gas

Q.162 $\underset{(\text{Coloured solution})}{P} + BaCl_2 \rightarrow \underset{(\text{white})}{Q\downarrow} + \underset{(\text{Coloured solution})}{R}$

Then salt 'P' in above reaction is :

(A) Na_2CrO_4 (B) $ZnSO_4$ (C) $CuSO_4$ (D) $AgNO_3$

Q.163 Passing H_2S gas into a mixture of Mn^{2+}, Ni^{2+}, Cu^{2+} and Hg^{2+} ions in an acidified solution precipitates:

(A) CuS and HgS (B) MnS and CuS (C) MnS and NiS (D) NiS and HgS

Q.164 $Fe^{3+}(aq)$ does not show redox reaction with solution of

(A) Na_2O_2 (B) NH_4SCN (C) KI (D) $Na_2S_2O_3$

Q.165 Pair of cations can not be seperated by Na_2S

(A) $Pb^{2+}(aq)$, $Mg^{2+}(aq)$ (B) $Cd^{2+}(aq)$, $Zn^{2+}(aq)$

(C) $Ag^{+}(aq)$, $Na^{+}(aq)$ (D) $Ni^{2+}(aq)$, $Ca^{2+}(aq)$

Q.166 Which of the given cation is soluble in excess of NH_3 solution as well as in excess of NaOH solution?

(A) $Pb^{2+}(aq)$ (B) $Cr^{3+}(aq)$ (C) $Fe^{3+}(aq)$ (D) $Be^{2+}(aq)$

Q.167 Which of the following salt solution gives Purple colour solution on reaction with $SnCl_2$ solution?

(A) $HgCl_2$ solution (B) $BiCl_3$ solution

(C) $FeCl_3$ solution (D) $AuCl_3$ solution

Q.168 **Correct** match :

(A) $SrCrO_4$: Yellow (B) $BaCrO_4$: Yellow

(C) CaC_2O_4 : White (D) All are correct

Q.169 For Reaction :

$$M^{x+}(aq) \xrightarrow{NaOH/NH_3} \underset{\text{Reddish Brown ppt.}}{M(OH)_x} \xrightarrow{NaOH/NH_3} \text{Insoluble}$$

Which of the following is metal cation (M^{x+})

(A) Cr^{3+} (aq) (B) Fe^{2+} (aq) (C) Fe^{3+} (aq) (D) Ni^{2+} (aq)

Q.170 $BaCl_2$ solution was added to sodium salt solution and white precipitate was obtained. The white ppt is not soluble in dilute HCl then, which of the following anion will be present in sodium salt solution

(A) $C_2O_4^{2-}(aq)$ (B) $PO_4^{3-}(aq.)$ (C) $SO_4^{2-}(aq.)$ (D) $CrO_4^{2-}(aq.)$

Q.171 Select the **incorrect** match

(A) $Fe^{3+} + [Fe(CN)_6]^{4-} \rightarrow$ Blue colour ppt (B) $Fe^{3+} + [Fe(CN)_6]^{3-} \rightarrow$ Red brown colouration

(C) $Fe^{2+} + [Fe(CN)_6]^{3-} \rightarrow$ Blue colour ppt (D) $Fe^{2+} + [Fe(CN)_6]^{4-} \rightarrow$ Red brown colouration

Q.172 $Cu^{2+}(aq) + X^{-}(aq) \xrightarrow{R.T.} CuX\downarrow + X_2$

'X' can not be

(A) $Cl^{-}(aq)$ (B) $I^{-}(aq)$ (C) $CN^{-}(aq)$ (D) $SCN^{-}(aq)$

Q.173 In which of the following redox reaction precipitate is **not** formed.

(A) $Cr^{3+}(aq) + Na_2O_2$ sol^{n}. $\rightarrow$ (B) $Fe^{3+}(aq) + (NH_4)_2S \rightarrow$

(C) $Mn^{2+}(aq) + H_2O_2 + NH_3$ sol^{n}.$\rightarrow$ (D) $Fe^{++}(aq) + Na_2O_2$ sol^{n}. $\rightarrow$

Q.174 Which metal sulphide is soluble in excess NH_3 solution?

(A) ZnS (B) MnS (C) FeS (D) Cr_2S_3

Q.175 Select the **incorrect** statement regarding $FeSO_4$

(A) Form ppt with excess NaOH solution

(B) Black metal sulphide ppt is formed with $(NH_4)_2S$ solution

(C) Yellow ppt of $FeCl_2$ is formed with $BaCl_2$ solution

(D) Chemical change is observed with excess Na_2O_2 solution

Q.176 Which of following salt **will not give** positive brown ring test?

(A) $Cu(NO_3)_2$ (B) $Pb(NO_3)_2$ (C) $Zn(NO_3)_2$ (D) $Mg(NO_3)_2$

Q.177 Select the ion exchange reaction, which proceeds to forward direction in aqueous medium:

(A) $2AgCl + CaF_2 \xrightarrow{Aqueous} 2AgF + CaCl_2$

(B) $BaSO_4 + 2NaOH \xrightarrow{Aqueous} Ba(OH)_2 + Na_2SO_4$

(C) $Pb(NO_3)_2 + 2CH_3COONa \xrightarrow{Aqueous} Pb(OAc)_2 + 2NaNO_3$

(D) $Na_2CrO_4 + BaCl_2 \xrightarrow{Aqueous} BaCrO_4 + 2NaCl$

Q.178 Which of the following metal hydroxide is **not** soluble in excess of NH_3 solution?

(A) $Fe(OH)_2$ (B) $Ni(OH)_2$ (C) $Cd(OH)_2$ (D) $Cu(OH)_2$

Q.179 Which of the following combination of reagents **does not** undergo redox reaction in aqueous medium?

(A) $SnCl_2 + HgCl_2$ (B) $CuSO_4 + KCN$

(C) $Pb(CH_3COO)_2 + KI$ (D) $Ag_2O + SO_2$

Q.180 $K_4[Fe(CN)_6] + M^{X+}(aq) \rightarrow M_4[Fe(CN)_6]_x \downarrow$

coloured precipitate

Which of the following cation **does not** respond to the above reaction?

(A) $Cu^{2+}(aq)$ (B) $Fe^{3+}(aq)$ (C) $Zn^{2+}(aq)$ (D) None of these

Q.181 Sodium salt solution + $AgNO_3$ sol^n. $\rightarrow$ Coloured precipitate.

If coloured precipitate is soluble in both dil. HNO_3 and excess conc. NH_3 solution then which of the following anion is present in the salt solution.

(A) S^{2-} (aq) (B) $I^-(aq)$ (C) $PO_4^{3-}(aq)$ (D) $Br^-(aq)$

Q.182 Which of the following anion does not produce precipitate with $BaCl_2$ solution however gives precipitate with $AgNO_3$?

(A) $CO_3^{2-}(aq.)$ (B) $C_2O_4^{2-}(aq.)$ (C) $MnO_4^-(aq.)$ (D) $S^{2-}(aq.)$

Q.183 Which of the following compound is completely water soluble ?

(A) $BaSO_4$ (B) $Ba(OH)_2$ (C) $Al(OH)_3$ (D) CaF_2

Q.184 Which of the following metal sulphide **does not** undergo hydrolysis?

(A) Cr_2S_3 (B) Al_2S_3 (C) MgS (D)FeS

Q.185 Which of the following pairs of ions cannot be separated by H_2S in ammonical medium?

(A) Zn^{2+} and Ni^{2+} (B) Zn^{2+} and Mg^{2+} (C) Mn^{2+} and Ca^{2+} (D) Co^{2+} and Ca^{2+}

Q.186 In group-V basic radicals, if $NaHCO_3$ is added instead of $(NH_4)_2CO_3$ and NH_4OH, the precipitate obtained will be:

(A) White (B) Yellow (C) Black (D) No ppt is formed

Q.187 Which of the following reagent can dissolves precipitate of $HgS \downarrow$?

(A) NH_3 solution (B) conc HCl (C) conc HNO_3 (D) Na_2S solution

Q.188 Concentrated sodium hydroxide can seperate a mixture of

(A)Al^{3+} and Cr^{3+} (B) Cr^{3+} and Fe^{3+} (C) Al^{3+} and Zn^{2+} (D) Zn^{2+} and Pb^{2+}

Q.189 Cu^{2+} (aq) does not undergo redox reaction with solution of

(A) $(NH_4)_2S$ (B) $Na_2S_2O_3$ (C) KI (D) NH_4SCN

Q.190 The **incorrect** order of solubility in water is

(A) $Ca(OH)_2 < Sr(OH)_2 < Ba(OH)_2$ (B) $Li_2CO_3 < Na_2CO_3 < K_2CO_3$

(C) $CsNO_3 < RbNO_3 < KNO_3$ (D) $BeS_2O_3 < MgS_2O_3 < CaS_2O_3$

Q.191 The correct order of increasing solubility in water is

(A) KF < NaF < LiF (B) $NaHCO_3 < KHCO_3 < RbHCO_3$

(C) $K_2CO_3 < Na_2CO_3 < Li_2CO_3$ (D) $LiNO_3 < NaNO_3 < KNO_3$

Q.192 $\underset{\text{Coloured}}{P(\text{soln.})} \xrightarrow{\text{Air}} \underset{\text{(Coloured)}}{Q(\text{soln.})} \xrightarrow{KOH} R\downarrow$ (ppt) (Insoluble in both excess NaOH and excess NH_3 solution)

Then P contains

(A) $Cu^{2+}(aq)$ (B) $Fe^{2+}(aq)$ (C) $Cr^{2+}(aq)$ (D) $Ni^{2+}(aq)$

Q.193 X_2S_n + water $\longrightarrow$ $X(OH)_n\downarrow$ + $Y\uparrow$ (gas)

$\downarrow$ $Pb(CH_3COO)_2$

$Z\downarrow$ (Black ppt.)

Then (X) cation can not be :

(A) Fe^{3+} (B) Al^{3+} (C) Cr^{3+} (D) Mg^{2+}

Q.194 $M^{n+}(aq) + KI \rightarrow X\downarrow$ (ppt) $\xrightarrow[KI]{\text{excess}}$ ppt remains insoluble in excess KI solution..

then cation $M^{n+}(aq)$ can be :

(A) $Pb^{2+}(aq)$ (B) $Cu^{2+}(aq)$ (C) $Bi^{3+}(aq)$ (D) $Hg^{2+}(aq)$

Q.195 Aqueous solution of which of the following cation gives precipitate with potash alum.

(A) $Cu^{2+}(aq)$ (B) $Zn^{2+}(aq)$ (C) $Ba^{2+}(aq)$ (D) $Ni^{2+}(aq)$

Q.196 A very dilute acidic solution of Cd^{2+} & Ni^{2+} gives only yellow ppt of CdS on passing H_2S, this is due to:

(A) Solubility product (Ksp) of CdS is more than that of NiS

(B) Solublility product (Ksp) of CdS is less than that of NiS

(C) Cd^{2+} belong to II B group while Ni^{2+} belongs to IVth group.

(D) CdS is insoluble in yellow ammonium sulphide (YAS)

Q.197 Which of the following cation does not give precipitate with H_2S in neutral medium?

(A) Fe^{3+} (B) Cu^{2+} (C) Bi^{3+} (D) Ag^{+}

EXERCISE-2

[MULTIPLE CORRECT CHOICE TYPE]

Q.1 Which metal impart(s) red colour to flame?

(A) Li (B) K (C)Ca (D) Sr

Q.2 When copper (II) nitrate is strongly heated, it is converted into

(A) Cu metal (B) cupric oxide (C) cuprous oxide (D) copper nitrate

Q.3 Which of the following compound(s) during heating undergo redox decomposition reaction?

(A) $HgCO_3(s)$ (B) $Ag_2C_2O_4(s)$ (C) $FeCl_3 \cdot 6H_2O(s)$ (D) $K_2Cr_2O_7(s)$

Q.4 NO_2 gas evolves on thermal decomposition of which of the following compound(s) ?

(A) $Hg(NO_3)_2$ (B) KNO_3 (C) N_2O_4 (D) N_2O_3

Q.5 Which of the following combination of species undergo(es) comproportionation.

(A) $MnO_4^-(aq) + Mn^{2+}(aq) \xrightarrow{ZnO/ZnSO_4}$ (B) $S + \underset{(excess)}{conc.\,H_2SO_4} \xrightarrow{warm}$

(C) $PH_3 + H_3PO_4 \rightarrow$ (D) $NO(g) + NO_2(g) \xrightarrow{cool}$

Q.6 $I_2 + Na_2CO_3$ sol^n. $\xrightarrow{Hot}$ X + Y

If 'X' gives coloured ppt with $Pb(CH_3COO)_2$ solution, then 'Y' will respond to which of the following

(A) $Y + H^+(aq) + H_2S$ (B) $Y + Cr_2O_7^{2-}(aq) + OH^-(aq)$

(C) $Y + H^+(aq) + SO_2$ (D) $Y + H^+(aq) + I^-(aq)$

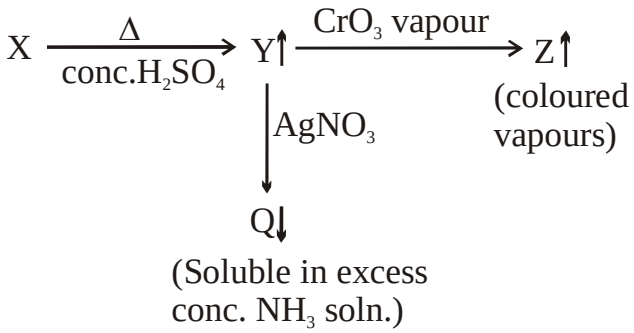
Q.7 Which of the following combination of reagent(s) produce observable change in aqueous medium.

(A) $Ba(OH)_2$ solution + $SO_2(g)$ (B) AgF solution + $NaNO_3$ solution

(C) $Pb(OAc)_2$ solution + Na_2CO_3 solution (D) $CuCl_2$ solution + NH_3 (excess)

Q.8 In which of the following acidic radical(s) dual properties of conc. H_2SO_4 are used ?

(A) BO_3^{3-} (B) Cl^- (C) Br^- (D) I^-

Q.9 

Which of the following anion cannot be in X ?

(A) F^- (B) Cl^- (C) Br^- (D) I^-

Q.10 Which of the following reagent(s) can be used to distinguish between SO_2 and CO_2?

(A) $FeCl_3$ soln. (B) Baryta water (C) H_2S (D) Acidified $NaIO_3$

Q.11 H_2S gas is not evolved by

(A) FeS + hot concentration H_2SO_4 (B) HgS + warm dil. HCl

(C) ZnS + warm dil. H_2SO_4 (D) SO_3^{2-}(aq) + Zn + NaOH soln.

Q.12 CO_2 gas is evolved, when solid Na_2CO_3 is :

(A) Fused with silica (B) Boiled with $AgNO_3$ solution

(C) Treated with CH_3COOH (D) with boiled $BaCl_2$ solution

Q.13 Which compound(s) dissolve in hot dilute HNO_3?

(A) HgS (B) PbS (C) CuS (D) CdS

Q.14 Which of the following sulphides is insoluble in dil. HCl(non oxidising acid) as well as in exess NaOH solution ?

(A) PbS (B) Zns (C) FeS (D) HgS

Q.15 Which one of the following does not produce metallic sulphide with H_2S?

(A) $ZnCl_2$ (B) $CdCl_2$ (C) $CoCl_2$ (D) $CuCl_2$

Q.16 Which of the following acid(s) does/do not reduce $AgNO_3$ into metallic Ag?

(A) HI (B) H_3PO_4 (C) H_3PO_2 (D) H_2S

Q.17 Which of the following cation(s) give coloured precipitate with both excess of NH_3 and excess NaOH solution ?

(A) $Fe^{3+}(aq)$ (B) $Hg_2^{2+}(aq)$ (C) $Ni^{2+}(aq.)$ (D) $Cr^{3+}(aq.)$

Q.18 $Fe^{3+}(aq)$ undergoes redox reaction with solution of :

(A) KCN (B) NH_4SCN (C) KI (D) $Na_2S_2O_3$

Q.19 Chemical behaviour of excess of hypo solution towards $Ag^+(aq)$ is same as with :

(A) $Hg^{2+}(aq)$ (B) $Cu^{2+}(aq)$ (C) $Pb^{2+}(aq)$ (D) $Bi^{3+}(aq)$

Q.20 $K_2SO_4Cr_2(SO_4)_3 \cdot 24H_2O + \underset{\text{excess}}{Na_2O_2}$ solution $\longrightarrow$ 'P' + other compounds

Compound 'P' is water soluble coloured compound; then 'P' can form precipitate with.

(A) $Ag^+(aq)$ (B) $Ba^{2+}(aq)$ (C) $Pb^{2+}(aq)$ (D) $Ca^{2+}(aq)$

Q.21 Which of the following Nitrate salt solution **neither** produce ppt with excess NaOH **nor** with excess NH_4OH solution.

(A) $Al(NO_3)_3$ (B) $Zn(NO_3)_2$ (C) $Cr(NO_3)_3$ (D) $Pb(NO_3)_2$

Q.22 Which of the following sulphide(s) does/do not liberate H_2S on warming with dil HCl?

(A) HgS (B) ZnS (C) FeS (D) CuS

Q.23 Which of the following cation does not give precipitate with H_2S in neutral medium?

(A) Fe^{3+} (B) Cu^{2+} (C) Bi^{3+} (D) Ag^+

Q.24 Which of the following precipitate(s) is/are dissolved to colourless solution on adding sufficient amount of dillute HCl ?

(A) $CaCO_3$ (B) $BaCrO_4$ (C) MgC_2O_4 (D) $BaSO_4$

[PARAGRAPH TYPE]

Paragraph for question nos. 25 to 27

For followig reactions :

Microcosmic salt $\xrightarrow{\Delta}$ P ↑ + Q (solid) + xH_2O ↑

$Mn^{2+}(aq) + P\uparrow + H_2O_2 \rightarrow R\downarrow$

(Brown)

$Q(solid) + CoO \xrightarrow[\text{Oxidizing flame}]{\Delta} \underset{\text{(Blue coloured solid)}}{S}$

Answer following questions :

Q.25 When solid 'R' is fused with KOH in the presence of air, then which of the following substance is formed.

(A) Mn_3O_4 (B) $KMnO_4$ (C) K_2MnO_4 (D) MnO

Q.26 **Incorrect** statement for 'S' is :

(A) It is paramagnetic.

(B) It is orthophosphate.

(C) Its colour remains same even in reducing flame

(D) It is reduced to metal cobalt in reducing flame.

Q.27 Microcosmic salt does not undergo observable change with:

(A) $AgNO_3$ solution (B) $K_2[HgI_4] + KOH$ (C) dil. H_2SO_4 (D) $BaCl_2$ solution

Paragraph for question nos. 28 to 30

Compound 'A' $\xrightarrow{\Delta}$ Initially swelled $\xrightarrow[\text{strong heating}]{\Delta}$ Amorphous powder

Compound 'A' → Lilac flame in the flame test

Compound 'A' $\xrightarrow{\text{excess NaOH}}$ 'B'(No change in colour) $\xrightarrow{H_2O_2}$ 'C' (Yellow solution)

(in aq. solution)

Q.28 Compound 'A' is having water of crystallization by the number of :

(A) 10 (B) 20 (C) 24 (D)36

Q.29 The compound 'B' is having oxidation state of

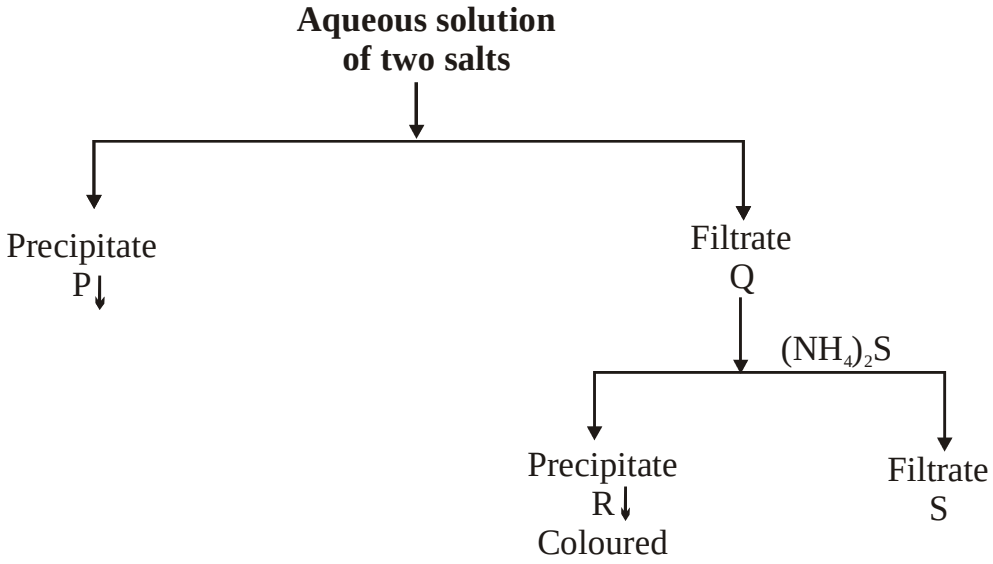
(A) zero (B) II (C) III (D) IV

Q.30 The hybridization of compound 'C' is

(A) sp^3 (B) sp^3d (C) d^2sp^3 (D) d^3s

Paragraph for question nos. 31 to 33

For following sequence of reactions answer the following questions :



Q.31 Precipitate 'P' dissolves in hot dil.HNO_3 and coloured solution is obtained when $K_4[Fe(CN)_6]$ was added to this coloured solution, brown coloured precipitate is obtained; then cation present in the precipitate 'P' is

(A) Cd^{2+} (B) Cu^{2+} (C) Fe^{3+} (D) Zn^{2+}

Q.32 If precipitate 'R' is soluble in excess of NaOH and coloured solution is obtained, then precipitate 'R' is

(A) $Cr(OH)_3$ (B) ZnS (C) MnS (D) $Fe(OH)_3$

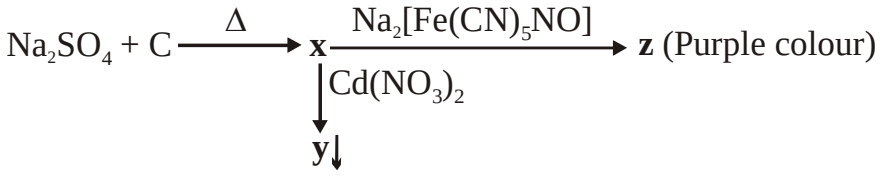
Q.33 One of the salt forms white precipitate with $BaCl_2$ and this precipitate is not soluble in dil HCl. While other, salt forms white precipitate with $AgNO_3$ and thus obtained white precipitate of silver is not soluble in dil HNO_3 but soluble in excess NH_3 solution. Then which of the following anions are present in the given two salts solution.

(A) $PO_4^{3-}(aq)$, $CO_3^{2-}(aq)$ (B) $SO_4^{2-}(aq)$, $Cl^-(aq)$

(C) $SO_3^{2-}(aq)$, $CO_3^{2-}(aq)$ (D) $SO_4^{2-}(aq)$, $C_2O_4^{2-}(aq)$

Paragraph for question nos. 34 to 36

Consider the following reaction



Q.34 'y' is insoluble in .

(A) CH_3COOH (B) HCl (C) dil. HNO_3 (D) None of these

Q.35 'z' also form when $Na_2[Fe(CN)_5NO]$ reacts with

(A) H_2S/OH^- (B) H_2S (C) H_2S/H^+ (D) All of these

Q.36 What would be the colour of 'y', if $Pb(NO_3)_2$ is used in reaction instead of $Cd(NO_3)_3$?

(A) White (B) Yellow (C) Red (D) Black

Paragraph for question nos. 37 to 39

Using dil. H_2SO_4 gas evolution takes place from several acid radicals. If we consider their smell, colour and other observation if any, several acid radicals can be detected in this step.

Q.37 Using dil. H_2SO_4, which of the acid radical can not be confirmed.

(A) NO_2^- (B) $CH_3CO_2^-$ (C) HSO_3^- (D) S^{2-}

Q.38 When the aqueous suspension of Ag_2SO_3 and Ag_2CO_3 are heated, the respective ppts. are obtained as

(A) Ag_2O & Ag_2O (B) Ag_2O & Ag (C) Ag & Ag_2O (D) Ag & Ag

Q.39 Which of the following radical(s) is/are producing same gas on treatment with (Zn + dil. H_2SO_4) ?

(I) SO_3^{2-} (II) HSO_3^- (III) S^{2-} (IV) Cl^-

(A) I and II only (B) I, II and III only (C) I. II. III and IV (D) II. III and IV only

[MATCH THE COLUMN]

Q.40

Column I *(Reactions)*	*Column II* *(Charactristics of any one product)*
(A) $(NH_4)_2Cr_2O_7 \xrightarrow{\Delta}$	(P) Amphoteric species
(B) $FeSO_4 \xrightarrow{\Delta}$	(Q) Basic species
(C) $Pb(NO_3)_2 \xrightarrow{\Delta}$	(R) Non polar gas
(D) $P_4 \xrightarrow[\Delta]{NaOH}$	(S) Polar acidic gas
	(T) Coloured residue

Q.41

Column-I *(Ionic compounds)*		**Column-II** *(Possible observations on thermal decomposition)*	
(A)	$HgCO_3$	(P)	Acidic gas evolves
(B)	$FeSO_4$	(Q)	Metallic residue is obtained as final product
(C)	BeC_2O_4	(R)	Metal cation of salt undergoes redox reaction
(D)	$AgNO_3$	(S)	Metallic oxide can be obtained
		(T)	Neutral gas is evolved

Q.42

Column I *(Anions)*		**Column II** *(Reaction of anion(s) with dil HCl/ conc. H_2SO_4)*	
(A)	SO_3^{2-}	(P)	Colourless volatile product is formed
(B)	CO_3^{2-}	(Q)	Coloured volatile product is formed
(C)	Cl^-	(R)	Volatile product forms precipitate with $Ba(OH)_2$ solution
(D)	NO_2^-	(S) .	Volatile product forms precipitate with $AgNO_3$ solution
		(T)	Formed volatile product decolourizes MnO_4^- / H^+ solution

[INTEGER TYPE]

Q.43 Find out total number metals cation(s) which form coloured metaborates :
$Al^{3+}(aq)$, $Fe^{3+}(aq)$, $Pb^{2+}(aq)$, $Cd^{2+}(aq)$, $Mg^{2+}(aq)$, $Cr^{3+}(aq)$, $Ag^{+}(aq)$, $Zn^{2+}(aq)$, $Mn^{2+}(aq)$

Q.44 Find the value of expression $|x - y|$ for following compounds
where,
x = Total number of water insoluble salts.
y = Total number of salts. which can liberate nonpolar acidic gas during their complete thermal decomposition.
$BaCO_3$, $PbSO_4$, $AgNO_3$, CaC_2O_4, $CsHCO_3$, Na_3PO_4, CH_3COOAg, $Mg(OH)_2$, $Pb(NO_3)_2$

Q.45 Find out total number of coloured compound(s) from following
$BaCO_3$, HgO, $PbSO_4$, Ag_2S, HgI_2, PbO, CdS, $AgNO_2$, $PbCrO_4$

Q.46 Find out total number of compounds which on heating undergo redox reactions.
$PbCl_4$, $Mg(NO_3)_2$, HgC_2O_4, Ag_2CO_3, $Pb(CN)_4$, $A1(OH)_3$, $Cu(CN)_2$

Q.47 Which of the following reagent(s) can oxidize H_2S gas into sulphur :
I_2, $Cr_2O_7^{2-}(aq) / H^+(aq)$, H_2O_2, $IO_3^-(aq) / H^+(aq)$, H_3PO_4, H_2CO_3, dil. H_2SO_4, SO_2, $NO_2^-(aq)/ H^+(aq)$

Q.48 How many anions will give coloured volatile product when react with conc. H_2SO_4 on reaction with following given anions.
CH_3COO^- , Cl^-, Br^-, S^{2-}, SO_3^{2-}, BO_3^{3-}, NO_2^-, $C_2O_4^{2-}$, I^-, NO_3-

Q.49 If sodium salt of following acidic radical(s) are heated with concentrated H_2SO_4, then which of the following acidic radical(s) produce gas caused by oxidising property of concentrated H_2SO_4,
Br–, F^-, S^{2-}, $C_2O_4^{2-}$, NO_3^-, CH_3COO^-, $B_4O_7^{2-}$, Cl^-, I^-

Q.50 Find total number of reagents which can produce I_2 from KI solution.

Conc. H_2SO_4,	$Hg(NO_3)_2$ solution,	$CuSO_4$ solution,	Conc. H_3PO_4,
$K_2Cr_2O_7/H^+$	Cl_2water,	$Pb(CH_3COO)_2$ solution,	$Ca(OCl)Cl/H^+$
$NaNO_2$ + dil.HCl			

Q.51 Find total number of metal cations which are ppted as metal sulphide on passing H_2S gas through metal salt solution.

$Pb^{2+}(aq)$, $Mn^{2+}(aq)$, $Sn^{2+}(aq)$, $Cr^{3+}(aq)$,
$Mg^{2+}(aq)$, $Hg^{2+}(aq)$, $Cu^{2+}(aq)$, $Ag^{+}(aq)$,
$Al^{3+}(aq)$, $Ni^{2+}(aq)$

Q.52 Which of the following cation(s) produce precipitate with excess of NaOH solution?
$Be^{2+}(aq)$, $Cu^{2+}(aq)$, $Pb^{2+}(aq)$, $Fe^{3+}(aq)$, $Hg^{2+}(aq)$, $Ni^{2+}(aq)$, $Mn^{2+}(aq)$, $Cr^{3+}(aq)$, $Bi^{3+}(aq)$

Q.53 Find out total number of cation(s), which produce soluble compound with excess of KCN solution
$Pb^{2+}(aq)$, $Hg^{2+}(aq)$, $Cr^{3+}(aq)$, $Cu^{2+}(aq)$, $Au^{+}(aq)$, $Co^{2+}(aq)$, $Cd^{2+}(aq)$, $Zn^{2+}(aq)$, $Ni^{2+}(aq)$

Q.54 Which of the following species/reagent can reduce $Fe^{3+}(aq)$ into $Fe^{2+}(aq)$ at normal conditions.
$(NH_4)_2S$, HI, $Sn^{2+}(aq)$, $CN^{-}(aq)$, $NaNO_2$, SO_2, $Na_2S_2O_3$, $SCN^{-}(aq)$, Acidified $NaIO_3$

Q.55 Find out number ionic compound(s) which is/are water insoluble at room temperature
$BaSO_4$, $AgNO_3$, $PbCO_3$, $CaCl_2$, $Mg(OH)_2$, $KMnO_4$, CH_3COOAg, $Ca_3(PO_4)_2$, $(NH_4)_2S$

Q.56 Find out total number of cation(s) that produce precipitate with aqueous solution of Na_2CO_3
$Cu^{2+}(aq)$, $Mg^{2+}(aq)$, $Fe^{3+}(aq)$, $Pb^{2+}(aq)$, $Al^{3+}(aq)$, $Hg^{2+}(aq)$, $Zn^{2+}(aq)$, $NH_4^{+}(aq)$, $Cs^{+}(aq)$

Q.57 Find out total number of coloured / black **water insoluble compound(s)** from following substances:
Ag_2O, HgI_2, FeS, Ag_3PO_4, $Ba(MnO_4)_2$, Na_2CrO_4, PbI_2, $AgNO_2$, $Ag_2C_2O_4$

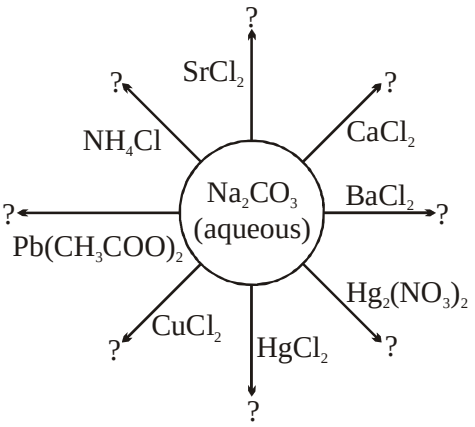
Q.58 Find number of basic radicals among the following cations, which can form soluble complex on adding excess of NH_3 solution:
$Cd^{++}(aq.)$, $Pb^{++}(aq.)$, $Ni^{++}(aq.)$, $Mn^{++}(aq.)$, $Zn^{++}(aq.)$, $Ag^{+}(aq.)$, $Hg^{++}(aq.)$, $Fe^{3+}(aq.)$, $Mg^{++}(aq.)$

Q.59 Find the total number acid radicals which produce gas with dilute sulphuric acid.

$C_2O_4^{2-}$, Br^{-}, NO_2^{-}, CO_3^{2-}, S^{2-}, PO_4^{3-}, SO_4^{2-}, HCO_3^{-}, MnO_4^{-}, CrO_4^{2-}

Q.60 Which of the following compound have less intensity of colour with respect to AgI ?
AgCl , AgBr, Cu_2I_2, Cu_2Cl_2, $PbCl_2$, $PbCO_3$, Ag_2CO_3 , PbS

Q.61 Find the number of reactions in the given set of separate experiments which would give white precipitate.



If your answer is 2, write it as 0002.

Q.62 How many number of species give white turbidity with H_2S?
$KMnO_4/H^{\oplus}$, $K_2Cr_2O_7/H^{\oplus}$, $KIO_3/H^{\oplus}$, $FeCl_3$, Br_2-water, conc. HNO_3, conc. H_2SO_4, H_2O_2

Q.63 Select how many following compounds are yellow in nature:
$Zn_2[Fe(CN)_6]$, CdS, $K_4[Fe(CN)_6]$, As_2S_3, Bi_2S_3, $Fe_4[Fe(CN)_6]_3$,
$[Fe(H_2O)_5NO]SO_4$, Ag_2S, SnS_2, $Na_4[Fe(CN)\ NOS]$

Q.64 Na_2SO_3, NaCl, $Na_2C_2O_4$, Na_2HPO_4, Na_2CrO_4, $NaNO_2$, CH_3CO_2Na are separately treated with $AgNO_3$ solution. In how many cases white ppt. is/are obtained.

Q.65 $S^{2-} + Na_2[Fe(CN)_5NO] \rightarrow$ Complex is having violet colouration (X)
The number of possible isomers for complex 'X' is provided the ambident behaviour of CN^- is not considered.

Q.66 From the given salts ($BaCl_2$, $CaCO_3$, $NaNO_3$, KNO_3, K_2SO_4, K_2CO_3, $BaSO_4$), find the number of salt(s) which turn(s) red litmus blue and impart(s) lilac colour to the Bunsen flame.
[If your answer is 3 , write the answer as 0003]

Q.67 Find the number of sulphides from the list given below which are not soluble in yellow ammonium sulphide solution.

HgS, As_2S_3, Sb_2S_3, SnS, CuS, PbS

[If your answer is 3 , write the answer as 0003]

[ANSWER KEY]

EXERCISE-1

Q.1 A	Q.2 B	Q.3 A	Q.4 C	Q.5 B
Q.6 B	Q.7 D	Q.8 A	Q.9 B	Q.10 D
Q.11 A	Q.12 B	Q.13 C	Q.14 C	Q.15 C
Q.16 C	Q.17 C	Q.18 A	Q.19 C	Q.20 A
Q.21 B	Q.22 D	Q.23 C	Q.24 D	Q.25 B
Q.26 B	Q.27 C	Q.28 B	Q.29 A	Q.30 B
Q.31 C	Q.32 B	Q.33 C	Q.34 B	Q.35 C
Q.36 B	Q.37 D	Q.38 D	Q.39 B	Q.40 D
Q.41 C	Q.42 B	Q.43 B	Q.44 B	Q.45 A
Q.46 C	Q.47 D	Q.48 D	Q.49 B	Q.50 A
Q.51 B	Q.52 D	Q.53 B	Q.54 B	Q.55 B
Q.56 C	Q.57 D	Q.58 A	Q.59 C	Q.60 D
Q.61 D	Q.62 B	Q.63 C	Q.64 A	Q.65 A
Q.66 A	Q.67 B	Q.68 D	Q.69 D	Q.70 A
Q.71 B	Q.72 A	Q.73 B	Q.74 B	Q.75 A
Q.76 D	Q.77 D	Q.78 B	Q.79 A	Q.80 A
Q.81 B	Q.82 C	Q.83 D	Q.84 B	Q.85 D
Q.86 C	Q.87 A	Q.88 B	Q.89 C	Q.90 B
Q.91 B	Q.92 D	Q.93 A	Q.94 A	Q.95 D
Q.96 B	Q.97 D	Q.98 C	Q.99 C	Q.100 B
Q.101 A	Q.102 D	Q.103 C	Q.104 D	Q.105 B
Q.106 A	Q.107 C	Q.108 C	Q.109 B	Q.110 B
Q.111 D	Q.112 B	Q.113 B	Q.114 B	Q.115 B
Q.116 D	Q.117 C	Q.118 D	Q.119 D	Q.120 D
Q.121 D	Q.122 C	Q.123 B	Q.124 D	Q.125 A
Q.126 D	Q.127 B	Q.128 D	Q.129 C	Q.130 A
Q.131 D	Q.132 B	Q.133 A	Q.134 C	Q.135 B
Q.136 D	Q.137 B	Q.138 B	Q.139 B	Q.140 B
Q.141 C	Q.142 C	Q.143 C	Q.144 B	Q.145 D
Q.146 D	Q.147 D	Q.148 A	Q.149 B	Q.150 A
Q.151 B	Q.152 D	Q.153 A	Q.154 B	Q.155 D
Q.156 A	Q.157 D	Q.158 B	Q.159 A	Q.160 C
Q.161 D	Q.162 C	Q.163 A	Q.164 B	Q.165 B
Q.166 B	Q.167 D	Q.168 D	Q.169 C	Q.170 C
Q.171 D	Q.172 A	Q.173 A	Q.174 D	Q.175 C

Q.176	B	Q.177	D	Q.178	A	Q.179	C	Q.180	C
Q.181	C	Q.182	D	Q.183	B	Q.184	D	Q.185	A
Q.186	D	Q.187	D	Q.188	B	Q.189	A	Q.190	D
Q.191	B	Q.192	B	Q.193	A	Q.194	B	Q.195	C
Q.196	B	Q.197	A						

EXERCISE-2

Q.1	ACD	Q.2	BC	Q.3	ABD	Q.4	ACD	Q.5	AD
Q.6	ACD	Q.7	ACD	Q.8	CD	Q.9	AD	Q.10	ACD
Q.11	ABD	Q.12	ABC	Q.13	BCD	Q.14	AD	Q.15	AC
Q.16	ABD	Q.17	AB	Q.18	CD	Q.19	ACD	Q.20	ABC
Q.21	ABC	Q.22	AD	Q.23	A	Q.24	AC	Q.25	C
Q.26	D	Q.27	C	Q.28	C	Q.29	C	Q.30	D
Q.31	B	Q.32	A	Q.33	B	Q.34	A	Q.35	A
Q.36	D	Q.37	C	Q.38	C	Q.39	B		

Q.40 (A) PRT (B) QRST (C) PRST (D) Q

Q.41 (A) PQRST (B) PRS (C) PST (D) PQRST Q.42 (A) PRST (B) PRS (C) PST (D) QST

				Q.43	3	Q.44	0	Q.45	6
Q.46	6	Q.47	6	Q.48	4	Q.49	3	Q.50	6
Q.51	5	Q.52	6	Q.53	8	Q.54	5	Q.55	5
Q.56	7	Q.57	5	Q.58	4	Q.59	4	Q.60	7
Q.61	0004	Q.62	8	Q.63	4	Q.64	0005	Q.65	0003
Q.66	0001	Q.67	0003						