Single correct :

Q.1 $Ba(OH)_2$ solution $\xrightarrow{SO_2\ gas}$ 'X' $\xrightarrow[\Delta]{air}$ 'Z'

$\xrightarrow[gas]{excess\ SO_2}$ 'Y'

Which of the following reaction is **incorrect** for compound 'X', 'Y' and 'Z' ?

(A) $Ba(OH)_2 + Na_2SO_3 \rightarrow$ 'X' (B) 'X' + H_2SO_3 (excess) $\rightarrow$ 'Y'

(C) Z + dil.HCl $\rightarrow$ SO_2(gas) (D) Y + $H_2O_2 \rightarrow$ Z

Q.2 The presence of H_2S gas is **not** identified by

(A) H_2N–C$_6$H$_4$–NMe_2 + $FeCl_2$ (B) $Na_2[Fe(CN)_5(NO)]$ + NaOH

(C) $IO_3^-(aq) + H^+(aq)$ (D) $FeCl_3$(aq)

Q.3 Salt 'X' + excess NaOH solution $\xrightarrow{Warm}$ 'Y' (gas) + 'Z' (solution)

'Z' (solution) + $BaCl_2 \rightarrow$ white ppt

Which of the following salt follow above reactions ?

(A) $Na(NH_4)HPO_4 \cdot 4H_2O$ (B) $K_2SO_4 \cdot Cr_2(SO_4)_3 \cdot 24H_2O$

(C) $(NH_4)_2Cr_2O_7$ (D) $KCl \cdot MgCl_2 \cdot 6H_2O$

Q.4 In which of the following combination of reagents precipitate is **not** formed

(A) Mn^{2+} (aq.) + H_2O_2 + NH_3 solution (B) Al^{3+} (aq.) + $(NH_4)_2S$

(C) Cr^{3+}(aq.) + H_2O_2 + NaOH solution (D) Fe^{2+}(aq.) + Na_2O_2

Q.5 Which of the following metal sulphide liberate H_2S gas on reaction with dil HCl ?

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

Q.6 Ferric alum **does not** form precipitate with

(A) NaOH (B) $BaCl_2$ (C) Na_2CO_3 (D) H_2S gas

Q.7 The salt which **does not** form coloured metaborate in borax bead test

(A) $Fe_2(SO_4)_3$ (B) $Al_2(SO_4)_3$ (C) $Cr_2(SO_4)_3$ (D) $CoSO_4$

Q.8 A metal nitrate gives coloured compound when reacts with borax in oxidising flame. Same colour is obtained when metal nitrate is dissolved in water. Metal nitrate can't be

(A) $Cu(NO_3)_2$ (B) $Fe(NO_3)_3$ (C) $Co(NO_3)_2$ (D) $Cr(NO_3)_3$

Q.9 Which salt precipitates as metal hydroxide on reaction with Na_2CO_3 solution ?

(A) $FeCl_3$ (B) $CaCl_2$ (C) $AgNO_3$ (D) $(CH_3COO)_2Pb$

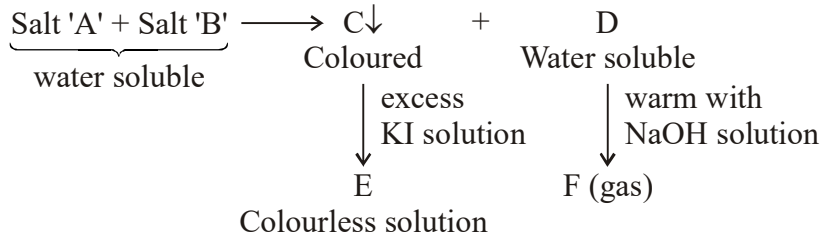
Q.10 $Cr_2O_3(s) + Na_2CO_3(s) \xrightarrow[in\ absence\ of\ air]{Heated\ to\ molten\ state}$ 'X' + $CO_2(g)$

When compound 'X' was extracted with excess of water followed by passing of CO_2 gas into it, then compound 'Y' is obtained. Compound 'Y' is

(A) $[Cr(OH)_4]^-$ (B) CrO_4^{2-} (C) $Cr(OH)_3$ (D) $Cr_2O_7^{2-}$

Comprehension

Comprehension (Q.11 to Q.12)



Q.11 Gas 'F' was passed into compound 'E' in the presence of KOH and brown precipitate was obtained. Then which of the following cations are present in the given salts

(A) Hg_2^{2+}, NH_4^+ (B) Ag^+, PH_4^+ (C) Bi^{3+}, PH_4^+ (D) Hg^{2+}, NH_4^+

Q.12 When salt 'A' was warmed with conc. H_2SO_4 in the presence of a piece of filter paper, intense reddish brown vapours were evolved. Then anions present in the given salts (A) and (B) are

(A) NO_3^-, Cl^- (B) NO_2^-, F^- (C) NO_3^-, I^- (D) NO_2^-, Cl^-

Comprehension (Q.13 to Q.14)

For reaction $SO_2Cl_2 + Ag \xrightarrow{\Delta} 'X' \uparrow + Y$
If 'X' is polar covalent compound then answer following questions:

Q.13 **Incorrect** statement for gaseous product 'X' is
(A) It does not undergo redox reaction with $FeCl_2$
(B) Its solution in NaOH reacts with elemental sulphur on warming
(C) It does not react with bleaching powder
(D) It changes color of K_2MnO_4

Q.14 Compound 'Y' **does not** react with
(A) excess $Na_2S_2O_3$ solution (B) $Pb(CH_3COO)_2$ solution
(C) Light radiation (D) Molten K_2CO_3

More than one may be correct

Q.15 Which of the following combination of reactants produce acidic gas on warming.
(A) N_2O_5 + Na (B) HgS + dil. H Cl
(C) CuS + Zn + dil. HCl (D) KBr + conc. H_3PO_4

Q.16 $K_3[Fe(CN)_6]$ produces coloured precipitate with :
(A) Cu^{2+} (aq) (B) Fe^{3+} (aq) (C) Ag^+ (aq) (D) Fe^{2+} (aq)

Match the Column

Q.17

	Column-I		Column-II
(A)	Precepitated by reaction of H_2S/H^+ with metal soluble salt	(P)	FeS
(B)	Precepitated by reaction of H_2S/OH^- with metal soluble salt	(Q)	HgS
(C)	Soluble in HCl	(R)	PbS
(D)	Soluble in hot and dil. HNO_3	(S)	NiS
		(T)	Ag_2S

Q.18

Column-I (Compound)		**Column-II (Characteristcs)**	
(A)	$Na_2B_4O_7.10H_2O$	(P)	Aqueous solution is basic
(B)	K_2CO_3	(Q)	Reacts with NaOH solution
(C)	$K_2SO_4.Fe_2(SO_4)_3.24H_2O$	(R)	Swells on heating
(D)	$SnSO_4$	(S)	Aqueous solution reacts with H_2S gas
		(T)	Can react with H_2O_2

Subjective

Q.19 Find total number of species in which Zn metal is soluble under ordinary condition (R.T.).
H_2O, dil. H_2SO_4, conc. H_2SO_4, dil. HNO_4, conc. HNO_3, dil. HCl, NaOH (aq.), $AgNO_3$(aq.), $CuSO_4$(aq.)

Q.20 Find total number of water insoluble compounds which are dissolved in CH_3COOH.
CaC_2O_4, SrC_2O_4, BaC_2O_4, $CaCO_3$, $SrCO_3$, $BaCO_3$, $PbCO_3$, $PbCrO_4$, $SrCrO_4$, $BaCrO_4$

Q.21 Find out total number of compound(s) from following which can oxidize H_2O_2 in neutral or acidic medium Ag_2O, FeI_2, $K_4[Fe(CN)_6]$, O_3, $SnCl_4$, HClO, $K_2Cr_2O_7$, $KMnO_4$, PbO_2

Q.22 Find out total number of compound(s) from following which on heating with fusion mixture in presence of air, produce water soluble product.
Fe_2O_3, Cr_2O_3, MnO_2, ZnO, $Na_2C_2O_4$, MnO, $PbSO_4$, AgCl, $CuSO_4$

Q.23 You have given seven test-tube contains solution of $AgNO_3$, $BaCl_2$, $Cu(NO_3)_2$, $CuSO_4$, $Pb(NO_3)_2$, KI & $Na_2S_2O_3$. Find out total number of combinations (only two solutions at a time) which show ppt formation reaction with no redox change.

Single correct :

Q.1 $Ba(OH)_2$ solution → ('X' via SO_2 gas; 'X' $\xrightarrow[\Delta]{air}$ 'Z'; 'Y' via excess SO_2 gas)

Which of the following reaction is **incorrect** for compound 'X', 'Y' and 'Z' ?

(A) $Ba(OH)_2 + Na_2SO_3 \rightarrow$ 'X' (B) 'X' + H_2SO_3 (excess) $\rightarrow$ 'Y'

(C*) Z + dil.HCl $\rightarrow SO_2$(gas) (D) Y + $H_2O_2 \rightarrow$ Z

Q.2 The presence of H_2S gas is **not** identified by

(A*) H_2N–C$_6$H$_4$–NMe_2 + $FeCl_2$ (B) $Na_2[Fe(CN)_5(NO)]$ + NaOH

(C) $IO_3^-(aq) + H^+(aq)$ (D) $FeCl_3$(aq)

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Which of the following salt follow above reactions ?

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(C) $(NH_4)_2Cr_2O_7$ (D) $KCl \cdot MgCl_2 \cdot 6H_2O$

Q.4 In which of the following combination of reagents precipitate is **not** formed

(A) Mn^{2+} (aq.) + H_2O_2 + NH_3 solution (B) Al^{3+} (aq.) + $(NH_4)_2S$

(C*) Cr^{3+}(aq.) + H_2O_2 + NaOH solution (D) Fe^{2+}(aq.) + Na_2O_2

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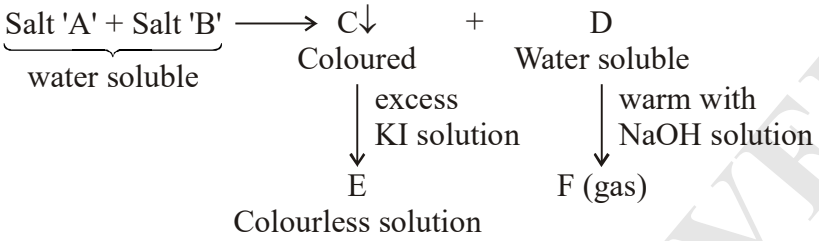
Q.10 $Cr_2O_3(s) + Na_2CO_3(s) \xrightarrow[\text{in absence of air}]{\text{Heated to molten state}} \text{'X'} + CO_2(g)$

When compound 'X' was extracted with excess of water followed by passing of CO_2 gas into it, then compound 'Y' is obtained. Compound 'Y' is

(A) $[Cr(OH)_4]^-$ (B) CrO_4^{2-} (C*) $Cr(OH)_3$ (D) $Cr_2O_7^{2-}$

Comprehension

Comprehension (Q.11 to Q.12)



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Comprehension (Q.13 to Q.14)

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(C) Light radiation (D) Molten K_2CO_3

More than one may be correct

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Match the Column

Q.17

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(C)	Soluble in HCl	(R)	PbS
(D)	Soluble in hot and dil. HNO_3	(S)	NiS
		(T)	Ag_2S

Ans. (A) QRT, (B) PQRST (C) P , (D) PRST]

Q.18

	Column-I (Compound)		Column-II (Characteristcs)
(A)	$Na_2B_4O_7.10H_2O$	(P)	Aqueous solution is basic
(B)	K_2CO_3	(Q)	Reacts with NaOH solution
(C)	$K_2SO_4.Fe_2(SO_4)_3.24H_2O$	(R)	Swells on heating
(D)	$SnSO_4$	(S)	Aqueous solution reacts with H_2S gas
		(T)	Can react with H_2O_2

[Ans. (A) PQRST (B) PST (C) QRST (D) QST]

Subjective

Q.19 Find total number of species in which Zn metal is soluble under ordinary condition (R.T.).
H_2O, dil. H_2SO_4, conc. H_2SO_4, dil. HNO_4, conc. HNO_3, dil. HCl, NaOH (aq.), $AgNO_3$(aq.), $CuSO_4$(aq.)

Ans. 8

Q.20 Find total number of water insoluble compounds which are dissolved in CH_3COOH.
CaC_2O_4, SrC_2O_4, BaC_2O_4, $CaCO_3$, $SrCO_3$, $BaCO_3$, $PbCO_3$, $PbCrO_4$, $SrCrO_4$, $BaCrO_4$

Ans 5

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Ans. 6

Q.22 Find out total number of compound(s) from following which on heating with fusion mixture in presence of air, produce water soluble product.
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Ans. 6

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Ans. 9