CHEMISTRY

PHYSICAL, INORGANIC, AND ORGANIC CHEMISTRY

QUALITATIVE ANALYSIS (ANION)

Miscellaneous Solved Problems Msps

1. Pink colour of acidified $KMnO_4$ is decolourised but there is no evolution of any gas. This may happen with the compound containing the following acid radical.

A. SO_3^{2-}

B. NO_2^-

C. S^{2-}

D. All of these

Answer: D

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2. 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. Disodium hydrogen phosphate

Answer: A

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3. When H_2S gas is passed through an ammonical salt solution X, a slightly white precipitate is formed. The X can be :

A. a cobalt salt

B. a lead salt

C. a zinc salt

D. a silver salt

Answer: C

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4. Which anion does not liberate any gas with dilute as well as conc. H_2SO_4.

A. NO_2^-

B. NO_3^-

C. SO_3^{2-}

D. SO_4^{2-}

Answer: D

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5. A salt having BO_3^{3-} on burning with alcohol and conc. H_2SO_4 gives, which colour edge flame.

A. green

B. yellow

C. red

D. white

Answer: A

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6. When solution of KCl, KF and KBr are treated with I_2 ?

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

Answer: D

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7. A mixture when rubbed with organic acid smells like vinegar. It contains :

A. Sulphate

B. Nitrate

C. Nitrite

D. Acetate

Answer: D

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8. Nitrate & Nitrite both give brown ring test, can be distinguish by -

A. $HOSO_2NH_2$ (Sulphonic acid)

B. $NH_2HgO.\ Hgl$ ("Million base")

C. $FeSO_4$

D. None

Answer: A

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9. Which reagent is used to remove SO_4^{2-} or Cl^- from water ?

A. NaOH

B. $Pb(NO_3)_2$

C. $BaSO_4$

D. KOH

Answer: B

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10. Which of the following statements is/are correct for chromyl chloride test ?

A. Formation of chromyl chloride vapour

B. Liberation of chlorine gas

C. Formation of lead chromate

D. Formation of reddis-brown vapour

Answer: A::C::D

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11. Which of the following statements are incorrect ?

A. In thiourea test for nitrite, a green coloured solution is obtained.

B. It is not necessary to carried out the chromyl chloride test in a dry test tube.

C. Suspension of $CdCO_3$ gives black precipitate with Na_2S solution.

D. In $PbNO_3$, the brown ring test can be performed with its water extract.

Answer: A::B::C::D

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12. Conc. H_2SO_4 will not give any gas with :

A. $ZnSO_4$

B. $Ba_3(PO_4)_2$

C. $Mg_3(BO_2)_2$

D. $NaNO_3$

Answer: A::B::C

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13. Why does only the organic layer assure colour and not the aqueous layer when the tests for halides are done ?

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14. What will happen when free bromine, iodine and chlorine separately react with a yellow dye stuff, fluorescein ?

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Exercise 1

1. What is importance of dry tests and it is applicable to which kind of substances ?

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2. Give the observation when each of the following is heated in a dry test tube. Also give balanced equations :

(a) $HgCO_3$ $(b) NH_4NO_2$

(c) $(NH_4Cl + NaNO_3)\text{mixture}$ $(d) Pb(NO_3)_2$

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3. Why compounds shows colours in flame test ?

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4. Is intensity of colour in flame test, depends upon the concentration of metal present ?

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5. Why is a green flame not obtained in the case of barium sulphate or barium phosphate ?

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6. colourless salt $(A) \xrightarrow[740^\circ C]{\Delta} (B) + (C) \xrightarrow{Cu^{2+}, \Delta}$ blue coloured bead (D) Identify the compound (A),(B),(C) and (D).

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7. Why is sodium carbonate extract acidified before performing the confirmatory test for anions ?

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8. Can sodium carbonate extract be used test for CO_3^{2-} ions ?

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9. What will happen if a solution of $Ca(HCO_3)_2$, formed by passing the carbon dioxide through a milky solution of $CaCO_3$ for a longer time if, ammonia solution is added ?

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10. What will happen if bromine water is added in a white precipitate of $BaSO_3$?

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11. Salt (A) + lime water $\rightarrow$ white precipitate $\downarrow$

white precipitate + prolong passage of gas (B) $\rightarrow$ it forms soluble salt (C), gas (B) has burning sulphur smell Identify the anion of salt (A) and (C).

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12. What will happen ? (Also write the chemical equations).

(a) When a filter paper moistened with potassium iodate and starch solution is brought in contact with sulphur dioxide gas.

(b) When H_2S gas is made to react with sodium tetrahydroxidoplumbate (II) solution.

(c) When sulphite reacts with dilute H_2SO_4 in presence of zinc

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13. A nitrite solution is added to a saturated solution of iron (II) acidified with dilute acetic acid or with dilute sulphuric acid. If any reactions occurs then write the name and chemical composition of the products formed. Also write the chemical equations involved.

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14. Why is it necessary to test for the acid radicals first with dil. H_2SO_4 and then with conc. H_2SO_4 ?

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15. Why chromyl chloride test is carried out in a dry test tube ?

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16. Why bromides and iodides do not respond to chromyl chloride test ?

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17. NaCl on heating with conc. H_2SO_4 gives HCl where as NaBr and NaI give Br_2 and I_2 respetively, why ?

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18. Dilute Hydrochloric acid contains chloride ions but it doesnot give positive chromyl chloride test, why ?

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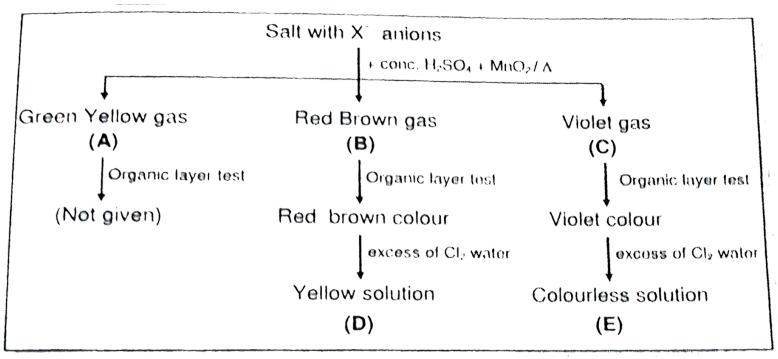
19.



Identify the gas A, B and C.

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20. Why heavy metal chlorides such as Hg_2Cl_2, $AgCl$, $PbCl_2$ etc. do not respond to chromyl chloride test.

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21. Why is a freshly prepared solution of $FeSO_4$ used for the detection of nitrate and nitrite ?

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22. Cu^{2+} and Ba^{2+} interfere in the flame test for borate, why ?

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23. In which of the following reagents, the white precipitate fo $PbSO_4$ is solutble ?

dilute HCl, hot concentrated H_2SO_4, ammonium acetate (6M), ammonium tartrate 6M in the presence of ammonia, sodium hydroxide solution.

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24. How will you distinguish between sulphite and sulphate ions ?

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25. When a metal sulphate is heated in dry test tube, the colour changes from blue to white. Then metal sulphate may be :

A. $BaSO_4$

B. $CuSO_4.5H_2O$

C. Na_2SO_4

D. None of these

Answer: B

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26. Which of the following can not evolve more than one gas (vapour) if heated in dry test tube.

A. $naNO_3(s)$

B. $MgCO_3(s)$

C. $FeSO_4(s)$

D. $(NH_4)_2Cr_2O_7(s)$

Answer: B

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27. On heating, a white amorphous inorganic compound becomes yellow and on cooling, turns white again. The salt may be

A. $PbCO_3$

B. $MgCO_3$

C. $ZnCO_3$

D. K_2CO_3

Answer: C

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28. Which of the following metal carbonates liberate. $CO_2(g)$ on heating :

A. Na_2CO_3

B. K_2CO_3

C. Rb_2CO_3

D. Ag_2CO_3

Answer: D

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29. In which of the following reactions a brown coloured gas is evolved ?

A. $KBr(s) + \quad \text{dil.} H_2SO_4 \rightarrow$

B. $NH_4NO_2 \xrightarrow{\Delta}$

C. $NaNO_3 \xrightarrow[800^\circ C]{\Delta}$

D. $AgNO_3(s) + conc.\ H_2SO_4 \rightarrow$

Answer: D

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30. Why is concentrated HCl used to dissovle the given metal salt in the flame test ?

A. strong acids produce better flame test.

B. HCl is volatile

C. Volatile metal chloride produce better flame test.

D. sharper coloured are seen in the flame in presence of Cl^- ions.

Answer: C

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31. The hottest part of the flame of a Bunsen burner is the

A. Blue Zone

B. Zone of complete combustion

C. Zone fo partial combustion

D. All parts of the flame are equally hot.

Answer: B

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32. Metal (M) shows crimson red colour in flame test and its halide is deliquescent then metal (M) could be :

A. Li

B. Mg

C. Ca

D. Ba

Answer: A

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33. In Borax bead test, metal oxides react with B_2O_3 and form a coloured bead. This bead contains

A. orthoborate ion

B. metaborate ion

C. double oxide

D. tetraborate ion

Answer: B

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34. Which does not give borax bead test?

A. Cr^{3+}

B. Cu^{2+}

C. Mn^{2+}

D. Zn^{2+}

Answer: D

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35. 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

Answer: C

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36. A salt gives white residue in charcoal cavity test but in cobalt nitrate test it gives pink mass. It represents :

A. Zn^{+2}

B. Al^{+3}

C. Mg^{+2}

D. PO_4^{-3}

Answer: C

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37. Which of the following anions are identified by dil. HCl :

A. NO_2^- , NO_3^- , CO_3^{2-}

B. NO_2^- , NO_3^- , SO_3^{2-}

C. S^{2-} , SO_3^{2-} , NO_2^-

D. CH_3COO^- , I^- , CO_3^{2-}

Answer: C

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38. Two inorganic compounds A and B were heated in a dry test tube. A evolved a colourless gas which turned lead acetate paper black and B evolved a gas which turned lime water milky. The anions in A and B respectively are :

A. SO_3^{2-}, CO_3^{2-}

B. S^{2-}, CO_3^{2-}

C. PO_4^{3-}, HSO_3^-

D. S^{2-}, NO_3^-

Answer: B

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39. If addition of conc. H_2SO_4 is made to an unknown salt, a colourless and odouriess gas is produced then which of the following can be present ?

A. CO_3^{2-}

B. S^{2-}

C. Cl^-

D. NO_3^-

Answer: A

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40. A gas turns lime water milky and acidified $K_2Cr_2O_7$ solution green then gas is :

A. HCl

B. H_2S

C. SO_2

D. CO_2

Answer: C

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41. A gas has smell like rotten egg and turns lead acetate paper black. The gas is :

A. NO_2

B. H_2S

C. CO_2

D. SO_2

Answer: B

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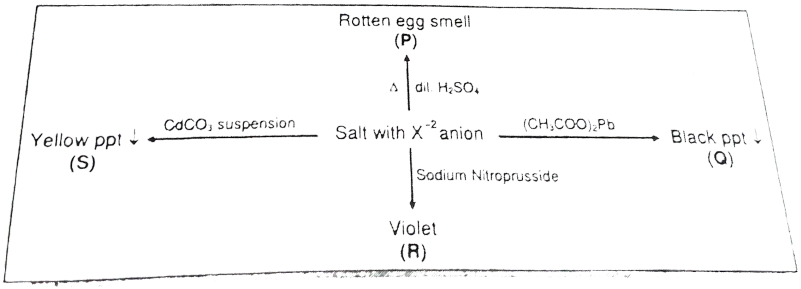
42.



Anion $\left(X^{2-}\right)$ is :

A. CO_3^{2-}

B. SO_3^{2-}

C. S^{2-}

D. $S_2O_3^{2-}$

Answer: C

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43. The acidic solution of a salt produced a deep blue colour with starch iodine solution. The salt may be

A. Suphite

B. Bromide

C. Nitrite

D. Chloride

Answer: C

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44. Sulphide ion reacts with $\left[Fe(CN)_5NO\right]$ to form a purple coloured compound (X). In this reaction oxidation state of iron .

A. changes from +2 to +3

B. changes from +3 to +2

C. changes from +2 to +4

D. does not change.

Answer: D

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45. Which of the following pair of anions are identified by conc. H_2SO_4.

A. NO_3^-, CO_3^{2-}

B. Cl^-, NO_3^-

C. Br^-, CO_3^{2-}

D. CO_3^{2-}, CH_3COO^-

Answer: B

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46. Which of the following anion behaves in a different manner than other on heating with conc. H_2SO_4 ?

A. Cl^-

B. I^-

C. Br^-

D. All behave in a similar manner

Answer: A

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47. Which of the following reagents turns white precipitate of AgCl yellow ?

A. $NaNO_3$

B. Na_3AsO_3

C. Na_3AsO_4

D. NaCN

Answer: B

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48. A Unknown salt (S) when heated with dil H_2SO_4 does not evolve brown vapours but with conc. H_2SO_4 brown vapours are obtained. The vapours when brought in contact with $AgNO_3$ solution do not give any precipitate. The salt (S) contains.

A. NO_2^-

B. NO_3^-

C. I^-

D. Br^-

Answer: B

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49. 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

Answer: B

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50. AgCl dissolves in ammonia solution giving

A. Ag^+, NH_4^+ andCl^-

B. $[Ag(NH_3)]^+$ andCl^-

C. $[Ag_2(NH_3)]^{2+}$ andCl^-

D. $\left[Ag(NH_3)_2\right]^+$ andCl^-

Answer: D

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51. A mixture upon along adding conc. H_2SO_4 gives deep red fumes. It may contain the anions pair :

A. $Cr_2O_7^{2-}$ and Cl^-

B. Br^- and $Cr_2O_7^{2-}$

C. NO_3^- and Cl^-

D. CrO_4^{2-} and NO_3^{2-}

Answer:

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52. The acidic solution of a salt produced a deep blue colour with starch iodine solution. The salt may be

A. chloride

B. carbonate

C. acetate

D. bromide

Answer: A

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53. A colouless solution of a compound gives a precipitate with $AgNO_3$ solution but no precipitate with a solution of Na_2CO_3. The action of concentrated H_2SO_4 on the compound liberates a suffocating reddish brown gas.

The compound is :

A. $Ba(CH_3COO)_2$

B. $CaCl_2$

C. Nal

D. $NaBr$

Answer: D

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54. Which of the following gas turn starch iodide paper blue ?

A. CO_2

B. SO_2

C. NO_2

D. H_2S

Answer: D

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55. 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. $FeSO_4.NO_2$

Answer: C

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56. When a mixture containing phosphate is heated with conc. HNO_3 and ammonium molybdated solution, a canary yellow precipitate is formed . The formula of the yellow precipitate is

A. $(NH_4)_3PO_4$

B. $(NH_4)_3PO_4.12MoO_4$

C. $(NH_4)_3PO_4.12MoO_3$

D. $(NH_4)_3PO_4.(NH_4)_2MO_4$

Answer: B

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57. A metal salt solution gives a yellow precipitate with silver nitrate. The precipitate dissolves in dilute nitric acid as well as in ammonium hydroxide. The solution contains

A. Br^-

B. I^-

C. PO_4^{3-}

D. SO_4^{2-}

Answer: C

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58. Match the anions with the changes observed on qualitative analysis :

	Column-I		Column-II
(A)	SO_4^{2-}	(p)	Canary yellow ppt. with ammonium molybdate.
(B)	NO_3^-	(q)	Brown ring test.
(C)	NO_2^-	(r)	White ppt. with $BaCl_2$ solution.
(D)	PO_4^{3-}	(s)	Yellow ppt. with $AgNO_3$ solution.
		(t)	White ppt. with $AgNO_3$ solution.

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59. Match the reagent which are used in qualitative analysis of given anions :

	Column-I		Column-II
(A)	$AgNO_3$ solution	(p)	CO_3^{2-}
(B)	$BaCl_2$ solution	(q)	Cl^-
(C)	$Pb(NO_3)_2$ solution	(r)	S^{2-}
(D)	Acidified $KMnO_4$ solution	(s)	NO_2^-

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Exercise 2

1. 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

Answer: C

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2. A fire work gave green light. It probably contained a salt of

A. Ca

B. Sr

C. Ba

D. Mg

Answer: B

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3. Alkali metal salt "X" gives a pale violet colour in flame test "X" is :

A. NaCl

B. LiCl

C. KCl

D. None of these

Answer: C

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4. Borax bead is responded generally by :

A. Alkali metal salt

B. Alkaline earth metals

C. p-block metal salt

D. d-block metal salt

Answer: D

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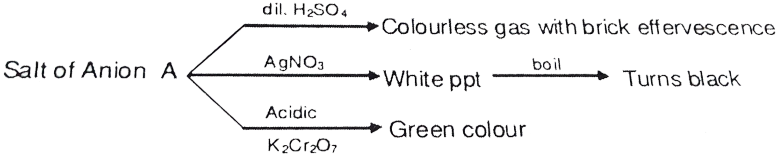
5. 

Shape of anion A will be :

A. Tetrahedral

B. Trigonal planer

C. Trigonal pyramidal

D. Linear

Answer: C

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6. Which of the following anions are producing same gas on treatment with $(Zn + \text{ dil.}H_2SO_4)$.

$I: SO_3^{2-}$ $II: HSO_3^-$ $III: S^{2-}$ $IV: Cl^-$

A. I and II only

B. I, II and III only

C. I, II, III and IV

D. I, III and IV only

Answer: B

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7. Consider the following reaction, Nitrite + Acetic acid + Thiourea $\rightarrow Na_2 \uparrow + HSCN + 2H_2O$. Formation of the product in the above reaction can be identified by :

A. $FeCl_3$ / dilute HCl, when blood red colour appears.

B. $FeCl_3$ / dilute HCl, when blue colour appears.

C. $K_2Cr_2O_7 / HCl$, when green colour appears.

D. $KMnO_4 / HCl$, when colourless solution is formed.

Answer: A

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8. 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_3^{2-}

D. S^{2-}

Answer: B

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9. A salt solution of Cd^{2+} in dilute HCl, on treatment with a solution of $BaCl_2$ gives a white precipitate, which is insoluble in concentrated HNO_3. Anion in the salt may be :

A. SO_4^{2-}

B. CO_3^{2-}

C. NO_2^-

D. S^{2-}

Answer: A

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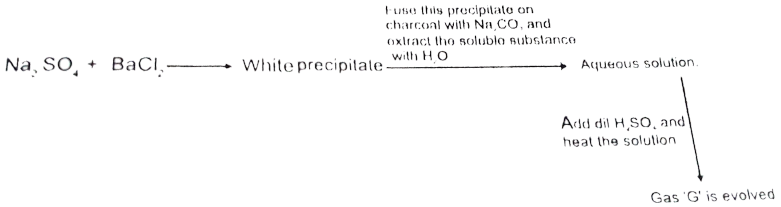

10.

The gas 'G' will show which of the following property ?

A. It turns lead acetate filter paper black.

B. It turns acidified $K_2Cr_2O_7$ filter paper green.

C. It produces purple colouration on filter paper moistened with sodium nitroprusside already made alkaline with sodium hydroxide.

D. All of these

Answer: D

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11. 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. $(C_2H_5)_3BO_3$

Answer: D

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12. How many compounds liberate NH_3 on heating from the following ?

(i) $(NH_4)_2SO_4$ $(ii)(NH_4)_2CO_3$ $(iii)NH_4Cl$

(iv) NH_4NO_3 $(v)(NH_4)_2Cr_2O_7$

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13. How many of following metals impart a characteristic colour to the Bunsen flame ?

$(i)Na$ $(ii)Li$ $(iii)K$ $(iv)Ba$

$(v)Sr$ $(vi)Mg$ $(vii)Rb$ $(viii)Cs$

(ix) Be $(x)Ca$ $(xi)Cu$

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14. Number of ions which are identified by dil. HCl from the following.

$(i) SO_4^{2-}$ $(ii) CO_3^{2-}$ $(iii) SO_3^{2-}$ $(iv) HCO_3^-$

(v) SO_3^{2-} $(vi) NO_3^-$ $(vii) CH_3COO^-$ $(viii) PO_4^{3-}$

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15. Find the total number of acidic radical which produce volatile product with dil HCl :

$(i) SO_4^{2-}$ $(ii) I^-$ $(iii) NO_2^-$ $(iv) NO_3^-$

(v) SO_3^{2-} $(vi) HCO_3^-$

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16. $Na_2S + Na_2[Fe(CN)_5NO] \rightarrow$ X (Violet colour)

The total number of possible isomers for complex " X" is , provided the ambident behaviour of CN^- is not considered.

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17. $Fe^{2+} + NO_3^- + H_2SO_4(\text{conc.}) \rightarrow \text{X}$ (Brown ring complex)

The magnetic moment of complex 'X' to its nearest integer is :

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18. How many anions evolve brownish gas when treated with dil. /con. HCl ?

$(i) CO_3^{2-}$ $(ii) SO_3^{2-}$ $(iii) NO_2^-$ $(iv) Cl^-$

$(v) Br^-$ $(vi) NO_3^-$ $(vii) CH_3COO^-$

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19. $Na_2CO_3, NaCl, NaNO_2, Na_2SO_3, NaBr, CH_3COONa$ are separately treated with $AgNO_3$ solution. In how many cases white precipitate is/are obtained.

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20. $B_3^{3-} + Conc.\ H_2SO_4 + CH_3 - CH_2 - OH \xrightarrow{ignite} (A)$

What is the oxidation number of central atom that is responsible for green flame in compound (A)?

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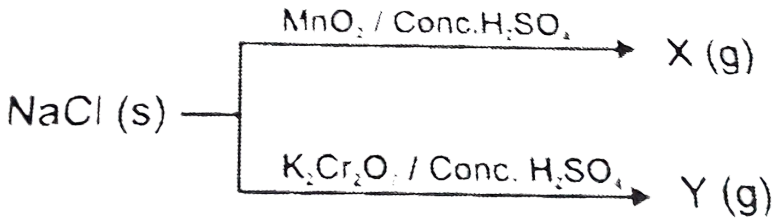
21.



a=difference in the oxidation number of Cl in the product X and product Y, respectively

b= total number of atom in X and Y

c=total number of lone pair in X

then calculate a+b+c = ?

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22. Which of the following salt liberates a colourless gas on acidification with dil. H_2SO_4 ?

A. KNO_2

B. Na_2CO_3

C. $NaNO_2$

D. $NaHCO_3$

Answer: B::D

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23. Which of the following salts release reddish brown gas when heated in a dry test tube ?

A. $LiNO_3$

B. KNO_3

C. $Pb(NO_3)_2$

D. $AgNO_3$

Answer: A::C::D

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24. Which of the following can decompose on heating to give CO_2 ?

A. Li_2CO_3

B. Na_2CO_3

C. $KHCO_3$

D. $BaCO_3$

Answer: A::C::D

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25. Metals which do not give flame test ?

A. Be

B. Li

C. Mg

D. Ba

Answer: A::C

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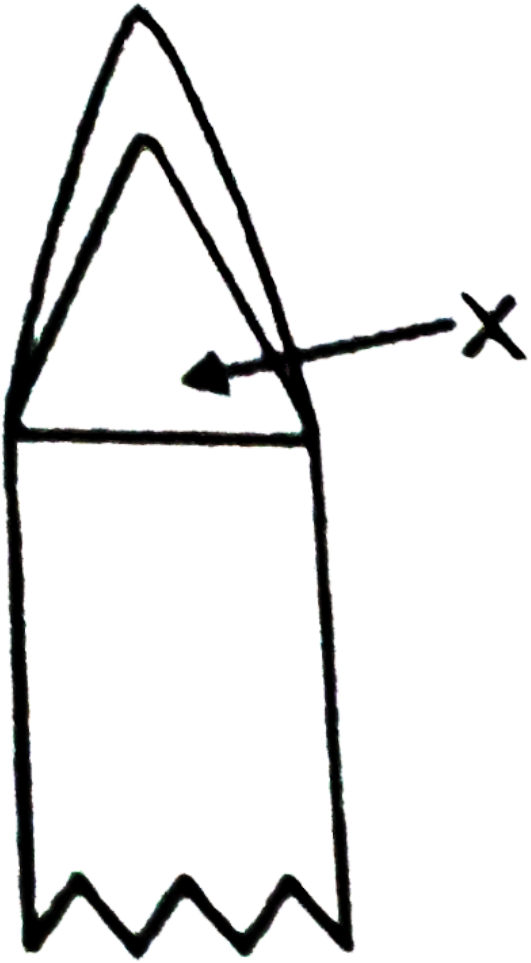
26. In the following diagram bunsen flame the (X) represent.



A. Oxidising zone

B. Reducing zone

C. Lower temperature zone

D. Hottest portion of flame

Answer: B::C

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27. Metal salts, which respond to Borax bead test ?

A. Nickel salts

B. Copper salts

C. Cobalt salts

D. Aluminium salts

Answer: A::B::C

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28. Which of the following gases turn lime water milky when passed throught it.

A. SO_2

B. CO_2

C. HCl

D. H_2S

Answer: A::B

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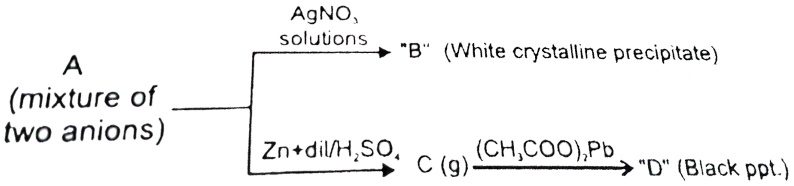
29.



Then A may have :

A. CO_3^{2-}, Br^-

B. Br^-, S^{2-}

C. CH_3COO^-, S^{2-}

D. CH_3COO^-, SO_3^{2-}

Answer: D

View Text Solution

30. S^{2-} and SO_3^{2-} can be distinguished by :

A. $(CH_3COO)_2Pb$

B. $Cr_2O_7^{2-}/H^+$

C. $Na_2\left[Fe(CN)_5NO\right]$

D. $Zn +$ dil. H_2SO_4 followed by $(CH_3COO)_2Pb$

Answer: A::B::C

View Text Solution

31. Which statements is/are correct about sodium nitroprusside test ?

A. This test is used for detection of SO^{2-} anion .

B. H_2S also gives positive test.

C. Formation of $Na_2\left[Fe(H_2O)_5NOS\right]$ complex the presence of S^{2-} anion.

D. Iron has $+2$ oxidation state in sodiumthionitroprusside complex.

Answer: A::D

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32. Which statement(s) is /are correct about Brown ring test ?

A. This test is given by NO_2^- , NO_3^- anions.

B. Brown ring test depend upon the reduction of NO_2^- andNo_3^- to Nitric oxide.

C. Brown ring is formed due to formation of

$$\left[Fe(H_2O)_5NO\right]_2(SO_4 - (3)$$

D. Charge on NO in brown ring complex is $+1$.

Answer: A::B::D

View Text Solution

33. Which of the following metal chlordie will give chromyl chloride test ?

A. NaCl

B. KCl

C. AgCl

D. $SbCl_3$

Answer: A::B

View Text Solution

34. Which of the following will be completely or partially dissolved in NH_4OH ?

A. AgCl

B. AgBr

C. AgI

D. $BaSO_4$

Answer: A::B::C

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35. Reddis-brown gas is obtained when the following are treated with conc. H_2SO_4 ?

A. Br^-

B. NO_2^-

C. NO_3^-

D. SO_3^{2-}

Answer: A::B::C

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36. Each of these are added to a mixture of aqueous solutions of iodide and $CHCl_3$ separately. Which will give a positive test for iodine when the solution are vigorously mixed ?

A. NaCl solution

B. NaBr solution

C. Chlorine water

D. Bromine water

Answer: C::D

View Text Solution

37.

$$\underset{\text{(mixture of two anions)}}{A} \xrightarrow[\text{excess of } BaCl_2]{\text{Cold}} \text{white ppt.} \xrightarrow{\text{filtered}} (\text{Filtrate}) \xrightarrow{\text{boil}} \text{White ppt}$$

Anion of (A) could be :

A. SO_3^{2-}, HSO_3^-

B. CO_3^{2-}, SO_3^{2-}

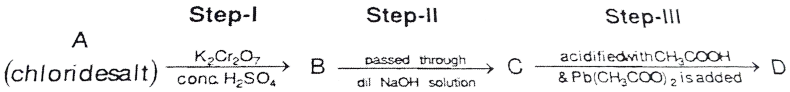
C. SO_3^{2-}, HCO_3^-

D. None of these

Answer: A::C

View Text Solution

38.



'A' can be

A. $PbCl_2$

B. $SbCl_3$

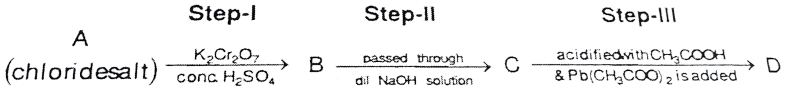
C. $SnCl_2$

D. $RbCl$

Answer: D

View Text Solution

39.



In step-III if $Pb(CH_3COO)_2$ is added without acidifying the solution with CH_3COOH then possibel product may be :

A. $PbCrO_4$

B. $Na_2Cr_2O_7$

C. Na_2CrO_4

D. Na_2PbO_2

Answer: A::D

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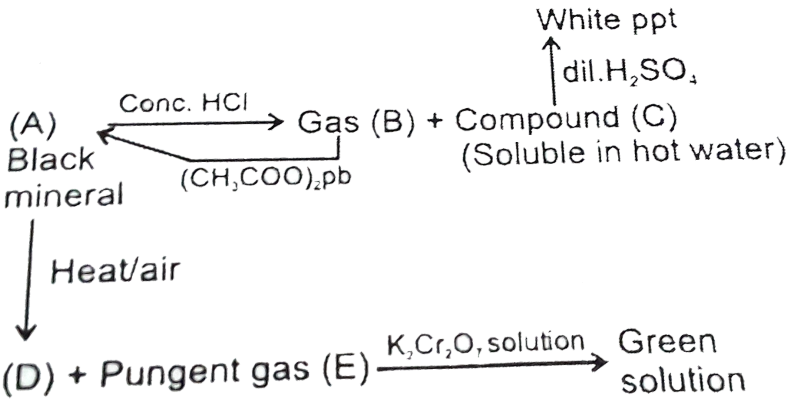
40.



Gas (B) on passing through cadmium acetate solution will give :

A. Black ppt

B. Yellow ppt

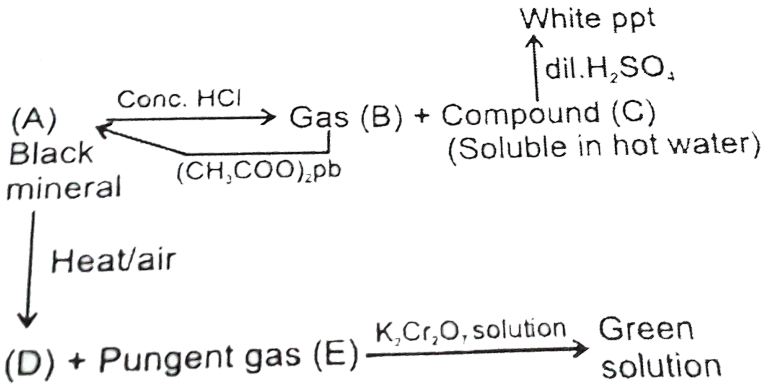
C. Orange ppt

D. White ppt

Answer: B

View Text Solution

41.



Gas (B) and (E) are respectively :

A. H_2S, NH_3

B. H_2S, SO_2

C. SO_2, H_2S

D. H_2S, CO_2

Answer: B

View Text Solution

42. In the following three tables, information regarding Qualitative analysis of anions is given

Column-1		Column-2		Column-3	
(I)	SO_3^{2-}	(i)	Reaction with $AgNO_3$	(P)	Precipitate is obtained
(II)	Cl^-	(ii)	Pungent smelling product with conc. H_2SO_4	(Q)	Product is coloured gas.
(III)	NO_2^-	(iii)	Form X_2 with $K_2Cr_2O_7$(s) + conc. H_2SO_4	(R)	Product formed is soluble in excess NH_3.
(IV)	Br^-	(iv)	Reaction with $Pb(NO_3)_2$(aq)	(S)	Product gives blue colour with starch iodide solution.

Select the only correct option.

A. (I) (i) (P)

B. (II) (ii) (Q)

C. (I) (ii) (S)

D. (II) (iii) (Q)

Answer: A

View Text Solution

43. In the following three tables, information regarding Qualitative analysis of anions is given

Column-1		Column-2		Column-3	
(I)	SO_3^{2-}	(i)	Reaction with $AgNO_3$	(P)	Precipitate is obtained
(II)	Cl^-	(ii)	Pungent smelling product with conc. H_2SO_4	(Q)	Product is coloured gas.
(III)	NO_2^-	(iii)	Form X_2 with $K_2Cr_2O_7$(s) + conc. H_2SO_4	(R)	Product formed is soluble in excess NH_3.
(IV)	Br^-	(iv)	Reaction with $Pb(NO_3)_2$(aq)	(S)	Product gives blue colour with starch iodide solution.

Select the only incorrect option.

A. (III) (i) (P)

B. (I) (ii) (Q)

C. (IV) (i) (R)

D. (IV) (ii) (Q)

Answer: B

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44. In the following three tables, information regarding Qualitative analysis of anions is given.

Column-1		Column-2		Column-3
(I)	SO_3^{2-}	(i)	Reaction with $AgNO_3$	(P) Precipitate is obtained
(II)	Cl^-	(ii)	Pungent smelling product with conc. H_2SO_4	(Q) Product is coloured gas.
(III)	NO_2^-	(iii)	Form X_2 with $K_2Cr_2O_7(s)$ + conc. H_2SO_4	(R) Product formed is soluble in excess NH_3.
(IV)	Br^-	(iv)	Reaction with $Pb(NO_3)_2(aq)$	(S) Product gives blue colour with starch iodide solution.

Select the only incorrect option.

A. (III) (ii) (Q)

B. (IV) (ii) (S)

C. (II) (iv) (P)

D. (II) (ii) (S)

Answer: D

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Exercise 3

1. The acidic aqueous solution of ferrous ion forms a brown complex in the presence of NO_3^{Θ} by the follwing two steps:

$$\left[Fe(H_2O)_6\right]^{2+} + NO_3^{\Theta} + H^{\oplus} \rightarrow \ldots + \left[Fe(H_2O)_6\right]^{3+} + H_2O$$

$$\left[Fe(H_2O)_6\right]^{2+} + \ldots \rightarrow \ldots + H_2O$$

Complete and balance the equations .

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2. In nitroprusside ion the iron and NO exist as Fe (II) and NO^+ rather than the Fe(III) and NO. these forms can be differentiated by

A. estimating the concentration of Iron.

B. measuring the concetration of CN.

C. measuring the solid state magnetic moment.

D. thermally decomposing the compound.

Answer: C

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3. Statement I Sulphate is extimated as $BaSO_4$, not as $MgSO_4$.

Statement II Ionic radius of Mg^{2+} is smaller than that of Ba^{2+}.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are but Reason is not correct explanation of Assertion.

C. Assertion is true but Reason is false.

D. Assertion is false but Reason is true.

Answer: B

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4. A gas X is passed through water to form a saturated solution. The aqueous solution on treatment with silver nitrate gives a white precipitate. The saturated aqueous solution also dissolves magnesium ribbon with evolution of a colourless gas Y. Identify X and Y.

A. $X = CO_2, Y = Cl_2$

B. $X = Cl_2, Y = CO_2$

C. $X = Cl_2, Y = H_2$

D. $X = H_2, Y = Cl_2$

Answer: C

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5. $[X] + H_2SO_4 \rightarrow [Y]$ a colourless gas with irritating smell $[Y] + K_2Cr_2O_7 + H_2SO_4 \rightarrow$ green solution $[X]$ and $[Y]$ are

A. SO_3^{2-}, SO_2

B. Cl^-, HCl

C. S^{2-}, H_2S

D. CO_3^{2-}, CO_2

Answer: A

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6. A sodium salt on treatment with $MgCl_2$ gives white precipitate only on heating. The anion of the sodium salt is

A. HCO_3^-

B. CO_3^{2-}

C. NO_3^-

D. SO_4^{2-}

Answer: A

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7. The species present in solution when CO_2 is dissolved in water is/are:

A. $CO_2, H_2CO_3, HCO_3^-, CO_3^{2-}$

B. HCO_3^-, CO_3^{2-}

C. CO_3^{2-}, HCO_3^-

D. CO_2, H_2CO_3

Answer: A

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8. The reagment (s) that can selectively precipitate S^{2-} from a mixture of S^{2-} and SO_4^{2-} in aqueous solution is (are)

A. $CuCl_2$

B. $BaCl_2$

C. $Pb(OOCCH_3)_2$

D. $Na_2\left[Fe(CN)_5NO\right]$

Answer: A::C

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9. Sodium extract is heated with concentrated HNO_3 before testing for halogens because :

A. Ag reacts faster with halides in acidic medium.

B. Silver halides are totally insoluble in nitric acid.

C. Ag_2S and AgCN are soluble in acidic medium.

D. $S(2-)$ and CN^-, if present, are decomposed by conc. HNO_3 and hence do not interfere in the test.

Answer: D

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10. 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 aforementioned solution, a white precipitate is obtained which does not dissolved in dil. nitric acid. The anion is :

A. CO_3^{2-}

B. SO_4^{2-}

C. S^{2-}

D. Cl^-

Answer: D

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Additional Problems For Self Practice Apsp

1. When a salt is heated with dilute H_2SO_4 and $KMnO_4$ solution, the pink colour of $KMnO_4$ is discharged, the salt is :

A. a sulphite

B. a carbonate

C. a nitrate

D. a bicarbonate

Answer: A

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2. Solution of a salt in dilute H_2SO_4 or acetic and produces deep blue colour with starch iodide solution. The salt contains :

A. Br^-

B. I^-

C. Cl^-

D. NO_2^-

Answer: D

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3. A test tube containing a nitrate and another containing a bromide and MnO_2 are treated with concentrated H_2SO_4. The reddish brown fumes evolved are passed through water. The water will be coloured by :

A. the nitrate

B. the bromide

C. both

D. none of the two

Answer: B

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

A. N_2O

B. NO

C. N_2O_5

D. N_2O_4

Answer: B

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5. Colourless salt (A) + dil. H_2SO_4 or$CH_3COOH + KI \rightarrow$ blue colour with starch. (A) can be

A. K_2SO_3

B. Na_2CO_3

C. NH_4NO_2

D. NH_4Cl

Answer: C

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6. There are four test tubes containing dilute $HCl, BaCl_2, HgCl_2$ andKNO_3 solutions. Which of the following reagents will help in the identification of $BaCl_2$?

A. $NaOH$

B. K_2CrO_4

C. $AgNO_3$

D. both (2) and (3)

Answer: B

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7. Which one of the following ions does not give borax bead test :

A. Cr^{3+}

B. Cu^{2+}

C. Mn^{2+}

D. Zn^{2+}

Answer: D

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8. A brick red colour is imparted Bunsen flame by a :

A. Ca salt

B. Sr salt

C. Na salt

D. Co salt

Answer: A

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9. Which one of the following metal salts produces a blue coloured bead in cobalt nitrate charcoal cavity test ?

A. Zn^{2+}

B. Mg^{2+}

C. Sn^{2+}

D. Al^{3+}

Answer: D

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10. $BaCl_2$ solution gives a white precipitate with a solution of a salt, which dissolves in dilute hydrochloric acid with the evolution of colourless, pungent smelling gas. The gas as well as the salt both are used as bleaching agent in the textile industries. The salt contains :

A. sulphite

B. sulphide

C. acetate

D. carbonate

Answer: A

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11. Pink colour of acidified $KMnO_4$ is decolourised but there is no evolution of any gas. This may happen with the compound containing the following acid radical.

A. SO_3^{2-}

B. NO_2^-

C. S^{2-}

D. All of these

Answer: D

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12. When Kl is added to acidified solution fo sodium nitrite,

A. NO gas is liberated and I_2 is set free

B. N_2 gas is liberated and HI is produced

C. N_2O gas is liberated and I_2 is set free

D. N_2 gas is liberated and HOI is produced

Answer: A

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13. Zinc pieces are added to acidified solution of SO_3^{2-}. Gas liberated can :

A. turn lead acetate paper black

B. turn lime water milky

C. give white precipitate with $AgNO_3$ solution

D. None of these

Answer: A

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14. A substance on treatment with dilute 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^-

Answer: C

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15. Ammonium molybdate test is used for the estimation of :

A. PO_4^{3-}

B. NO_3^-

C. SO_3^{2-}

D. SO_4^{2-}

Answer: A

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16. A colourless gas is dissolved in water and the resulting solution turns red litmus blue, the gas may have been which one of the following ?

A. HCl

B. H_2S

C. SO_2

D. NH_3

Answer: D

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17. When Ag reacts with conc. HCl, then products will be :

A. $AgCl, Cl_2$

B. $AgCl, H_2$

C. $AgCl, H_2, Cl_2$

D. None of these

Answer: D

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18. Which of the following salt will evolve sulphur dioxide gas along with formation of yellowish turbidity when treated with dilute H_2SO_4 ?

A. Sodium sulphide

B. Sodium sulphite

C. Sodium thiosuphate

D. Sodium sulphate

Answer: C

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19. Aqueous solution of a salt $+MgSO_4$ solution $\rightarrow$ no precipitate in cold $\xrightarrow{\text{Heating}}$ White precipitate appears. The salt contains the acidic radical :

A. CO_3^{2-}

B. HCO_3^-

C. SO_3^{2-}

D. $C_2O_4^{2-}$

Answer: B

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20. In the test for iodine, I_2 is treated with sodium thiosulphate $(Na_2S_2O_3)$:

$Na_2S_2O_3 + I_2 \rightarrow NaI + . .$

A. $Na_2S_4O_6$

B. Na_2SO_4

C. Na_2S

D. Na_3ISO_4

Answer: A

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21. With Cr_2O_3, colour of the bead in sodium carbonate bead test is :

A. red

B. blue

C. yellow

D. green

Answer: D

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22. Which metal gives violet colour in oxidising flame when heated with borax ?

A. Fe

B. Pb

C. Co

D. Mn

Answer: D

Watch Video Solution

23. KBr, on reaction with conc. H_2SO_4, gives reddish-brown gas :

A. Bromine

B. Mixture of bromine and HBr

C. HBr

D. NO_2

Answer: A

Watch Video Solution

24. An inorganic salt when heated evolves colured gas which bleaches moist litmus paper. The evolved gas is :

A. NO_2

B. SO_2

C. N_2O

D. I_2

Answer: A

Watch Video Solution

25. Which of the following halide is soluble in water ?

A. AgF

B. $AgCl$

C. $AgBr$

D. AgI

Answer: A

Watch Video Solution

26. Which of the following radical can not be confirmed by using dil. HCl :

A. S^{2-}

B. $S_2O_3^{2-}$

C. NO_3^-

D. None of these

Answer: C

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27. When $K_2Cr_2O_7$ is heated with conc. H_2SO_4 and soluble chloride such as KCl :

A. red vapours of CrO_2Cl_2 are evolved

B. Cl^- ion is oxidized to Cl_2 gas

C. $CrCl_3$ is formed

D. $Cr_2O_7^{2-}$ ion is reduced to green Cr^{3+} ion

Answer: A

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28. A white solid imparts a violet colour to a Bunsen flame. On being heated with concentrated H_2SO_4, the solid gives violet vapours that turn starch paper blue. The salt may be :

A. KI

B. NaI

C. MgI_2

D. $CaBr_2$

Answer: A

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29. NaCl, NaBr, NaI mixture on adding conc. H_2SO_4 gives gases, respectively :

A. HCl, HBr, HI

B. HCl, Br_2, I_2

C. Cl_2, Br_2, I_2

D. None of these

Answer: B

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30. Potassium chromate solution is added to an aqueous solution of a metal chloride. The yellow precipitate thus obtained is insoluble in acetic acid. The precipitate is subjected to flame test, the colour of the flame is :

A. lilac

B. apple green

C. crimson red

D. brick red

Answer: B

Watch Video Solution

Part Ii National Standard Examination In

1. Which of the metal chloride is insoluble in cold water but dissolves in hot water ?

A. $BiCl_3$

B. $SnCl_4$

C. $PbCl_2$

D. $AgCl.$

Answer: C

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2. A colorless salt gives violet colour to Bunsen flame and also turns moisture litmus paper blue. It is :

A. Na_2CO_3

B. KNO_3

C. $NaNO_3$

D. K_2CO_3

Answer: D

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3. The brown compound formed in the ring test for nitrates contains the ion

A. $\left[Fe(H_2O)_5NO\right]^{3+}$

B. $\left[Fe(H_2O)_5NO\right]^{2+}$

C. $\left[Fe(H_2O)_5NO\right]^{4+}$

D. $\left[Fe(H_2O)_5NO\right]$

Answer: B

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4. Sodium nitroprusside $Na_2\left[Fe(CN)_5NO\right]$ is used as a reagent for the detection of

A. sulphur

B. nitrogen

C. bromine

D. iodine.

Answer: A

View Text Solution

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

A. $\left[Fe(H_2O)_6\right]^{2+}$

B. $\left[Fe(CN)_5(NO)\right]^{2-}$

C. $\left[Fe(H_2O)_5NO\right]^{2+}$

D. $\left[Fe(H_2O)(NO)_5\right]^{2+}$

Answer: C

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6. concentrated sulphuric acid on reaction with NaCl, NaBr and Nal produces HCl, bromine and iodine respectively. What order of oxidising ability of halogens with reference to sulphuric acid can be established on the basis of this reaction ?

A. $H_2SO_4 > l_2 > Br_2 > Cl_2$

B. $Cl_2 > H_2SO_4 > Br_2 > l_2$

C. $H_2SO_4 > Cl_2 > Br_2 > l_2$s

D. $Cl_2 > Br_2 > l_2 > H_2SO_4$

Answer: B

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7. Silver nitrate solution when added to a colorless aqueous solution E forms a white precipitate which dissolves in excess of E. If the white precipitate is heated with water it turns black and the supernatant

solution gives a white precipitate with acidified barrum nitrate solution. Therefore, E is :

A. Na_2S

B. $Na_2S_2O_3$

C. Na_2SO_3

D. Na_2SO_4

Answer: B

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8. If a dilute solution of aqueous NH_3 is saturated with H_2S then the product formed is :

A. $(NH_4)_2S$

B. NH_4HS

C. $(NH_4)_2S_x$

D. $NH_4OH + S$

Answer: B

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9. A colourless water-soluble compound on strong heating liberates a brown colored gas and leaves a yellow residue that turns white on cooling. An aqueous solution of the original solid gives a white precipitate with $(NH_4)_2S$. The original solid is :

A. $Zn(NO_3)_2$

B. $Ca(NO_3)_2$

C. $Al(NO_3)_3$

D. $NaNO_3$

Answer: A

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Part Iii High Level Problems Hlp

1. What are the products formed when an aqueous solution of magnesium bicarbonate is boiled ?

A. $MgCO_3, H_2O, CO_2$

B. $Mg(HCO_3)_2, H_2O$

C. $Mg(OH)_2, H_2O$

D. Mg, CO, H_2O

Answer: A

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2. NaX (Sodium salt of particular anion 'X') gives brisk effervescence of Y with dilute HCl. On heating, NaX evolves gas Y which can be completely absorbed in conc. KOH solution and is colorless odourless gas. Hence X and Y respectively are :

A. HSO_3^- , SO_2

B. HS^- &H_2S

C. HCO_3^- , CO_2

D. $HC_2O_4^-$ &$CO_2 + CO$s

Answer: C

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3. White precipitate of AgCl turns to greyish or black when :

A. reacts with Na_3AsO_3

B. exposed to sunlight

C. reacts with K_2CrO_4

D. reacts with concentrated HCl

Answer: B

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4. A mixture is known to contain NO_3^- andNO_2^-. Before performing ring test for NO_3^-, the aqueous solution should be made free of NO_2^-. This is done by heating aqueous extract with :

A. conc. HNO_3

B. dil HNO_3

C. urea

D. zinc dust

Answer: C

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5. Which of the following will not react with each other when heated together ?

A. $BeO + MgO$

B. $Li_2CO_3 + BeO$

C. $MgO + CaCO_3$

D. $MgCO_3 + Al_2O_3$

Answer: C

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6. An aqueous solution of salt containing an acidic radical X^- reacts with sodium hypochlorite in neutral medium. The gas evolved produces blue black colour spot on the starch paper. The anion X^- is :

A. CH_3COO^-

B. Br^-

C. l^-

D. NO_2^- s

Answer: C

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7. Precipitate of $PbSO_4$ is soluble in :

A. ammonium acetate (6M)

B. dilute HCl

C. dilute H_2SO_4

D. none of these

Answer: A

Watch Video Solution

8. Which of the following pair of acidic radical can be distinguished by using dil H_2SO_4 ?

(I) $C_2O_4^{2-}$ and NO_3^- $(II)\ NO_3^-$ and NO_2^-

(III) Cl^- and Br^- $(IV)\ HCO_3^-$ and CO_3^{2-}

A. I and II

B. II only

C. II and IV

D. III and IV

Answer: B

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Match The Column

1. $CuCO_3$ was strongly heated to obtain a residue A and gas B. The residue obtained was treated with a salt of sodium 'X' and oxide Y, which produced a blue colored glassy compound C on heating in oxidising flame. The same combination of x and Y gave a green colored glassy compound D when $Cr_2(SO_4)_3$ was heated with them in oxidizing flame.

Match the following accordingly :

(A)	A	(P)	$Cu(BO_2)_2$
(B)	B	(Q)	Na_2CO_3
(C)	C	(R)	CuO
(D)	X	(S)	CO
		(T)	Cu_2O
		(U)	CO_2
		(V)	$NaBO_2$
		(W)	$Cr(BO_2)_2$

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Single And Double Value Integer Type

1. A metal salt evolves the dark violet fumes of (X) with MnO_2 and this (X) gives the deep blue colouration with starch solution. Then number of lone pair on central atom in (X).

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2. How many of the following will volatilize on heating leaving no solid residue ?

$(i) NaNO_3$ $(ii) NH_4NO_3$ $(iii) Ca(H_2PO_2)$ $(iv) NH_4HCO_3$

(v)

$N_2H_5HSO_3$ $(vi) AlCl_3$ $(vii) \left[Cu(NH_3)_4\right]SO_4$ $(viii) FeSO_4, 7H_2$

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3. $Na_2S + Na_2\left[Fe(CN)_5NO\right] \rightarrow \mathrm{A(Violet\ Color)}$

In Complex "A", number of type of ambidentate ligand is/are "a" and number of d-orbital involved in hybridisation is/are "b" The 7a+8 b will be :

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One Or More Than One Options Correct Type

1. Heating which of the following salts in a dry test tube may cause a change in their colour ?

A. $ZnCO_3$ (white)

B. $Co(NO_3)_2.6H_2O$ (red)

C. $FeSO_4.6H_2O$ (green)

D. $MnSO_4$ (faint pink)

Answer: A::B::C::D

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2. Which of the following cominations will give yellowish precipitate in an aqueous medium ?

A. $AgNO_3 + NaBr$

B. $(CH_3COO)_2Pb + Na_2CrO_4$

C. $AgCl + Na_3AsO_3$

D. $AgNO_3 + NaNO_2$

Answer: A::B

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3. Which of the following produce red coloured flame during flame test ?

A. Li

B. Ca^{2-}

C. Sr^{2-}

D. Ba^{2-}

Answer: A::B::C

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4. When Borax is heated it forms a colourless glassy bead because of formation of :

A. B_2H_6

B. $NaBO_2$

C. B_2O_3

D. $Na_2B_4O_7$

Answer: B::C

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5. Which of the following anion(s) is/are easily removed from aqueous solution by precipitation ?

A. Cl^-

B. SO_4^{2-}

C. NO_3^-

D. CO_3^{2-}

Answer: A::B::D

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6. H_2S and SO_2 can be distinguished by:

A. Litmus paper

B. MnO_4^- / H^+

C. $(CH_3COO)_2Pb$

D. None of these

Answer: A::B::C

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Comprehension

1. When compound (A) is treated with conc. H_2SO_4, a reddish brown colour gas (B) is evolved. To this solution, a solution of (C) is added slowly from the side of the test tube, a blue ring is obtained at the junction of two layers due to formation of (D).

Gas (B) may be :

A. Cl_2

B. Br_2

C. I_2

D. NO_2

Answer: D

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2. When compound (A) is treated with conc. H_2SO_4, a reddish brown colour gas (B) is evolved. To this solution, a solution of (C) is added slowly from the side of the test tube, a blue ring is obtained at the junction of two layers due to formation of (D).

Compound (D) has formula :

A. $C_6H_5NH - C_6H_5$

B. $(C_6H_5)_2N - N(C_6H_5)_2$

C. $C_6H_5 - NH - NH - C_6H_5$

D.

Answer: B

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3. When compound (A) is treated with conc. H_2SO_4, a reddish brown colour gas (B) is evolved. To this solution, a solution of (C) is added slowly from the side of the test tube, a blue ring is obtained at the junction of two layers due to formation of (D).

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Part Iv Practice Test 2

1. An inorganic salt when heated with concentrated H_2SO_4 evolves a colourless pungent smelling gas but with concentrated

H_2SO_4 and MnO_2, evolves a cxoloured pungent smelling gas which bleaches moist litmus paper. The coloured gas is :

A. NO_2

B. Cl_2

C. Br_2

D. l_2

Answer: B

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Part Iv Practice Test 3

1. Chromyl chloride vapours are dissolved in water and acetic acid and barium acetate solution is added, then :

A. the solution will remain colourless.

B. the solution will become dark green.

C. a yellow solution will be obtained.

D. a yellow precipitate will be obtained.

Answer: D

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Part Iv Practice Test 4

1. When CS_2 layer containing both Br_2 and $I_2 (2:1)$ is shaken with excess of chlorine (Cl_2) water, the violet colour due to I_2 disappears and a pale yellow colour appears in the solution. The disappearance of violet colour and appearance of pale yellow colour is due to the formation of :

A. I_3^- and Br_2 respectively.

B. HIO_3 and BrCl respectively.

C. Icl and BrCl respectively.

D. I^- and Br^- respectively.

Answer: B

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Part Iv Practice Test 5

1. A metal salt solution gives a yellow precipitate with silver nitrate. The precipitate dissolves in dilute nitric acid as well as in ammonium hydroxide. The solution contains

A. bromde ions

B. iodide ions

C. phosphate ions

D. chromate ions

Answer: C

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Part Iv Practice Test 6

1. 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. Anilinium chloride $C_6H_5NH_3Cl$.

Answer: B

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Part Iv Practice Test 7

1. 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_3^{2-}

D. S^{2-}

Answer: B

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Part Iv Practice Test 8

1. A one litre flask is full of reddish brown bromine fumes. The intensity of brown colour of vapour will not decrease appreciably on adding to the flask some :

A. pieces of marble

B. animal charcoal powder

C. carbon tetrachloride

D. carbondisulphide

Answer: A

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Part Iv Practice Test 9

1. Which of the following statements is/are incorrect ?

A. A filter paper moistened with cadmium acetate solution turns yellow, when brought in contact with H_2S gas.

B. Both carbonate ions as well as bicarbonate ions in the solutions, give reddish-brown precipitate with mercury (II) chloride.

C. Sulphites in presence of zinc, reacts with dilute H_2SO_4 to liberate SO_3 gas.

D. A filter paper moistened with KIO_3 and starch turns blue in contact with SO_2 vapours.

Answer: B::C

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Part Iv Practice Test 10

1. Which of the following reagents can be used for making the distinction between AgCl and Agl ?

A. Sodium arsenite solution.

B. Dilute ammonia solution.

C. Potassium cyanide solution.

D. Dilute HNO_3

Answer: A::B

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Part Iv Practice Test 11

1. Which of the following statement(s) is/are correct with respect to bromide ions ?

A. KBr on heating with MnO_2 and concentrated H_2SO_4 liberates Br_2 and SO_2 gases.

B. KBr on heating with concentrated H_2SO_4 liberates Br_2 and SO_2 gases.

C. KBr forms HBr with concentrated H_3PO_4.

D. KBr(s) liberates Br_2 on gentle warming with concentrated H_2SO_4 and $K_2Cr_2O_7$(s).

Answer: B::C::D

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Part Iv Practice Test 12

1. Which of the following imparts green/apple green colour to the Bunsen flame ?

A. Calcium chloride

B. Volatile boron trifluoride

C. Barium chloride

D. Ethoxy borate

Answer: B::C::D

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Part Iv Practice Test 13

1. What final product(s) is/are formed in the following series of reactions ?

Concentrated borax solution + silver nitrate solution $\rightarrow$ Precipitate $\xrightarrow[\text{boiling}]{H_2O}$ Produts(final)

A. Ag_3BO_3

B. Ag_2O

C. H_3BO_3

D. $AgBO_2$

Answer: B::C

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Part Iv Practice Test 14

1. How many of following metals give Borax bead test.

Sc, Ti, V, Cr, Mn, Co, Ni, Cu, Zn

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Part Iv Practice Test 15

1. How many of the following salts impart characteristic colours to the Bunsen flame ?

$NaCl, KCl, CuCl_2, BaCl_2, CaCl_2, SrCl_2, ZnCl_2, MgCl_2, AlCl_3$

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Part Iv Practice Test 16

1. How mnay of the following liberate coloured vapour/gas with concentrated H_2SO_4 ?

$KCl(s) + K_2Cr_2O_7(s), KNO_2(s), Kl(s), KBr(s), KCl(s)$

$KBr(s) + MnO_2(s), KNO_3, KCl(s) + MnO_2, K_2SO_3$

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Part Iv Practice Test 17

1. Which of the following statements is/are incorrect

(I) Filter paper moistened with cadmium acetate and lead acetate turn black and yellow respectively, when brought in contact with H_2S gas.

(II) Sulphites in presence of Zinc, reacts with dilute H_2SO_4 to liberate H_2S gas.

(III) Stability of carbonates decrease with increasing metallic character.

(IV) Borax bead test is responded generally by p and d block metal salts.

(V) Sodium chloride on heating with aqueous solution of $K_2Cr_2O_7$ and concentrated H_2SO_4 produced white fumes.

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Part Iv Practice Test 18

1. How many B-O-B bond (s) (per molecule) is/are present in compound which is used in Borax bead test ?

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Part Iv Practice Test 19

1. In brown ring complex, if number of ambidentate is/are "a" and oxidation state of iron is/are "b" then a+b=?

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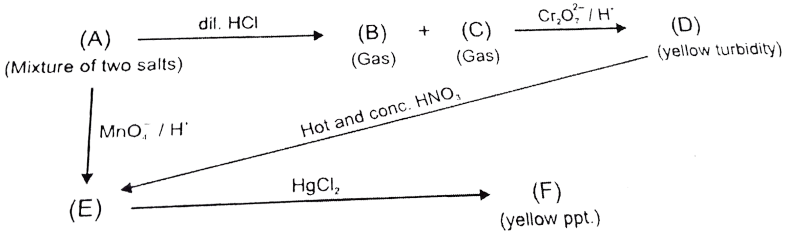
Paragraph For Questions

1.



Find the anion (s) :

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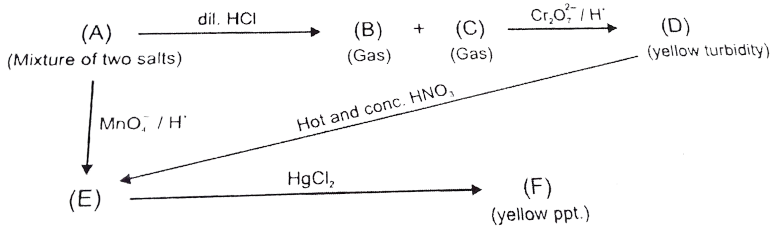
2.



Find out (E) :

A. S^{2-}

B. CO_3^{2-}

C. $S_2O_3^{2-}$

D. SO_4^{2-}

Answer: D

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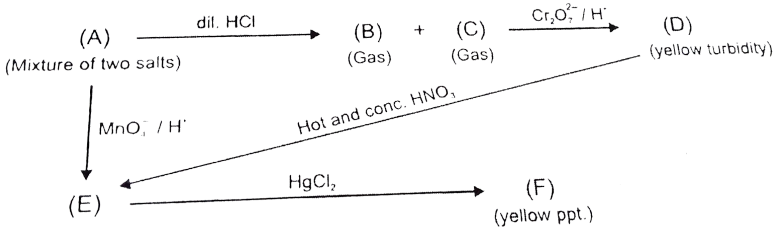
3.



Find out (F) :

A. $HgSO_4.2HgO$

B. $HgSO_4.3HgO$

C. $HgSO_4$

D. $Hg_2SO_4.3HgO$

Answer: A

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Matching List Type

1. Match List-I with List-II and select the correct answer using the codes given below the lists :

	List-I		List-II
P.	White turbidity	1.	$IO_3 + SO_2 + \text{starch} \longrightarrow$
Q.	Rotten egg smell	2.	$SO_2 + MnO_4 \longrightarrow$
R.	Colourless solution	3.	$Zn + NaOH + SO_2 \longrightarrow$
S.	Blue colour	4.	$CO_2 + Ca(OH)_2 \longrightarrow$

A. $\begin{matrix} P & Q & R & S \\ 1 & 3 & 2 & 4 \end{matrix}$

B. $\begin{matrix} P & Q & R & S \\ 3 & 2 & 4 & 1 \end{matrix}$

C. $\begin{matrix} P & Q & R & S \\ 4 & 3 & 2 & 1 \end{matrix}$

D. $\begin{matrix} P & Q & R & S \\ 4 & 1 & 2 & 3 \end{matrix}$

Answer: C

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