CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

ANALYTICAL CHEMISTRY

Worksheet 1

1. Give one word for the following :

The process of fonnation of a solid substance by mixing the solutions of substances

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2. Give one word for the following :

The least soluble alkali

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3. Give one word for the following :

Colour of ferric salts

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4. Give one word for the following :

Dirty green precipitates are formed by

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5. Give one word for the following :

Soluble complex formed when zinc nitrate reacts with sodium hydroxide

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6. Give one word for the following :

A non-metal which evolves hydrogen when treated with hot and conc. caustic soda

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7. Give one word for the following :

A substance which reacts with another substance

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8. Give one word for the following :

. Reagent which for deep blue solution with copper sulphate

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9. Give one word for the following :

A metal whose salts do not produce any precipitates with excess of sodium hydroxide

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10. Give one word for the following :

Colour of potassium permanganate

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11. Complete the solubility chart. First one is done for you.

S.No.	Salt	Precipitate	Reagent Choosen	Solubility
1.	Ferrous sulphate	$Fe(OH)_2$	NaOH	Insoluble
2.	Zinc sulphate	$Zn(OH)_2$		Soluble
3.		$Cu(OH)_2$		Soluble
4.		$Mg(OH)_2$	NaOH	
5.	Lead nitrate			Soluble

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12. A metal 'X' normally used for making calorimeters is heated in abundant supply of air until a black coloured residue ' Y' is obtained. This Y reacts with sulphuric acid to form blue coloured salt 'Z'. When to this solution little of ammonium hydroxide was added, pale blue precipitates of 'A' are obtained. This 'A' dissolves in excess of ammonium hydroxide to form a deep blue solution B. Identify the metal X and write the equations for the formation of various compounds i.e., Y, Z, A and B.

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13. Complete the following equations :

$Si + NaOH + H_2O \rightarrow$

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14. Complete the following equations :

$PbO + NaOH \rightarrow$

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15. Complete the following equations :

$Zn(OH)_2 + Na$

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16. Complete the following equations :

$Al_2O_3 + NaOH \rightarrow$

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17. Fill in the blanks with appropriate words :

Sodium and potassium salts are . . . . in colour.

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18. Fill in the blanks with appropriate words :

Ferrous salts on oxidation form .. .. Salts.

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19. Fill in the blanks with appropriate words :

Potassium permanganate is .... in colour.

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20. Fill in the blanks with appropriate words :

..... react with metal cations to produce coloured insoluble hydroxides.

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21. Fill in the blanks with appropriate words :

..... is the least soluble of the common fluoride alkalies.

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22. Fill in the blanks with appropriate words :

Lead hydroxide is soluble in ..... but insoluble in ..... .

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23. Fill in the blanks with appropriate words :

Pale blue precipitates are formed by .....

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24. Fill in the blanks with appropriate words :

Zinc hydroxide for gelatinous . .. . ppts.

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25. Fill in the blanks with appropriate words :

Complex formed by zinc sulphate and excess of ammonium hydroxide is .....

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26. Fill in the blanks with appropriate words :

Dirty green precipitates are formed by ..... salts

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27. A black solid P dissolves in warm and dilute HCI to form greenish blue solution Q, but does not give off any gas. The solution Q on treating with ammonium hydroxide forms bluish white precipitates of R. The precipitates of R dissolve in excess of ammonium hydroxide. solution to form deep-blue colouration. Identify solid P

and bluish white precipitates of R.

Write equations for

Action of less amount of ammonium hydroxide on Q.

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28. A black solid P dissolves in warm and dilute HCI to form greenish blue solution Q, but does not give off any gas. The solution Q on treating with ammonium hydroxide forms bluish white precipitates of R. The precipitates of R dissolve in excess of ammonium hydroxide. solution to form deep-blue colouration. Identify solid P and bluish white precipitates of R.

Write equations for

Action of less amount of ammonium hydroxide on Q.

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29. A black solid P dissolves in warm and dilute HCI to form greenish yellow solution Q, but does not give off any gas. The solution Q on treating with ammonium hydroxide forms bluish white precipitates of R. The precipitates of R dissolve in excess of ammonium hydroxide. solution to form deep-blue colouration. Identify solid P and bluish white precipitates of R.

Write equations for action of excess of ammonium hydroxide on R.

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30. A metal whose alloy finds use in the construction of air crafts in the powdered form is added to sodium hydroxide solution. A colourless gas was evolved. After the reaction was over, the solution was colourless

Name the powdered metal added to sodium hydroxide solution.

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31. A metal whose alloy finds use in the construction of air crafts in the powdered form is added to sodium hydroxide solution. A colourless gas was evolved. After the reaction was over, the solution was colourless

Name the gas evolved.

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32. A metal whose alloy finds use in the construction of air crafts in the powdered form is added to sodium hydroxide solution. A colourless gas was evolved. After the reaction was over, the solution was colourless

Name the salt present in the colourless solution.

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Additional Questions For Practice

1. Define reagent and precipitate

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2. Name :

a coloured metallic oxide which dissolves in alkalis to yield colourless solutions.

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3. Name two bases which are not alkalis but dissolve in strong alkalis.

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4. Name :

a metallic hydroxide soluble in excess of NH_4OH.

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5. Name :

a metallic oxide soluble in excess of caustic soda solution.

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6. Name :

a strong alkali.

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7. Name :

a weak alkali

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8. Name :

two colourless metal ions.

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9. Name :

two coloured metal ions.

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10. Name :

a metal that evolve a gas which bums with a pop sound when boiled with alkali solutions.

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11. What do you observe when caustic soda solution is added to the following solution : first a little and then in excess.

$FeCl_3$

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12. What do you observe when caustic soda solution is added to the following solution : first a little and then in excess.

$ZnSO_4$

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13. What do you observe when caustic soda solution is added to the following solution : first a little and then in excess.

$Pb(NO_3)_2$

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14. What do you observe when caustic soda solution is added to the following solution : first a little and then in excess.

$CuSO_4$

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15. A yellow solution of a salt yields a reddish brown precipitate with caustic soda solution.The precipitate does not dissolve in excess of the alkali. The reddish brown precipitate on strong heating leaves

behind a red powder, insoluble in water but soluble in dilute HCI. Identify the metal of the salt.

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16. A yellow solution of a salt yields a reddish brown precipitate with caustic soda solution.The precipitate does not dissolve in excess of the alkali. The reddish brown precipitate on strong heating leaves behind a red powder, insoluble in water but soluble in dilute HCI. Write the equation of the reaction involved.

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17. Name a yellow monoxide that dissolves in hot and concentrated alkali. Give equation.

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18. Name a white insoluble oxide that dissolves when fused with caustic soda or caustic potash.

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19. What is the reaction of freshly precipitated aluminium hydroxide with caustic soda solution? Give equation.

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20. Identify a blue solution that turns deep blue on addition of an excess of NH_4OH.

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21. Name a hydroxide which is soluble in excess of ammonium hydroxide.

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22. A colourless solution of a salt yields a white precipitate with dropwise addition of caustic alkali, which however. dissolves in excess of the alkali. The salt is a (a) zinc salt, (b) aluminium salt, (c) either a zinc salt or an aluminium salt, (d) none of (a) or (b).

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23. Name a metallic hydroxide which does not get precipitated by NH_4OH in the presence of NH_4Cl.

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24. Name a metallic hydroxide which gets precipitated by NH_4OH even in the presence of NH_4Cl.

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25. Name a metallic hydroxide that is insoluble in NH_4OH but dissolves readily in solution of NH_4CI.

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26. Identify the cation in each of the following case

Sodium hydroxide solution when added to the solution 'A' gives reddish brown precipitate.

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27. Identify the cation in each of the following case

Ammonium hydroxide solution when added to the solution B gives white precipitate which dissolves in excess

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28. Identify the cation in each of the following case

Sodium hydroxide solution when added to solution C gives bluish white precipitate which is insoluble in excess.

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29. Identify the cation in each of the following case

Ammonium hydroxide solution when added to solution D gives dirty green precipitate which changes to reddish brown after some time.

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30. Identify the cation in each of the following case

Ammonium hydroxide solution when added to the solution gives bluish white precipitate which dissolves in excess to give deep blue solution.

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31. What happens when ammonium hydroxide is added dropwise in excess to :

copper sulphate solution ?

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32. What happens when ammonium hydroxide is added dropwise in excess to :

zinc sulphate solution ?

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33. What happens when ammonium hydroxide is added dropwise in excess to :

aluminium sulphate solution ?

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34. How does ammonium hydroxide help in distinguishing between :

Iron II chloride and iron Ill chloride

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35. How does ammonium hydroxide help in distinguishing between :

Zinc nitrate and lead nitrate

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36. How does ammonium hydroxide help in distinguishing between : Lead hydroxide and zinc hydroxide.

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37. What do you observe when :

Ammonium hydroxide is added to copper sulphate solution first a little, then in excess.

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38. What do you observe when :

Sodium hydroxide is added to zinc sulphate solution first in a little then in excess.

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39. What do you observe when :

Calcium nitrate is added to sodium hydroxide solution.

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40. What do you observe when :

Sodium hydroxide solution is added to iron (III) chloride solution.

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41. What do you observe when :

Ammonium hydroxide solution is added to lead nitrate first a little then in excess.

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42. Name :

a yellow monoxide that dissolves in hot and concentrated caustic alkali.

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43. Name :

a white, insoluble oxide that dissolves when fused with caustic soda or caustic potash.

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44. Name :

a hydroxide which is soluble in excess of ammonium hydroxide.

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45. Salts M, N, O, P and Q undergo reactiom (i) to (v) respectively. Identify the cation present in these salts on the basis of these reaction. Tabulate your answer in the format given below.

1. When sodium hydroxide solution is added to the salt M, and heated strongly a colourless gas with a pungent smell is evolved which turm red litmus paper blue and gives dense white fumes with a moist glass rod with hydrochloric acid.

2. Addition of dilute hydrochloric acid to a solution of N gives a thick white precipitate which is soluble in hot water.

3. When ammonium hydroxide solution is added to the solution of 0 a light blue precipitate is obtained which is soluble in excess of ammonium hydroxide to form an inteme deep blue solution.

4. When ammonium hydroxide solution is added to the solution of P reddish brown (mustard colour) precipitate is obtained which ,is insoluble even in the excess of ammonium hydroxide solution.

5. When sodium hydroxide solution is added to the solution of Q a which coloured gelatinous precipitate is obtained which is soluble

in excess of sodium hydroxide to form a clear solution

Salt	Cation
M	1 .....
N	2 .....
O	2 .....
P	2 .....
Q	2 .....

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46. What do you observe when ?

Sodium hydroxide solution is slowly added to zinc sulphate solution.

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47. What do you observe when ?

Ammonium hydroxide solution is slowly added to copper sulphate

solution

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48. What do you observe when ammonium hydroxide solution is added to :

Silver nitrate solution

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49. What do you observe when ammonium hydroxide solution is added to :

Lead nitrate solution

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50. What do you observe when ammonium hydroxide solution is added to :

Calcium nitrate solution

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51. What do you observe when ammonium hydroxide solution is added to :

Zlnc nitrate solutioo in little amount and then in excess.

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Questions From Previous Icse Board Papers

1. Give one test each to distinguish between the following pairs of chemicals :

Zinc nitrate solution and calcium nitrate solution.

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2. Give one test each to distinguish between the following pairs of chemicals :

Sodium nitrate solution and sodium chloride solution.

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3. Give one test each to distinguish between the following pairs of chemicals :

Iron (III) chloride solution and copper chloride solution.

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4. Dilute sulphuric acid will produce a white precipitate when added to a solution of

A. Copper nitrate

B. Zinc nitrate

C. Lead nitrate

D. Sodium nitrate

Answer:

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5. The salt which in solution gives a pale green precipitate with sodium hydroxide solution and a white precipitate with barium chloride solution is

A. Iron (III) Sulphate

B. Iron (II) Sulphate

C. Iron (II) Chloride

D. Iron (III) Chloride

Answer:

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6. Give one chemical test to distinguish between the following pairs of compounds.

Zinc sulphate solution and Zinc chloride solution.

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7. Give one chemical test to distinguish between the following pairs of compounds.

Iron (II) chloride solution and Iron (III) chloride solution.

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8. Give one chemical test to distinguish between the following pairs of compounds.

Calcium nitrate solution and Calcium chloride solution.

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9. Write the equation for each of the following reactions :

Zinc oxide is treated with sodium hydroxide solution.

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10. Write the equation for each of the following reactions :

Ammonium chloride is heated with sodium hydroxide.

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11. What would you observe in the following ? Ammonium hydroxide is first added in a small quantity and then in excess to a solution of copper sulphate.

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12. Choose the correct answer from the options given below :

Hydroxide of this metal is soluble in sodium hydroxide solution.

A. Magnesium

B. Lead

C. Silver

D. Copper

Answer:

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13. Write the balanced chemical equation for the following reaction :

Zinc is heated with sodium hydroxide solution.

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14. Sodium hydroxide solutions to the solutions containing the ions mentioned in list x list y gives the detail of the precipitate match the ions their coloured precipitates

List X	List Y
(i) Pb^{2+}	(A) Reddish brown
(ii) Fe^{2+}	(B) White insoluble in excess
(iii) Zn^{2+}	(C) Dirty green
(iv) Fe^{3+}	(D) White soluble in excess
(v) Cu^{2+}	(E) White soluble in excess
(vi) Ca^{2+}	(F) Blue

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15. Write balanced chemical equation for the following :

Zinc oxide dissolves in sodium hydroxide.

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16. Name the gas in the following :

The gas evolved on reaction of Aluminium with boiling concentrated caustic alkali solution.

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17. State one observation for each of the following:

Excess ammonium hydroxide solution is added to lead nitrate solution.

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18. State one observation for each of the following:

Sodium hydroxide solution is added to ferric chloride solution at first a little and then in excess.

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19. Identify the anion present in the following compound : When a solution of compound Y is treated with silver nitrate solution a white precipitate is obtained which is soluble in excess of ammonium hydroxide solution.

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20. State one chemical test between each of the following pairs :

Sodium carbonate and Sodium sulphite

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21. State one chemical test between each of the following pairs :

Ferrous nitrate and Lead nitrate

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22. State one chemical test between each of the following pairs :

Manganese dioxide and Copper (II) oxide

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23. Give a chemical test to distinguish between the following pairs of compounds :

Calcium nitrate solution and zinc nitrate solution.

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24. State two relevant observations for each of the following:

Ammonium hydroxide· solution is added to copper (II) nitrate solution in small quantities and then in excess.

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25. State two relevant observations for each of the following:

Ammonium hydroxide solution is added to zinc nitrate solution in minimum quantities and then in excess

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26. Distinguish between the following pairs of compounds · using test given within brackets :

Iron (II) sulphate and iron (III) sulphate (using ammonium hydroxide)

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27. Distinguish between the following pairs of compounds · using test given within brackets :

A lead salt and a zinc salt (using excess ammonium hydroxide)

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28. State your observation in the following case:

When excess sodium hydroxide is added to calcium nitrate solution.

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29. Fill in the blank with the choices given in bracket : ..... $(AgCl / PbCl_2)$ a white precipitate is soluble in excess NH_4OH.

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30. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions :

copper sulphate solution

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31. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions :

zinc sulphate solution

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32. Identify the cations in each of the following case :

NaOH solution when added to the Solution (A) gives a reddish

brown precipitate

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33. Identify the cations in each of the following case :

NH_4OH Solution when added to the Solution (B) gives white ppt which does not dissolve in excess.

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34. Identify the cations in each of the following case :

NaOH Solution when added to Solution (C) gives white ppt which is insoluble in excess.

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35. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer.

A chloride which forms a precipitate that is soluble in excess of ammonium hydroxide is

A. Calcium chloride

B. Ferrous chloride

C. Ferric chloride

D. Copper chloride

Answer:

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36. Identify the substance underlined, in the following case :

Cation that does not form a precipitate with ammonium hydroxide

but forms one with sodium hydroxide.

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37. State one relevant observation for the following reaction :

Action of Sodium hydroxide solution on ferrous sulphate solution.

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38. Answer the following question :

How will you distinguish between Ammonium hydroxide and Sodium hydroxide using copper sulphate solution?

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39. Choose the correct answer from the options given below :

The salt solution which does not react with ammonium hydroxide is

:

A. Calcium Nitrate

B. Zinc Nitrate

C. Lead Nitrate

D. Copper Nitrate

Answer:

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40. Write a balanaed chemical equation for each of the following:

Reaction of sodium hydroxide solution with iron (III) chloride solution.

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41. Write a balanaed chemical equation for each of the following:

Action of heat on aluminium hydroxide

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42. Write a balanaed chemical equation for each of the following:

Reaction of zinc with potassium hydroxide solution.

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43. State one relevant observation for the following :

Lead nitrate solution is treated with sodium hydroxide solution drop wise till it is in excess

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44. Give a chemical test to distinguish between the following pairs of chemicals:

Lead nitrate solution and Zinc nitrate solution

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45. Give a chemical test to distinguish between the following pairs of chemicals:

Sodium chloride solution and Sodium nitrate solution.

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Equation Worksheet

1. Action of Sodium Hydroxide -On solutions of salts

1. Calcium nitrate & Magnesium chloride

2. Iron [II] sulphate

3. Iron [III] chloride

4. Copper [II] sulphate

5. Zinc sulphate

6. Lead nitrate

Complete and balanced the equations:

$Ca(NO_3)_2 + NaOH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

$MgCl_2 + NaOH \rightarrow \quad \_\_\_\_\_ + \_\_\_\_ \quad \downarrow$

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2. Action of Sodium Hydroxide -On solutions of salts

1. Calcium nitrate & Magnesium chloride

2. Iron [II] sulphate

3. Iron [III] chloride

4. Copper [II] sulphate

5. Zinc sulphate

6. Lead nitrate

Complete and balanced the equations:

$FeSO_4 + NaOH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

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3. Complete and balanced the equations:

$FeCl_3 + NaOH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

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4. Complete and balanced the equations:

$CuSO_4 + NaOH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

Watch Video Solution

5. Complete and balanced the equations:

$ZnSO_4 + NaOH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

$[Zn(OH)_2 + NaOH[\text{in excess}] \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad]$

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6. Complete and balanced the equations:

$Pb(NO_3)_2 + NaOH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

$[Pb(OH)_2 + NaOH[\text{in excess}] \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad]$

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7. Action of Ammonium Hydroxide- On solution of salts

Magnesium chloride Iron [III] chloride

Copper [II] sulphate

Zinc sulphate

Lead nitrate

Complete and balanced the equations:

$MgCl_2 + NH_4OH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

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8. Action of Ammonium Hydroxide- On solution of salts

Magnesium chloride Iron [III] chloride

Copper [II] sulphate

Zinc sulphate

Lead nitrate

Complete and balanced the equations:

$ZnSO_4 + NH_4OH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

$\left[Zn(OH)_2 + (NH_4)_2SO_4 + NH_4OH \rightarrow [\text{in excess}] \quad \_\_\_\_ + \_\_\_\_ \right]$

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9. Complete and balanced the equations:

$FeCl_3 + NH_4OH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

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10. Complete and balanced the equations:

$CuSO_4 + NH_4OH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

$\left[Cu(OH)_2 + (NH_4)_2SO_4 + NH_4OH \rightarrow [\text{in excess}] \quad \_\_\_\_ + \_\_\_\_ \right]$

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11. Action of Ammonium Hydroxide- On solution of salts

Magnesium chloride Iron [III] chloride

Copper [II] sulphate

Zinc sulphate

Lead nitrate

Complete and balanced the equations:

$ZnSO_4 + NH_4OH \rightarrow \quad \_\_\_\_ + \_\_\_\_ \quad \downarrow$

$\left[Zn(OH)_2 + (NH_4)_2SO_4 + NH_4OH \rightarrow [\text{in excess}] \quad \_\_\_\_ + \_\_\_\_ \right]$

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12. Complete and balanced the equations:

$Pb(NO_3)_2 + NH_4OH \rightarrow \quad \_\_\_\_\_ + \_\_\_\_ \quad \downarrow$

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13. Action of Alkalis -On certain metals

$Zn + NaOH \rightarrow \quad \_\_\_\_\_ + \_\_\_\_$

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14. Complete and balance the equation.

$Zn + KOH \rightarrow$ ____+ ____

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15.

Complete and balance the equations:

$Pb + NaOH \rightarrow$ ____+ ____

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16. Complete and balanced the equations:

$Pb + KOH \rightarrow$ ____+ ____

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17. Complete and balanced the equations: $Al + NaOH + H_2O \rightarrow$

____+ ____

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18. Complete and balanced the equations:

$Al + KOH + H_2O \rightarrow$ ____+ ____

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19. Complete and balanced the equations:

$ZnO + NaOH \rightarrow$ ____+ ____

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20. Complete and balanced the equations:

$Zn(OH)_2 + NaOH \rightarrow$ ____+ ____

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21. Complete and balanced the equations:

$PbO + NaOH \rightarrow$ ____+ ____

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22. Complete and balanced the equations:

$Pb(OH)_2 + NaOH \rightarrow$ ____+ ____

Watch Video Solution

23. Complete and balanced the equations:

$Al_2O_3 + NaOH \rightarrow$ ____+ ____

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24. Complete and balanced the equations:

$Al(OH)_3 + NaOH \rightarrow$ ____+ ____

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Additional Questions

1. Salts of _____ [normal/transition] elements are generally coloured. From the ions $k^{1+}, Cr^{3+}, Fe^{2+}, Ca^{2+}, SO_3^{2-}, MnO_4^{1-}, NO_3^{1-}$ the ions generally coloured are _____

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2. The hydroxide which is soluble in excess of NaOH is _____ $[Zn(OH)_2 / Fe(OH)_3 / Fe(OH)_2]$

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3. The salt which will not react with NH_4OH solution _____ $[ZnCl_2 / CuCl_2 / NH_4Cl / FeCl_2]$

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4. The substance/s which react with hot conc. NaOH soln. & undergoes an eutralization reaction _____ $[Al_2O_3 / Al / Al(OH)_3]$

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5. To distinguish soluble salts of zinc and lead, _____ $[NaOH / NH_4OH]$ can be used

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6. Oxides and hydroxides of certain metals i.e. _____ [iron (zinc/copper/aluminium/magnesium/ lead] are amphoteric acid react with _____[acids/alkalis/acids & alkalis] to give salt and water.

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Questions

1. Sodium hydroxide solution is added first in a small quantity, then in excess to the aqueous salt solutions of copper [II] sulphate, zinc nitrate, lead nitrate, calcium chloride and iron [III] sulphate. For each of the aqueous salt solutions, state - a] the colour of the precipitate when NaOH is added in a small quantity,b] the nature of precipitate [i.e. soluble or insoluble, when NaOH is added in excess.

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2. Write balanced equations for - (a) Aluminium (b) Zinc- is warmed with NaOH [caustic soda] soin.

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3. The questions below refers to the following salt solutions listed A to F:

A: Copper nitrate, B: Iron [II] sulphate, C: Iron [III] chloride, D: Lead nitrate, E: Magnesium sulphate, F: Zinc, chloride.

Which solution gives a white precipitate with excess ammonium hydroxide solution.

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4. From the list of substances given- Amonium sulphate, Lead carbonate, Copper nitrate, Ferrous sulphate- State a solution of the compound which gives a dirty green precipitate with sodium hydroxide.

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5. Write a balanced equation for the reaction betwee- aluminium oxide & sodium hydroxide solution.

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6. Give one test each to distinguish between the following pairs of chemicals :

Iron (III) chloride solution and copper chloride solution.

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7. The salt which in soln. gives a pale green precipitate with NaOH soln. and a white ppt. with $BaCl_2$ soln.

(a) Iron [III] sulphate (b) Iron [II] sulphate (c) Iron [II] chloride (d) Iron [III] chloride.

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8. Find the odd one with reasons [valency is not a ceriterion]: $Al(OH)_3, Pb(OH)_2, Mg(OH)_2, Zn(OH)_2$

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9. Identify the substances P, Q and R in each case based on the information given below:

The salt P turns yellow on dissolving in water and gives a reddish brown precipitate with sodium hydroxide solution.

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10. Give an equation for - (i) ZnO reacts with NaOH soln. (ii) Conversion of - $Zn(NO_3)_2$ to $Zn(OH)_2$

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11. Select the correct answer from A,B,C-

A: Sodium hydroxide soln.

B: A weak acid

C: Dil. Sulphuric acid. The solution which with zinc sulphate solution will give a white precipitate.

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12. Choose the correct answer from the options given below :

Hydroxide of this metal is soluble in sodium hydroxide solution.

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13. Sodium hydroxide solution is added to the solutions containing the ions mentioned in List X. Use Y gives the details of the

precipitate. Match the ions with their coloured precipitates.

List X	List Y
(i) Pb^{2+}	A. Reddish brown
(ii) Fe^{2+}	B. White insoluble in excess
(iii) Zn^{2+}	C. Dirty green
(iv) Fe^{3+}	D. White soluble in excess
(v) Cu^{2+}	E. White soluble in excess
(vi) Ca^{2+}	F. Blue

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14. Give balanced equations for - (i) Zinc oxide dissolves in NaOH. (ii) Zinc is heated with NaOH solution.

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15. Name the gas in the following :

The gas evolved on reaction of Aluminium with boiling concentrated caustic alkali solution.

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16. State one observation for. (i) Excess NH_4OH soln. is added to $Pb(NO_3)_2$ soln. (ii) NaOH soln. is added to $FeCl_3$ soln. in excess.

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17. State two relevant observations for each of the following:

Ammonium hydroxide· solution is added to copper (II) nitrate solution in small quantities and then in excess.

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18. State your observation : When sodium hydroxide is added to magnesium nitrate solution

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19. To a salt soln 'Y' a small quantity of NH_4OH soln. is added slowly & then in excess. A pale blue precipitate is formed which dissolves in excess to form a clear inky blue soln. Identify the positive ion in the salt 'Y'

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20. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions :

copper sulphate solution

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21. State one relevant observation- Action of sodium hydroxide solution on iron [II] sulphate solution.

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22. Answer the following question :

How will you distinguish between Ammonium hydroxide and Sodium hydroxide using copper sulphate solution?

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23. Choose the correct answer from the options given below :

The salt solution which does not react with ammonium hydroxide is :

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24. Write a balanaed chemical equation for each of the following:

Reaction of sodium hydroxide solution with iron (III) chloride solution.

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25. State one relevant observation for the following :

Lead nitrate solution is treated with sodium hydroxide solution drop wise till it is in excess

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26. Write balanced chemical equation for: Ammonium hydroxide is added to ferrous sulphate solution.

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27. Copper [II] sulphate solution. Reacts with sodium hydroxide solution to form a precipitate of copper hydroxide. State the colour of the precipitate formed.

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28. State your observation in the following case:

When excess sodium hydroxide is added to calcium nitrate solution.

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29. Write the action of sodium hydroxide solution on zinc sulphate solution.

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30. Hydroxide of which metal is soluble in sodium hydroxide solution?

A. Magnesium

B. Lead

C. Silver

D. Copper

Answer: B

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31. Sodium hydroxide solutions to the solutions containing the ions mentioned in list x list y gives the detail of the precipitate match

the ions their coloured precipitates

List X	List Y
(i) Pb^{2+}	(A) Reddish brown
(ii) Fe^{2+}	(B) White insoluble in excess
(iii) Zn^{2+}	(C) Dirty green
(iv) Fe^{3+}	(D) White soluble in excess
(v) Cu^{2+}	(E) White soluble in excess
(vi) Ca^{2+}	(F) Blue

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32. What would you observe in the following ? Ammonium hydroxide is first added in a small quantity and then in excess to a solution of copper sulphate.

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33. State one observation for each of the following:

Excess ammonium hydroxide solution is added to lead nitrate solution.

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34. State one observation for each of the following:

Sodium hydroxide solution is added to ferric chloride solution first drop by drop and then in excess.

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35. Based on the experimental observation given in the table identify the cation present in each of the salts W,X,Y and Z.

Chemical test	*Observation*
(i) To solution W, first a small quantity of sodium hydroxide is added and then in excess.	*A white precipitate is formed, which remains insoluble.*
(ii) To solution X, a minimum quantity of ammonium hydroxide is added first and then in excess.	*A dirty white precipitate is formed, which dissolves to give a clear solution.*
(iii) To solution Y, a minimum quantity of ammonium hydroxide is added first and then in excess.	*A pale blue precipitate is formed, which dissolves in excess to give clear dark blue solution.*
(iv) To salt Z, calcium hydroxide is added and then heated.	*A pungent smelling gas, which turns moist red litmus paper blue, is obtained.*

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36. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions :

copper sulphate solution

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37. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions :

zinc sulphate solution

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38. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following

solutions :

copper sulphate solution

Watch Video Solution

39. State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions :

zinc sulphate solution

Watch Video Solution

40. Answer the following question :

How will you distinguish between Ammonium hydroxide and Sodium hydroxide using copper sulphate solution?

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41. Write the reaction of zinc oxide with dilute hydrochloric acid.

Watch Video Solution

42. Write the reaction of zinc oxide with potassium hydroxide solution.

Watch Video Solution

43. Write balanced chemical equation for the following :

Zinc oxide dissolves in sodium hydroxide.

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44. Write the balanced chemical equation for the following reaction :

Zinc is heated with sodium hydroxide solution.

Watch Video Solution

45. Write the equation for each of the following reactions :

Zinc oxide is treated with sodium hydroxide solution.

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46. Write the equation for each of the following reactions :

Ammonium chloride is heated with sodium hydroxide.

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47. Choose the most appropriate answer from the following options :

Identify the metallic oxide which is amphoteric in nature :

Calcium oxide

Barium oxide

Zinc oxide

Copper(ll)oxide

A. Calcium oxide

B. Barium oxide

C. Copper oxide

D. zinc oxide

Answer:

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48. Write the reaction of aluminium oxide with potassium hydroxide solution

Watch Video Solution

49. Write the reaction between zinc hydroxide and dilute hydrochloric acid

Watch Video Solution

50. Write the reaction between zinc hydroxide and potassium hydroxide

Watch Video Solution

51. Write the reaction between aluminium hydroxide and dilute sulphuric acid

Watch Video Solution

52. Write the reaction between aluminium hydroxide and potassium hydroxide

Watch Video Solution

Questions For Practice

1. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the following pairs of cations which are provided in separate test tubes as solutions?

Pb^{2+} and Ca^{2+}

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2. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the

following pairs of cations which are provided in separate test tubes as solutions?

Pb^{2+} and Fe^{3+}

Watch Video Solution

3. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the following pairs of cations which are provided in separate test tubes as solutions?

Pb^{2+} and Fe^{3+}

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4. _____ solution will give a white precipitate with excess ammonium hydroxide solution?

Watch Video Solution

5. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the following pairs of cations which are provided in separate test tubes as solutions?

Zn^{2+} and `Fe^(2+)

Watch Video Solution

6. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the following pairs of cations which are provided in separate test tubes as solutions?

Zn^{2+} and Fe^{3+}

Watch Video Solution

7. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the following pairs of cations which are provided in separate test tubes as solutions?

Cu^{2+} and Fe^{3+}

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8. Identify the cations in each of the following cases : (i) NaOH solution when added to the Solution (A) gives a reddish brown precipitate. (ii) NH4OH Solution when added to the Solution (B) gives white precipitate which does not dissolve in excess.

Watch Video Solution

9. You are provided with solutions of sodium hydroxide and ammonium hydroxide. How would you identify each cation in the

following pairs of cations which are provided in separate test tubes as solutions?

Fe^{2+} and Fe^{3+}

Watch Video Solution

10. On reaction of sodium hydroxide with Iron(II) ion gives the coloured precipitate. Tell the colour .

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11. Complete the following table which summarises the effect of adding a small amount of sodium hydroxide to various salt solutions followed by an excess of the reagent, and then adding ammonium hydroxide (ammonia solution) in a small amount followed by an excess to another sample of each of the salt

solutions.

Solution	Effect of adding sodium hydroxide solution		Effect of adding ammonium hydroxide	
	(i) Small amount	(ii) In excess	(i) Small amount	(ii) In excess
Calcium nitrate			No change	
Zinc nitrate				
Lead nitrate				

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12. Give an example of a metallic oxide that forms salt and water with acids as well as bases. What is the common name given to such oxides?

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13. Write the reactions of

zinc oxide separately with HCl and NaOH.

Watch Video Solution

14. Write the reactions of

aluminium oxide separately with HCl and NaOH.

Watch Video Solution

15. Excess of sodium hydroxide is added to zinc hydroxide.

Watch Video Solution

16. dilute hydrochloric acid is added to zinc hydroxide.

Watch Video Solution

17. Excess of sodium hydroxide is added to zinc hydroxide.

Watch Video Solution

18. dilute hydrochloric acid is added to zinc hydroxide.

Watch Video Solution

19. Identify the salts P from the observations given below:

On performing the flame test salt P produces a lilac coloured flame and its solution gives a white precipitate with silver nitrate solution, which is soluble in Ammonium hydroxide solution.

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20. Identify the salts Q from the observations given below:

When dilute HCl is added to a salt Q, a brisk effervescence is produced and the gas turns lime water milky. When NH_4OH solution is added to the above mixture (after adding dilute HCl), it produces a white precipitate which is soluble in excess NH_4OH solution.

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21. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer.

A deep blue colour appears when excess of ammonium hydroxide is added to a solution containing the cation:

A l 3 + ; F e 2 + ; Zn^{2+} ; Cu^(2+) ;

A. AI^{3+}

B. Fe^{2+}

C. `Zn^(2+)

D. `Cu^(2+)

Answer: D

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Questions For Practice On Examination Pattern

1. Select correct answers from the choices A, B, C, D which are given.

Write down only the letter corresponding to the correct answer.

The oxide which reacts with both acid and base is called

A. acidic

B. basic

C. amphoteric

D. neutral

Answer: C

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2. Select correct answers from the choices A, B, C, D which are given.

Write down only the letter corresponding to the correct answer.

Which of the following oxides is amphoteric?

A. ZnO

B. CuO

C. FeO

D. CaO

Answer: A

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3. Select correct answers from the choices A, B, C, D which are given.

Write down only the letter corresponding to the correct answer.

Which of the following oxides reacts with an acid as well as a base?

A ZnO, B CuO, C FeO, D CaO

A. ZnO

B. CuO

C. FeO

D. CaO

Answer: A

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4. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer. Which of the following salts will give a dirty green precipitate with sodium hydroxide and a white precipitate with barium chloride?

A. iron (III) sulphate

B. iron (iii) chloride

C. iron (II) sulphate

D. iron (II) chloride

Answer: C

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5. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer.

The hydroxide of which cation is not formed on adding ammonium hydroxide in its solution? $Zn^{2+}, Ca^{2+}, Cu^{2+}, Fe^{3+}$

A. Zn^{2+}

B. Ca^{2+}

C. Cu^{2+}

D. Fe^{3+}

Answer: B

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6. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer.

Which metal liberates hydrogen gas from acid and base both? Cu, Zn, Fe, Ca

A. Cu

B. Zn

C. Fe

D. Ca

Answer: B

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7. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer.

Which salt forms coloured solution when dissolved in water?

A. calcium chloride

B. zinc carbonate

C. copper sulphate

D. calcium carbonate

Answer: C

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8. Select correct answers from the choices A, B, C, D which are given.

Write down only the letter corresponding to the correct answer.

Which salt gives a brown precipitate with ammonium hydroxide ?

A. A.iron (III) sulphate

B. B.iron (iii) chloride

C. C. iron (II) sulphate

D. D.iron (II) chloride

Answer: A

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9. The metal oxide which can react with acid as well as alkali is :

A. silver oxide

B. copper (ii) oxide

C. aluminium oxide

D. calcium oxide

Answer: C

Watch Video Solution

10. Select correct answers from the choices A, B, C, D which are given. Write down only the letter corresponding to the correct answer.

A chloride which forms a precipitate that is soluble in excess of ammonium hydroxide is

A. calcium chloride

B. ferrous chloride

C. ferric chloride

D. copper chloride

Answer: D

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11. Select the odd out and justify your choice

CaO, CuO, ZnO, FeO

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12. Select the odd out and justify your choice

CaO, CuO, BaO, MgO

Watch Video Solution

13. Select odd one out which does not fit as required and justify your answer

Fe, Zn, Cu, Al Reaction with dil. HCI

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14. Select the odd out and justify your choice

$Ca(OH)_2, Fe(OH)_3, Cu(OH)_2, AI(OH)_3$

Watch Video Solution

15. Select the odd out and justify your choice

SO_2, H_2S, NH_3, CO_2

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16. Complete the following using the correct word from those given in the brackets.

On adding ammonium hydroxide to a solution of copper sulphate, a precipitate is formed which is ..... in excess reagent. (soluble/insoluble)

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17. Complete the following using the correct word from those given in the brackets.

ZnO is..... because it reacts with acids and bases both. (neutral/amphoteric)

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18. Complete the following using the correct word from those given in the brackets.

The precipitate of zinc hydroxide is .....(black/white)

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19. Complete the following using the correct word from those given in the brackets.

A brown precipitate is formed on adding sodium hydroxide to a solution of.....salt. [iron(II)/iron(III)]

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20. Complete the following using the correct word from those given in the brackets.

On adding ammonium hydroxide to a solution of calcium nitrate, a white precipit is .....(formed/not formed)

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Fill In The Blanks

1. Salts of normal elements [1 (IA) to 17 (VIIA)] are generally.....

A. colourless

B. green

C. white

D. blue

Answer: A

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2. Ferrous salts are ..... in colour.

A. colourless

B. light green

C. white

D. blue

Answer: B

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3. An example of weak alkali solution is .....

A. Sodium hydroxide

B. Nitrogen dioxide

C. Ammonium hydroxide

D. Potassium hydroxide

Answer: C

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4. Both ammonium and sodium hydroxide are used in analytical chemistry for identifying of salts.

A. Cations

B. Anions

C. Electrons

D. Both (a) and (b)

Answer: A

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5. Zinc chloride solution reacts with ammonium hydroxide solution to give a.....coloured precipitate.

A. blue

B. green

C. yellow

D. white

Answer: D

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6. Calcium salts with sodium hydroxide give..... precipitates.

A. pink

B. blue

C. white

D. green

Answer: C

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7. Ammonium hydroxide is a weak alkali which dissociates partially to furnish..... OH^- ions precipitate.....metal hydroxides.

A. Sufficient, Soluble

B. Insufficient, Insoluble

C. Sufficient, Insoluble

D. Insufficient, Soluble

Answer: D

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8. Sodium zincate and water is obtained on reaction of ..... with concentrated caustic soda.

A. Lead

B. Sodium

C. Zinc

D. Zinc hydroxide

Answer: C

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9. ..... and ..... salt dissolve in sodium hydroxide.

A. Zinc, Lead

B. Sodium, Lead

C. Lead, Copper

D. Sodium, Zinc

Answer: A

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10. Oxides and hydroxides of certain metals such as .... are amphoteric in nature.

A. zinc, sodium, aluminium

B. Zinc, lead, copper

C. aluminium, copper, sodium

D. zinc, lead, aluminium

Answer: D

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11. Amphoteric oxides and hydroxides react with an ..... to give salt and water only.

A. Base, Alkali

B. Acid, Alkali

C. Acid, Base

D. None of these

Answer: B

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12. Which white precipitate is soluble in excess NH_4OH.....

A. NaCl

B. AgCl

C. $Mg(OH)_2$

D. $NaOH$

Answer: A

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13. The hydroxide which is soluble in excess of NaOH is .....

A. $Al(OH)_3$

B. $Fe(OH)_3$

C. $Fe(OH)_2$

D. $Zn(OH)_2$

Answer: C

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14. The salt which will not react with NH_4OH solution _____ $[ZnCl_2 / CuCl_2 / NH_4Cl / FeCl_2]$

A. $ZnCl_2$

B. $CuCl_2$

C. NH_4Cl

D. $FeCl_2$

Answer: A

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15. The substance/s which react with hot conc. NaOH soln. & undergoes an eutralization reaction _____ $[Al_2O_3 / Al / Al(OH)_3]$

A. Al_2O_3

B. Al

C. $Al(OH)_3$

D. None of these

Answer: A

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16. The valency of copper in copper sulphate is .....

A. two

B. three

C. four

D. one

Answer: A

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17. The colour of hydrated zinc sulphate is...

A. white

B. black

C. blue

D. reddish

Answer: A

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Multiple Choice Questions

1. Salts of which elements are generally coloured:

A. Transition

B. Normal

C. Lanthanides

D. Inner-transition

Answer: A

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2. Which one of the following salt solutions on reaction with excess of ammonium hydroxide solution gives a deep blue solution ?

A. $FeCl_3$(aq)

B. $CuSO_4$(aq)

C. $Al_2(SO_4)_3$(aq)

D. $ZnSO_4$(aq)

Answer: B

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3. Which one of the following salt solutions on reaction with excess sodium hydroxide solution gives a clear solution finally ?

A. $Pb(NO_3)_2$(aq)

B. $CuSO_4$(aq)

C. $FeCl_3$(aq)

D. $ZnSO_4$(aq)

Answer: A

View Text Solution

4. The precipitate of which of the following compounds is soluble in excess of ammonia solution?

A. Iron (II) chloride

B. Magnesium chloride

C. Copper (II) sulphate

D. Lead nitrate

Answer: C

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5. Which one of the following salt solutions on reaction with excess of ammonium hydroxide solution results finally in dissolution of the precipitate first formed ?

A. $AlCl_3$ (aq)

B. $FeSO_4$ (aq)

C. $Fe(SO_4)_3$ (aq)

D. $ZnSO_4$ (aq)

Answer: D

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6. Choose the correct answer from the options given below :

Hydroxide of this metal is soluble in sodium hydroxide solution.

A. Magnesium

B. Lead

C. Silver

D. Copper

Answer: B

Watch Video Solution

7. The hydroxide which is soluble in excess of NaOH is .....

A. $Zn(OH)_2$

B. $Fe(OH)_3$

C. $Fe(OH)_2$

D. $Al(OH)_3$

Answer: A

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8. Name the reagent from the following which can be used to distinguish zinc nitrate solution from magnesium nitrate.

A. NH_4OH (aq)

B. $NaOH$ (aq)

C. $BaCl_2$

D. H_2SO_4

Answer: A

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9. The oxide and hydroxide of which metal is amphoteric:

A. Zinc

B. Copper

C. Iron

D. Manganese

Answer: A

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10. Choose the correct answer from the options given below :

Anhydrous iron(III) chloride is prepared by:

A. Direct combination

B. Simple displacement

C. Decomposition

D. Neutralization

Answer: A

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11. A chloride which forms a precipitate that is soluble in excess of ammonium hydroxide is :

A. Calcium chloride

B. Ferrous chloride

C. Ferric chloride

D. Copper chloride

Answer: D

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12. A solution of the compound which gives a dirty green precipitate with sodium hydroxide.

A. Ammonium sulphate

B. Lead carbonate

C. Ferrous sulphate

D. Chlorine

Answer: C

View Text Solution

13. Which soln. becomes a deep/inky blue colour when excess of ammonium hydroxide is added to it.

A. Copper nitrate

B. Iron [II] sulphate

C. Iron (III) chloride

D. Lead nitrate

Answer: A

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14. The questions below refer to the following salt solutions listed A to F:- A: Copper nitrate B: Iron [II] sulphate C: Iron [III] chloride D:

Lead nitrate E: Magnesium sulphate F: Zinc chloride.

i) Which two solutions will give a white precipitate when treated with dilute hydrochloric acid followed by barium chloride solution. [i.e. white ppt. insoluble in dil. HCI]

ii) Which two solutions will give a white ppt. when treated with dil. HNO_3 & $AgNO_3$ soln.

iii) Which soln. will give a white ppt. when either dil. HCl or dil. H_2SO_4 , is added to it.

iv) Which soln. becomes a deep/inky blue colour when excess of ammonium hydroxide is added to it.

v) Which solution gives a white precipitate with excess ammonium hydroxide solution.

A. Copper nitrate

B. Iron (II) sulphate

C. Iron [III) chloride

D. Lead nitrate

Answer: D

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15. The salt which in soln. gives a pale green precipitate with NaOH soln. and a white ppt. with $BaCl_2$ soln.

(a) Iron [III] sulphate (b) Iron [II] sulphate (c) Iron [II] chloride (d) Iron [III] chloride.

A. Iron (III) sulphate

B. Iron (II) sulphate

C. Iron (II) chloride

D. Iron (III) chloride

Answer: B

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16. Find the odd one with reasons [valency is not a ceriterion]: $Al(OH)_3, Pb(OH)_2, Mg(OH)_2, Zn(OH)_2$

A. $Al(OH)_3$

B. $Pb(OH)_2$

C. $Mg(OH)_2$

D. $Zn(OH)_2$

Answer: C

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17. The hydroxide of this metal is soluble in sodium hydroxide :

A. Magnesium

B. Lead

C. Silver

D. Copper

Answer: B

Watch Video Solution

18. Name the gas in the following :

The gas evolved on reaction of Aluminium with boiling concentrated caustic alkali solution.

A. Hydrogen gas

B. Nitrogen gas

C. Carbon dioxide gas

D. Carbon monoxide gas

Answer: A

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Match The Following

1. Match the columns:

Column A	Column B
(1) Copper(II) nitrate	(A) Green
(2) Iron(II) sulphate	(B) White
(3) Magnesium chloride	(C) Pink
(4) Cobalt chloride	(D) Blue

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

B. I-D, 2-B, 3-A, 4-C

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

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

Answer: C

View Text Solution

2. Match the columns: Column A

Column A	Column B
(1) Pb^{2+}	(A) Reddish brown
(2) Fe^{2+}	(B) White insoluble in excess
(3) Zn^{2+}	(C) Dirty green
(4) Fe^{3+}	(D) White soluble in excess

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

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

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

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

Answer: B

View Text Solution

3. Match the columns:

Column A	Column B
(1) $Pb(NO_3)_2$ from PbO	(A) Simple
(2) $MgCl_2$ from Mg	(B) Displacement
(3) $FeCl_3$ from Fe	(C) Titration
(4) $NaNO_3$ from NaOH	(D) Neutralization

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

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

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

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

Answer: C

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Observation Based Questions

1. Sodium hydroxide solution is slowly added and then in excess to zinc sulphate solution.

A. Sodium Zincate and water is formed at the product side

B. Sodium Hydroxide and water is formed at the product side

C. Sodium Zincate and hydrogen gas is released at the product side

D. Sodium Sulphate and water is formed at the product side

Answer: A

View Text Solution

2. To a solution of lead nitrate small amount of sodium hydroxide is added and then excess of sodium hydroxide is added.

A. Sodium Plumbate is formed at the product side

B. Sodium Hydroxide and Oxygen gas is released at the product side

C. A yellow coloured precipitate of lead hydroxide is formed

D. Lead iodide is formed at the end of the product side

Answer: A

View Text Solution

3. When sodium hydroxide is added to a solution of ferric chloride write equation for the reaction taking place.

A. Blue colour precipitate of Ferric chloride is formed at the product side.

B. Reddish Brown Colour precipitate of ferric hydroxide and NaCl is formed at the product side

C. Ferric Oxide is formed at the product side.

D. Light Brown crystals of ferric chloride is formed at the end of product side

Answer: B

View Text Solution

4. State your observation from the following:

When ammonium hydroxide solution is added to Iron (II) sulphate solution

A. Blue colour precipitate of Ferric hydroxide is formed at the product side.

B. Green precipitate of ferric hydroxide and ammonium sulphate is formed at the product side

C. Ferric Oxide is formed at the product side.

D. Light Brown crystals of ferric chloride is formed at the end of product side

Answer: B

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5. Give the balanced equations for the following reactions .

Ammonium hydroxide is added to iron (III) chloride solution .

A. Light blue of Ferric chloride is formed at the product side.

B. Reddish brown colour precipitate of ferric hydroxide and NaCl is formed at the product side

C. Ferric Oxide is formed at the product side.

D. Light Brown crystals of ferric chloride is formed at the end of product side

Answer: C

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6. Ammonium hydroxide solution is slowly added and then in excess to copper sulphate solution.

A. Blue colour precipitate of copper hydroxide is formed at the product side

B. Reddish brown colour precipitate of copper sulphate and ammonium hydroxide is formed at the product side

C. Copper oxide is formed at the product side.

D. Light brown crystals of copper chloride is formed at the end of product side

Answer: A

View Text Solution

7. Ammonium hydroxide is added to zinc sulphate solution. Write the name and the formula of the final product.

A. Colourless precipitate of Tetra amine Zinc Sulphate is formed at the product side.

B. Reddish Brown Colour precipitate of Zinc hydroxide and NaCl is formed at the product side

C. Zinc Oxide is formed at the product side.

D. Light Brown crystals of ammonium chloride is formed at the end of product side

Answer: A

View Text Solution

8. State two relevant observation

Ammonium hydroxide solution is added to copper (II) nitrate solution in small quantities and then in excess.

A. Tetraamine Copper Sulphate is formed at the product side.

B. Reddish Brown Colour precipitate of Zinc hydroxide and NaCl is formed at the product side

C. Zinc Oxide is formed at the product side.

D. Light Brown crystals of Copper hydroxide is formed at the end of product side

Answer: A

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9. State two relevant observation

Ammonium hydroxide solution is added to zinc nitrate solution in minimum quantities and then in excess.

A. Colourless and soluble $\left[Zn(NH_3)_4\right]^{2+}$ is formed at the product side

B. Reddish Brown Colour precipitate of Zinc hydroxide and NaCl is formed at the product side

C. Zinc Oxide is formed at the product side.

D. Light Brown crystals of Copper hydroxide is formed at the end of product side

Answer: A

Watch Video Solution

10. Give the balanced equations for the following reactions .

Ammonium hydroxide is added to iron (III) chloride solution .

A. Reddish Brown Colour precipitate of Zinc hydroxide and NaCl is formed at the product side

B. Zinc Oxide is formed at the product side.

C. Light Brown crystals of Copper hydroxide is formed at the end of product side

D. Ammonium Chloride and white precipitate of $Fe(OH)_3$ is formed at the end of product side

Answer: D

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Balanced Chemical Equations

1. Choose the correct balanced chemical equations to show the reactions of the following:

Aluminium and caustic potash solution.

A. $2Al + 2KOH + 2H_2O \rightarrow 2KAl + 3H_2O$

B. $2Al + 2KOH + 2H_2O \rightarrow 2KAlO_2 + 3H_2$

C. $2Al + 2KOH + 2H_2O \rightarrow KAlO_2 + 3H_2$

D. $2Al + 2KOH + 2H_2O \rightarrow 2KAlO + 3H_2$

Answer: A

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2. Write equations for the following reactions:

Aluminium oxide and Sodium hydroxide.

A. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$

B. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO + H_2O$

C. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2$

D. $Al_2O_3 + 2NaOH \rightarrow NaAlO_2 + H_2O$

Answer: A

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3. Choose the correct balanced chemical equations to show the reactions of the following:

Zinc oxide and potassium hydroxide.

A. $ZnO + 2KOH \rightarrow K_2ZnO_2 + H_2O_2$

B. $ZnO + 2KOH \rightarrow K_2ZnO_2 + H_2O$

C. $ZnO + 2KOH \rightarrow K_2ZnO_3 + H_2$

D. $ZnO + 2KOH \rightarrow K_2ZnO_2 + H_2O$

Answer: D

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4. Write the balanced chemical equation for the following reaction :

Zinc is heated with sodium hydroxide solution.

A. $Zn + 2NaOH \rightarrow Na_2ZnO_2 + H_2$

B. $Zn2NaOH \rightarrow Na_2ZnO_2 + H_2O$

C. $Zn + 2NaOH \rightarrow Na_2ZnO + H_2$

D. $Zn + NaOH \rightarrow Na_2ZnO_2 + H_2$

Answer: A

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5. Choose the correct balanced chemical equations to show the reactions of the following:

Caustic soda solution and zinc oxide.

A. $ZnO + 2NaOH \rightarrow Na_2ZnO_2 + H_2O$

B. $Zn + 2NaOH \rightarrow Na_2ZnO_2 + H_2O$

C. $Zn + 2NaOH \rightarrow Na_2ZnO + H_2$

D. $Zn + NaOH \rightarrow Na_2ZnO_2 + H_2$

Answer: D

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6. Choose the correct balanced chemical equations to show the reactions of the following:

Caustic soda solution and aluminium oxide.

A. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$

B. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_3 + H_2O$

C. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2$

D. $Al_2O_3 + 2NaOH \rightarrow 2NaAlO + H_2O$

Answer: A

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7. Choose the correct balanced chemical equations to show the reactions of the following:

Action of KOH on $Fe_2(SO_4)_3$.

A. $Fe_2(SO_4)_3 + 6KOH \rightarrow 2Fe(OH)_2 + K_2SO_4$

B. $Fe_2(SO_4)_3 + 6KOH \rightarrow 2Fe(OH)_3 + 3K_2SO_4$

C. $Fe_2(SO_4)_3 + 6KOH \rightarrow 2Fe(OH)_2 + 3KSO_4$

D. $Fe_2(SO_4)_3 + 6KOH \rightarrow 2Fe(OH)_2 + 3K_2SO$

Answer: B

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8. Choose the correct balanced chemical equations to show the reactions of the following:

Action of sodium hydroxide on freshly precipitated aluminium hydroxide.

A. $Al(OH)_3 + NaOH \rightarrow NaAlO_2 + 2H_2O$

B. $Al(OH)_3 + NaOH \rightarrow NaAlO + 2H_2O$

C. $Al(OH)_3 + NaOH \rightarrow NaAlO_2 + 2H_2$

D. $Al(OH)_3 + NaOH \rightarrow NaAlO_2 + 2OH$

Answer: A

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Figure Based Questions

1. Sodium hydroxide solution is added to the solutions containing the ions mentioned in list X. Y gives the details of the precipitate.

Match the ions with their coloured precipitates.

List X	List Y
(1) Pb^{2+}	(A) Reddish brown
(2) Zn^{2}	(B) White insoluble in excess
(3) Cu^{2+}	(C) Dirty green
(4) Fe^{2+}	(D) White soluble in excess
(5) Fe^{3+}	(E) White soluble in excess
(6) Ca^{2+}	(F) Blue

A. 1-E, 2-C, 3-D, 4-A, 5-F, 6-B

B. 1-D, 2-E, 3-C, 4-A, 5-F, 6-B

C. 1-D, 2-E, 3-B, 4-A, 5-F, 6-C

D. 1-D, 2-B, 3-A, 4-D, 5-F, 6-E

Answer: A

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2. The following table shows the tests a student performed on four different aqueous solutions which are X, Y, Z and W based on the observations provided, identify the cation present.

Chemical test	Observation	Conclusion
To solution 'X' ammonium hydroxide is added in minimum quantity first and then in excess.	A dirty white ppt. is formed which dissolves in excess to form a clear solution.	(i)
To solution 'Y' ammonium hydroxide is added in minimum quantity first and then in excess.	A pale blue ppt. is formed which dissolves in excess to form a clear inky blue solution.	(ii)
To solution 'W' a small quantity of sodium hydroxide solution is added and then in excess.	A white ppt. is formed which remain insoluble.	(iii)
To a salt 'Z' calcium hydroxide solution is added and then heated.	A pungent smelling gas turning moist red litmus paper blue is obtained.	(iv)

A. (i) Zn^{2+}, (ii) Cu^{2+}, (iii) Ca^{2+}, (iv) NH_4^+

B. (i) Ba^{2+}, (ii) Cu^{2+}, (iii) Ca^{2+}, (iv) NH_4^+

C. (i) Ca^{2+}, (ii) Cu^{2+}, (iii) Zn^{2+}, (iv) NH_4^+

D. (i) Cu^{2+}, (ii) Zn^{2+}, (iii) Ca^{2+}, (iv) NH_4^+

Answer: A

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