



CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

STUDY OF ACIDS, BASES AND SALTS

Question

1. Mention the colour changes observed when the following indicators are added to acids :

Alkaline phenolphthalein solution



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2. Mention the colour changes observed when the following indicators are added to acids:

Methyl orange solution

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3. Mention the colour changes observed when the following indicators are added to acids :

Neutral litmus solution.

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4. Acids dissolve in water to produce positively charged ions. Draw the structure of these positive ions.

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5. Select the acid which contains four hydrogen atoms in it.

(a) Formic acid

(b) Sulphuric acid

(c) Nitric acid

(d) Acetic acid

A. Formic acid

B. Sulphuric acid

C. Nitric acid

D. Acetic acid

Answer: D



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6. The aqueous solution of the following compounds which contains both ions and molecules is

A. Sulphuric acid

B. Hydrochloric acid

C. Nitric acid

D. Acetic acid

Answer: D



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7. A particular solution contains molecules and ions of the solute.

Therefore, it is a:

(a) weak acid

(b) strong acid

(c) strong base

(d) salt solution

A. weak acid

B. strong acid

C. strong base

D. salt solution

Answer: A



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8. Which of the following hydroxides is not an alkali?

- A. Ammonium hydroxide
- B. Calcium hydroxide
- C. Copper hydroxide
- D. Sodium hydroxide

Answer: C



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9. When a metallic oxide is dissolved in water, then the solution formed has a high concentration of which ions

- A. H^+
- B. H_3O^+

C. OH^-

D. M^+

Answer: C

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10. Turmeric spots on kitchen cloth turn brown-red when washed with soap. Why?

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11. To increase the pH value of a neutral solution we should add

A. an acid

B. an acid salt

C. an alkali

D. a salt

Answer: C

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12. Name an aqueous salt solution used for testing sulphate radical.

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13. An example of a complex salt is

- A. Zinc sulphate
- B. Sodium hydrogen sulphate
- C. Iron(II) ammonium sulphate
- D. Tetramminecopper(II) sulphate

Answer: D

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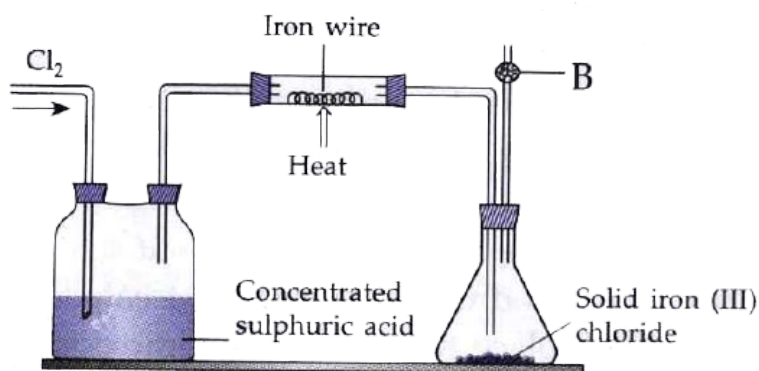
14. Match the following:

Column I	Column II
1. Acid salt	A. Ferrous ammonium sulphate
2. Double salt	B. Sodium hydrogen sulphate

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15. The given diagram is to prepare Iron(III) chloride in the laboratory:

- What is substance B?
- What is the purpose of B?
- Why is iron(III) chloride to be stored in a closed container?
- Write the equation for the reaction between iron and chlorine.



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16. 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. neutralisation

Answer: A



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17. Give balanced chemical equations for the following conversions:



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18. Write chemical reaction when lead nitrate solution is added to sodium chloride solution.

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19. Name the method used for the preparation of the following salts from the list given below:

- (i) Sodium nitrate
- (ii) Iron(III) chloride
- (iii) Lead chloride
- (iv) Zinc sulphate
- (v) Sodium hydrogen sulphate

List: (A) Simple displacement

(B) Neutralisation

(C) Decomposition by acid

(D) Double decomposition

(E) Direct synthesis.

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20. The action of heat on the blue crystalline solid L gives a reddish brown gas M, a gas which relights a glowing splint and leaves a black residue. When gas N, which has a rotten egg smell, is passed through a solution of L, a black precipitate is formed.

(i) Identity L, M and N (name or formula)

(ii) Write the equation for the action of heat of L.

(iii) Write the equation for the reaction between the solution of L and the gas N.



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21. Match the salts given in Column I with their . method of preparation given in Column II :

Column I	Column II
(i) $\text{Pb}(\text{NO}_3)_2$ from PbO	(A) Simple displacement
(ii) MgCl_2 from Mg	(B) Titration
(iii) FeCl_3 from Fe	(C) Neutralization
(iv) NaNO_3 from NaOH	(D) Precipitation
(v) ZnCO_3 from ZnSO_4	(E) Combination

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Questions For Practice

1. Define an acid in terms of ions.

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2. Write the effect of dilute hydrochloric acid on the colour of the following indicators:

Methyl orange

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3. Write the effect of dilute hydrochloric acid on the colour of the following indicators:

Phenolphthalein

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4. Write the effect of dilute hydrochloric acid on the colour of the following indicators:

Blue litmus

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5. Write the effect of dilute hydrochloric acid on the colour of the following indicators:

Red litmus

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6. Name the cations given by an acid in aqueous solution.

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7. Select the monoprotic, diprotic and triprotic acids from the following:

(i) Hydrochloric acid

(ii) Sulphuric acid

(iii) Phosphoric acid

(iv) Acetic acid

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8. Write the formula of hydronium ion.

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9. An element combines with oxygen to form an oxide. This oxide dissolves in water. This aqueous solution changes blue litmus to red.

Write

the nature of the aqueous solution (alkaline or acidic).

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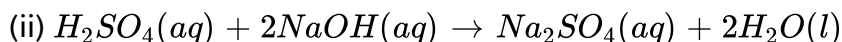
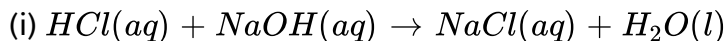
10. An element combines with oxygen to form an oxide. This oxide dissolves in water. This aqueous solution changes blue litmus to red.

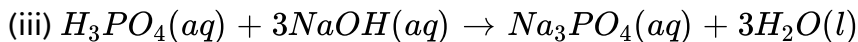
Write

the nature of the element (metal or nonmetal)

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11. With the help of the following equations, answer the given questions:

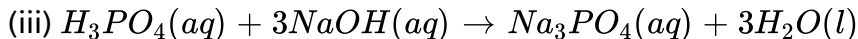
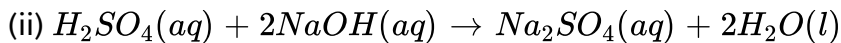
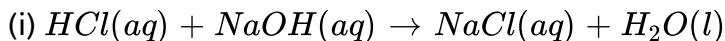




Which acid is diprotic, and which one is triprotic?

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12. With the help of the following equations, answer the given questions:



Is sulphuric acid a diprotic acid?

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13. Write the names and formulae of mono-, di- and triprotic acids.

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14. Fill in the blanks by using the correct word/term given in the brackets.

The acid present in vinegar is _____. (HCl / CH_3COOH)

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15. Fill in the blanks by using the correct word/term given in the brackets.

An indicator changes its _____ with change of the nature of the solution.

(colour/mass)

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16. Fill in the blanks by using the correct word/term given in the brackets.

An acid produces ____ ions in aqueous solution. (hydrogen/hydroxide)

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17. Fill in the blanks by using the correct word/term given in the brackets.

The properties of _____ are due to the hydrogen ions it produces in aqueous solution. (acid/alkali)



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18. Fill in the blanks by using the correct word/term given in the brackets.

The blue colour of litmus solution is changed to red by _____ (acid/base)



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19. Fill in the blanks by using the correct word/term given in the brackets.

An acid _____ change the colour of phenolphthalein. (must/does not)



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20. Fill in the blanks by using the correct word/term given in the brackets.

The concentration of H^+ ions given by HCl is _____ than that given by equal concentration of CH_3COOH . (less/greater).

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21. Fill in the blanks by using the correct word/term given in the brackets.

HCl(aq) is a monoprotic acid. Therefore, CH_3COOH (aq) is a _____ acid.

(monoprotic/tetraprotic)

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22. Name the bases NaOH, KOH, and NH_4OH .

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23. An element burns in oxygen to form its oxide which is soluble in water. This aqueous solution gives a pink colour with phenolphthalein. What conclusions do you draw from these observations?

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24. Write the equations to represent the reaction of sodium hydroxide with hydrochloric acid.

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25. Give one example of each of the following:

A basic oxide which is soluble in water.

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26. Give one example of each of the following:

A metal hydroxide which is highly soluble in water.

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27. Give one example of each of the following:

A basic oxide which is insoluble in water.

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28. Fill in the blanks by using the correct word/term given in the bracket and rewrite the complete sentence in your notebook:

A water soluble base produces ___ ions in solution. (H^+ / OH^-)

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29. Fill in the blanks by using the correct word/term given in the bracket and rewrite the complete sentence in your notebook:

Sodium carbonate has _____ character. (basic/amphoteric)

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30. Fill in the blanks by using the correct word/term given in the bracket and rewrite the complete sentence in your notebook:

The reaction between an acid and a base is called _____ reaction.
(oxidation/neutralisation)

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31. Fill in the blanks by using the correct word/term given in the bracket and rewrite the complete sentence in your notebook:

A farmer treats the soil of his field with lime when the soil has _____ nature. (basic/acidic)

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32. Answer the following questions with respect to the solutions marked 'A' and 'B' having pH values 4 and 10 respectively.

Which one of the two solutions will show acidic nature?

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33. Answer the following questions with respect to the solutions marked 'A' and 'B' having pH values 4 and 10 respectively.

Which solution will change red litmus blue?

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34. Answer the following questions with respect to the solutions marked 'A' and 'B' having pH values 4 and 10 respectively.

Which solution will give a red colour with methyl orange?

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35. Answer the following questions with respect to the solutions marked 'A' and 'B' having pH values 4 and 10 respectively.

Which solution will liberate carbon dioxide from sodium carbonate?

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36. Two acids A and B have pH values 1 and 5 respectively. Which is the stronger acid, A or B?

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37. The pH of a neutral solution is 7.

What is the pH of an alkaline solution, less than or greater than 7?

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38. The pH of a neutral solution is 7.

What is the pH of an acidic solution, less than or greater than 7?

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39. What is the pH value of the solution when the hydrogen ion concentration is 10^{-5} ?

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40. Two solutions A and B have pH values 3 and 8 respectively. Which one of these two will give a pink colour with phenolphthalein indicator?

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41. The pH values of two soft drinks P and Q are 6.4 and 8.2 respectively. If P is acidic, what is the pH value of the alkaline drink?



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42. What is the pH of a solution in which $[H^+]$ is 10^{-10} mole/L ? Is it an acidic, alkaline or neutral solution?



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43. A solution has a pH of 7. Tell how would you increase its pH



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44. A solution has a pH of 7. Tell how would you decrease its pH.



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45. If a solution changes red litmus blue, what can you say about its pH value, less than 7 or greater than 7?

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46. What can you say about the pH of a solution that liberates carbon dioxide from sodium carbonate?

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47. Define the pH scale.

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48. The pH of pure water is 7. Compare the pH of sulphur dioxide solution

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49. The pH of pure water is 7. Compare the pH of ammonia solution with that of pure water.

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50. Solution P has a pH of 13, solution Q has a pH of 6 and solution R has a pH of 2.

Which solution will liberate ammonia from ammonium sulphate on heating?

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51. Solution P has a pH of 13, solution Q has a pH of 6 and solution R has a pH of 2.

Which solution is a strong acid?

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52. Solution P has a pH of 13, solution Q has a pH of 6 and solution R has a pH of 2.

Which solution contains solute molecules as well as ions?

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53. When red litmus is added to a solution of borax, it turns blue. What can you say about the pH of borax solution?

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54. Fill in the blanks by using the correct word/term given in the brackets.

The pH of an acid is ____ than 7. (greater/less)

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55. Fill in the blanks by using the correct word/term given in the brackets.

A solution is said to have _____ character when its pH is greater than seven. (basic/acidic)

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56. Fill in the blanks by using the correct word/term given in the brackets.

The pH of a neutral solution is _____ at 298 K. (zero/7)

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57. Fill in the blanks by using the correct word/term given in the brackets.

The pH of 10^{-6} is _____ than that of 10^{-4} HCl. (greater/less)

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58. Fill in the blanks by using the correct word/term given in the brackets.

The pH of water decreases when ____ is dissolved in it. (NH_3 / SO_2)

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59. Fill in the blanks by using the correct word/term given in the brackets.

The hydrogen ion concentration of a solution with pH = 3 is ____ than the solution with pH = 6. (greater/less)

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60. Select the word/words from the given list required to complete the following statements. Use one word only once and do not copy the complete statement.

[ammonia, carbonate, ammonium, carbon dioxide, hydrogen, hydronium, hydroxide, salt, water, precipitate]

(i) A solution M turns blue litmus red, therefore, it must contain (a) ____ ions. Another solution O turns red litmus blue, hence, it must contain

(b) ___ ions.

(ii) When solutions M and O are mixed, the product will be (c) _____ and

(d) _____ .

(iii) If a piece of magnesium was put into solution M (e) ___ gas would evolve.

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61. Give ionic definition of a salt.

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62. Write balanced chemical equations to show the formation of the following salts by neutralisation reaction:

NaCl

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63. Write balanced chemical equations to show the formation of the following salts by neutralisation reaction:



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64. Write balanced chemical equations to show the formation of the following salts by neutralisation reaction:



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65. Salt formation from acids and alkalis can be stated essentially as the neutralisation of hydrogen and hydroxide ions'. Illustrate it with neutralisation reaction between HCl and NaOH.

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66. Give one example of each of the following:

Soluble salt



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67. Give one example of each of the following:

Normal salt



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68. Give one example of each of the following:

Hydrated salt



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69. Give one example of each of the following:

Insoluble salt



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70. Give an example of hydrated salt which is blue and soluble in water

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71. Give an example of hydrated salt which is efflorescent

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72. Write balanced chemical equations for the preparation of the following salts in the laboratory:

A soluble chloride by the action of an acid on a metal.

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73. Write balanced chemical equations for the preparation of the following salts in the laboratory:

A soluble sulphate by the action of an acid on insoluble metal oxide.

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74. Write balanced chemical equations for the preparation of the following salts in the laboratory:

An insoluble salt by the action of an acid on another salt.

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75. Write chemical equation for the preparation of $CuSO_4 \cdot 5H_2O$ in the laboratory.

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76. Write balanced chemical equation for the preparation of Glauber's salt in the laboratory.

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77. In the preparation of iron (III) chloride by the action of dry chlorine on hot iron, heating is discontinued once the reaction starts. Give reason.

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78. You are provided with the following chemicals:

$[Cl_2, H_2SO_4, HCl(aq), Fe, ZnSO_4, CO_2, Zn, Na_2CO_3, MgSO_4, NaOH]$ a

Using suitable chemicals from the given list only, write chemical equations to prepare the following:

Sodium zincate

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79. You are provided with the following chemicals:

$[Cl_2, H_2SO_4, HCl(aq), Fe, ZnSO_4, CO_2, Zn, Na_2CO_3, MgSO_4, NaOH]$ a

Using suitable chemicals from the given list only, write chemical equations to prepare the following:

Iron (II) sulphate

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80. You are provided with the following chemicals:

$[Cl_2, H_2SO_4, HCl(aq), Fe, ZnSO_4, CO_2, Zn, Na_2CO_3, MgSO_4, NaOH]$ a

Using suitable chemicals from the given list only, write chemical equations to prepare the following:

Sodium zincate

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81. You are provided with the following chemicals:

$[Cl_2, H_2SO_4, HCl(aq), Fe, ZnSO_4, CO_2, Zn, Na_2CO_3, MgSO_4, NaOH]$ a

Using suitable chemicals from the given list only, write chemical equations to prepare the following:

Iron (III) chloride

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82. What happens when (write balanced chemical equations only)

Concentrated sulphuric acid is added to sodium chloride.

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83. What happens when (write balanced chemical equations only)

Solutions of sodium sulphate and barium chloride are mixed.

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84. What happens when (write balanced chemical equations only)

Dry chlorine gas is passed over hot iron.

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85. What happens when (write balanced chemical equations only)

A mixture of iron filings and dilute sulphuric acid is heated.

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86. From the list given below, select the word(s) required to correctly complete blanks (i) to (v) in the following passage:

[ammonia, ammonium, carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water.]

A solution X turns blue litmus red, so it must contain (i) ____ ions, another solution Y turns red litmus blue and therefore, must contain (ii) ____ ions. When solutions X and Y are mixed together, the products will be a (iii) ____ and (iv) _____. If a piece of magnesium were put into solution X, (v) _____ gas would be evolved.

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Important Assignments

1. What is the pH of a solution when $[H^+] = 10^{-6}$? Also tell the nature of the solution.

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2. What is the concentration of hydrogen ions of a solution when its pH is 8?

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3. The pH values of solutions marked as A, B, C, D and E are 4, 1, 11, 7 and 9 respectively.

(i) Arrange these solutions in the decreasing order of pH.

(ii) Arrange these solutions in the increasing order of hydrogen ion concentrations.

(iii) In the list of the given solutions identify :

- (a) Neutral solution
- (b) Highly alkaline solution
- (c) Highly acidic solution
- (d) Moderately acidic solution
- (e) Moderately basic solution

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4. What is the concentration of hydrogen ions $[H^+(aq)]$ in a solution when $pH = 0$?

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5. The pH of two solutions A and B are 6 and 8 respectively. Now answer the following questions:

- (i) Which solution has more hydrogen ion concentration?
- (ii) Which solution is acidic and which one is basic?

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6. The pH decreases when milk is changed to curd. Give reason.

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Illustrative Assignments

1. Some methods used for the laboratory preparation of salts are

- (a) metal + acid
- (b) carbonate + acid
- (c) precipitation (double decomposition)
- (d) direct combination
- (e) titration

Copy and complete the following table.

Salt	Method of preparation
(i) Ammonium sulphate	e
(ii) Calcium carbonate	
(iii) Iron (III) chloride	
(iv) Lead nitrate	
(v) Zinc sulphate	

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2. Choosing only substances from the list given in the box below, write equations for the reactions which you would use in the laboratory to obtain:

(i) Sodium sulphate

(ii) Copper sulphate

(iii) Iron

(iv) Zinc carbonate

Dilute sulphuric acid, Copper, Iron, Sodium, Zinc, Copper carbonate, Sodium carbonate



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3. Write chemical equations for the laboratory preparation of the following salts using sulphuric acid:

Iron (II) sulphate from iron



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4. Write chemical equations for the laboratory preparation of the following salts using sulphuric acid:

Copper sulphate from copper

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5. Write chemical equations for the laboratory preparation of the following salts using sulphuric acid:

Lead sulphate from lead nitrate

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6. Write chemical equations for the laboratory preparation of the following salts using sulphuric acid:

Sodium sulphate from sodium carbonate

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7. From the formulae listed in the box, choose one in each case corresponding to the salt having the given description:

AgCl , CuCO_3 , $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, KNO_3 , NaCl , NaHSO_4 , $\text{Pb}(\text{NO}_3)_2$,

(i) an acid salt

(ii) an insoluble chloride

(iii) on treating with concentrated sulphuric acid, this salt changes from blue to white.

(iv) on heating, this salt changes from green to black.

(v) this salt gives nitrogen dioxide on heating.



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8. Write equations for the laboratory preparation of:

sodium sulphate using dilute sulphuric acid.



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9. Write equations for the laboratory preparation of:

lead sulphate using dilute sulphuric acid.

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10. Write balanced chemical equations for the preparation of the following compounds (as the major product) starting from iron and using only one other substance:

Iron (II) chloride

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11. Write balanced chemical equations for the preparation of the following compounds (as the major product) starting from iron and using only one other substance:

Iron (III) chloride

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12. Write balanced chemical equations for the preparation of the following compounds (as the major product) starting from iron and using only one other substance:

Iron (II) sulphate

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13. Write balanced chemical equations for the preparation of the following compounds (as the major product) starting from iron and using only one other substance:

Iron (II) sulphide

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14. Write balanced equations for the following reactions :

Lead sulphate from lead nitrate solution and dilute sulphuric acid.

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15. Write balanced equations for the following reactions:

Copper sulphate from copper and concentrated sulphuric acid.

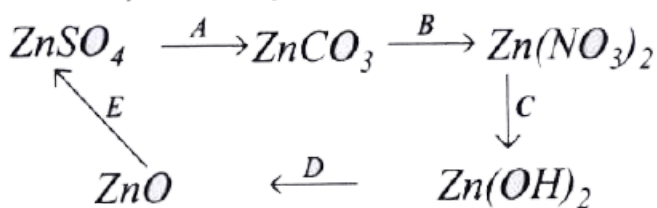
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16. Write balanced equations for the following reactions:

Lead chloride from lead nitrate solution and sodium chloride.

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17. Give the equations for the following conversions A to E.



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18. Write a balanced chemical equation for the preparation of each of the following salts:

Copper carbonate

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19. Write a balanced chemical equation for the preparation of each of the following salts:

Ammonium sulphate crystals

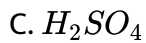
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Questions For Practice On Examination Pattern Section I

1. Which one of the following is the formula of a salt?

A. HCl

B. NaCl

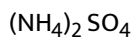


Answer: B



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2. Which one of the following is not the formula of a salt?



A. HCl

B. NaCl

C. $MgCl_2$

D. $(NH_4)_2SO_4$

Answer: A



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3. Of the following what is the pH of a solution which turns red litmus blue?

2

4

6

8

A. 2

B. 4

C. 6

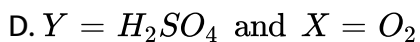
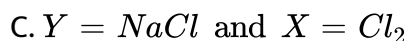
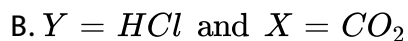
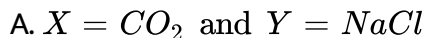
D. 8

Answer: D



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4. A colourless gas X is produced when egg shell is treated with a solution Y. The gas X turns lime water milky. What are X and Y?



Answer: B

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5. Which one of the following solutions will not turn blue litmus red?

Lemon juice

Acetic acid

Sodium hydroxide

HCl

- A. Lemon juice
- B. Acetic acid
- C. Sodium hydroxide
- D. HCl

Answer: C

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6. Which one of the following solutions will turn red litmus blue?

- A. Lemon juice
- B. Acetic acid
- C. Sodium hydroxide
- D. Hydrochloric acid

Answer: C

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7. Which one of the following solutions with same concentrations will have lowest pH?



HCl

KOH



A. $NaHCO_3$

B. HCl

C. KOH

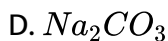
D. Na_2CO_3

Answer: B



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8. Which one of the following solutions with same concentrations is most basic?

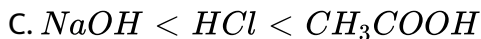


Answer: C



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9. What is the correct increasing order of the pH of the following solutions with equal concentrations?





Answer: B

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10. Which one represents the correct increasing order of acidic character of the samples?

(a) Water < Fruit juice < Sodium bicarbonate

(b) Water < Sodium bicarbonate < Fruit juice

(c) Fruit juice < Water < Sodium bicarbonate

(d) Sodium bicarbonate < Water < Fruit juice

A. Water < Fruit juice < Sodium bicarbonate

B. Water < Sodium bicarbonate < Fruit juice

C. Fruit juice < Water < Sodium bicarbonate

D. Sodium bicarbonate < Water < Fruit juice

Answer: D



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11. When a drop of a solution X is added to the universal indicator, a deep red colour is produced. Which one of the following is this sample?

A. Sodium hydroxide

B. Hydrochloric acid

C. Distilled water

D. Acetic acid

Answer: B



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12. The pH of a sample Y is found to be 10. This sample is

A. Sodium hydroxide

B. Hydrochloric acid

C. Distilled water

D. Acetic acid

Answer: A

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13. A student tests a sample of drinking water and reports its pH as 6 at room temperature. Which one of the following might have been added in water?

A. Washing soda

B. Common salt

C. Baking soda

D. Bleaching powder

Answer: D

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14. Sometimes chlorine gas is passed through water for its purification.

What will be the pH of such a sample of water?

- A. Equal to 7
- B. More than 7
- C. Less than 7
- D. Very near to 8

Answer: C



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15. The pH of a sample of pure water is 7 at room temperature. What will be its pH when a pinch of solid baking soda is dissolved in it?

Very near to 7

Less than 7

More than 7

Exactly 7

A. Very near to 7

B. Less than 7

C. More than 7

D. Exactly 7

Answer: C



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16. The pH of a solution of sodium hydroxide is 9. What will be its pH when this solution is diluted?

A. Less than 9

B. More than 9

C. Equal to 9

D. Equal to 10

Answer: B



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17. The pH of a sample of hydrochloric acid is 3.5. What will be its pH when this solution is diluted?

A. Less than 3.5

B. Equal to 3.5

C. More than 3.5

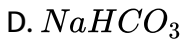
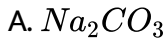
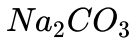
D. Exactly 3

Answer: C



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18. Which one is the formula of baking soda?



Answer: D



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19. $NaHCO_3$ represents the formula of which one of the following?

A. Sodium carbonate

B. Washing soda

C. Sodium acetate

D. Baking soda

Answer: D



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20. Which one of the following is a strong acid?

A. CH_3COOH

B. HCl

C. $H_2C_2O_4$

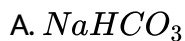
D. H_2CO_3

Answer: B



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21. The aqueous solution of which one of the following salts will be acidic?



Answer: C



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22. An aqueous solution of a salt has basic nature. What are the types of acid and base from which this salt is formed?

A. Weak acid and weak base

B. Strong acid and strong base

C. Strong acid and weak base

D. Weak acid and strong base

Answer: D

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23. Four students A, B, C and D of Class X measured the pH of the given samples of distilled water, 0.1 M solution of ethanoic acid, 0.1 M solution of hydrochloric acid and 0.1 M solution of sodium hydroxide using pH papers at 298 K. Tell which one of the following represents a correct measurement?

Student	Water	CH ₃ COOH	HCl	NaOH
A	7	1	1	1
B	7	3	1	1
C	7	1	1	13
D	7	3	1	13

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24. Preparation of zinc sulphate by the action of dilute sulphuric acid on zinc metal is called

- A. direct combination.
- B. displacement reaction.
- C. decomposition.
- D. double decomposition.

Answer: B

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25. Hydrogen chloride is formed when sodium chloride is treated with

- A. conc. HNO_3
- B. conc. H_2SO_4
- C. conc. HCl
- D. dil. HNO_3

Answer: B

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26. Select the odd one out and justify your choice:

HCl , $NaCl$, HNO_3 , CH_3COOH

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27. Select the odd one out and justify your choice:

$NaOH$, CH_3COOH , C_2H_5OH , HCl

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28. Select the odd one out and justify your choice:

Methyl orange, litmus, red cabbage extract, turmeric

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29. Select the odd one out and justify your choice:

$NaCl$, HCl , KCl , $MgCl_2$

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30. Select the odd one out and justify your choice:

NH_4Cl , $NaCl$, KCl , KNO_3

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31. Select the odd one out and justify your choice:

H_2SO_4 , HCl , H_2S , $(COOH)_2$

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32. Select the odd one out and justify your choice:

$NaOH$, KCl , $NaHCO_3$, Na_2CO_3





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33. Answer the following questions in one word or one sentence:

What is $10H_2O$ in $Na_2CO_3 \cdot 10H_2O$?



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34. Answer the following questions in one word or one sentence:

What is the nature of Na_2CO_3 in solution?



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35. Answer the following questions in one word or one sentence:

What is the nature of aqueous solution of ammonium chloride, acidic or basic?



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36. Answer the following questions in one word or one sentence:

What is the common name of sodium hydroxide?

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37. Answer the following questions in one word or one sentence:

Is sodium hydroxide an acid or a base?

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38. Answer the following questions in one word or one sentence:

What is the colour of phenolphthalein in a solution of NaOH?

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39. Answer the following questions in one word or one sentence:

What is the formula of blue vitriol?

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40. Select the true and false statements:

An acid turns red litmus blue.

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41. Select the true and false statements:

An aqueous solution of sodium chloride is neutral to indicators.

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42. Select the true and false statements:

$CuSO_4 \cdot 5H_2O$ is anhydrous salt.

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43. Select the true and false statements:

Magnesium hydroxide is an antidote for injuries by acids.

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44. Select the true and false statements:

Sulphuric acid is triprotic.

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45. Select the true and false statements:

Water is neutral to indicators, therefore, its pH is 7.

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46. Select the true and false statements:

All the alkalis are bases, but all the bases are not alkalis.





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47. Complete the following:

Acid + Base \rightarrow ____ + Water



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48. Complete the following:

$\text{NaOH}(\text{aq}) + \text{_____} \rightarrow \text{NaCl}(\text{aq}) + \text{H}_2\text{O}(\text{l})$



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49. Complete the following:

$\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2(\text{aq}) \rightarrow \text{_____} + \text{_____}$



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50. Complete the following:

An acid is a substance that contains _____ H atoms.

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51. Complete the following:

In a _____ acid, the number of the replaceable H atoms in its molecule is two.

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52. Complete the following:

Water-soluble base are called _____ .

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53. Match item (A) NH_4Cl , (B) NH_4OH , (C) $NaCl$, (D) $FeCl_3$, (E) $NaHSO_4$, (F) $NaOH$ with the correct description given in (i)-(vi) below.

(i) It is a weak base.

(ii) It is a salt of strong acid and a strong base.

(iii) It is formed by direct combination.

(iv) Its aqueous solution has acidic nature.

(v) It gives pink colour with phenolphthalein.

(vi) It is an acid salt.

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54. 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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55. Identify the substance Q based on the information given below:

The white crystalline solid Q is soluble in water. It liberates a pungent smelling gas when heated with sodium hydroxide solution.

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56. Identify the substance R based on the information given below:

The pale green solid R turns reddish brown on heating. Its aqueous solution gives a white precipitate with barium chloride solution. The precipitate is insoluble in mineral acids.

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57. Give the equation for the preparation of each of the following salts from the starting material given

Copper sulphate from copper (II) oxide.

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58. Give the equation for the preparation of each of the following salts from the starting material given

Iron(III) chloride from iron.

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59. Give the equation for the preparation of each of the following salts from the starting material given

Potassium sulphate from potassium hydroxide solution.

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60. Give the equation for the preparation of each of the following salts from the starting material given

Lead chloride from lead carbonate (two equations).

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61. Solution A is a sodium hydroxide solution. Solution B is a weak acid.

Solution C is dilute sulphuric acid. Which solution will

- (i) liberate sulphur dioxide from sodium sulphite?
- (ii) give a white precipitate with zinc sulphate solution?
- (iii) contain solute molecules and ions?

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Questions For Practice On Examination Pattern Section II

1. You are provided the solutions of sodium hydroxide (A), hydrochloric acid (B), sodium chloride (C) and phenolphthalein (P) separately. All the solutions are colourless. How will you identify the solutions of acid, base and salt?

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2. Sodium reacts with oxygen to produce sodium oxide, which dissolves in water to form sodium hydroxide. On adding hydrochloric acid to the base solution, salt and water are produced. Write balanced chemical equations to represent all the reactions stated in the question.

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3. Select the formulae of acids, bases and salts from the following list:

$NaCl$, $NaHSO_4$, $NaOH$, H_3PO_4 , Na_2CO_3 , $Ca(OH)_2$, $CuSO_4 \cdot 5H_2O$, H

KBr , $NaHCO_3$, $CaCO_3 \cdot 10H_2O$, KCl

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4. Name the following:

A base which is not alkali, and

a base which is alkali.

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5. Name the following:

A normal salt and its corresponding acid salt.

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6. Name the following:

A salt insoluble in cold water but soluble in hot water.

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7. Suggest a suitable method of preparation of the salts A, B, C and D (do not describe, give only balanced chemical equations).

(i) A is a sodium salt.

(ii) B is an insoluble salt.

(iii) C is a soluble salt of copper.

(iv) D is a soluble salt of zinc.

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8. You are provided with the following chemicals:

[Copper, Lead, Sodium hydroxide, Zinc, Copper oxide, Lead carbonate, Sodium carbonate solution, Dilute hydrochloric acid, Dilute nitric acid and Dilute sulphuric acid.]

From the above list, name the chemicals which you would use to prepare each one of the following salts:

Zinc sulphate

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9. You are provided with the following chemicals:

[Copper, Lead, Sodium hydroxide, Zinc, Copper oxide, Lead carbonate, Sodium carbonate solution, Dilute hydrochloric acid, Dilute nitric acid and Dilute sulphuric acid.]

From the above list, name the chemicals which you would use to prepare each one of the following salts:

Copper sulphate

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10. You are provided with the following chemicals:

[Copper, Lead, Sodium hydroxide, Zinc, Copper oxide, Lead carbonate, Sodium carbonate solution, Dilute hydrochloric acid, Dilute nitric acid and Dilute sulphuric acid.]

From the above list, name the chemicals which you would use to prepare each one of the following salts:

Sodium sulphate



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11. You are provided with the following chemicals:

[Copper, Lead, Sodium hydroxide, Zinc, Copper oxide, Lead carbonate, Sodium carbonate solution, Dilute hydrochloric acid, Dilute nitric acid and Dilute sulphuric acid.]

From the above list, name the chemicals which you would use to prepare each one of the following salts:

Lead sulphate



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12. Common laboratory apparatus are usually made of glass or porcelain but not of metals. Give reason.



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13. Solution A is a strong acid

Solution B is a weak alkali

Solution C is a strong alkali

Which solution contains solute molecules in addition to water molecules ?



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1. Give one word for the following :

An acid which contains four hydrogens but is monobasic

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2. Give one word for the following :

An acid present in lemon

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3. Give one word for the following :

A weak acid containing phosphorus

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4. Give one word for the following :

Ions formed when acids dissolved in water



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5. Give one word for the following :

Acidic oxides which dissolve in water are known as

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6. Give one word for the following :

Compounds which liberate H_2S gas when treated with acid

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7. Give one word for the following :

An acid present in solid state

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8. Give one word for the following :

An acid used to remove ink stains

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9. Give one word for the following :

An acid present in baking powder

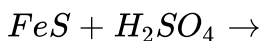
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10. Give one word for the following :

Ion liberated when acid reacts with water

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11. Complete the following equations :





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12. Complete the following equations :



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13. Complete the following equations :



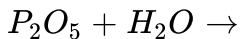
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14. Complete the following equations :



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15. Complete the following equations :



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16. Write short answers for the following :

Pure HCl is a non conductor of electricity but when it is dissolved in water it behaves as a good conductor.

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17. Write short answers for the following :

What do you observe when rod dipped in HCl is brought near ammonium hydroxide solution

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18. Write short answers for the following :

Give an equation to prepare a more volatile acid from a non-volatile acid.

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Worksheet 2

1. Name the following :

A basic solution which does not contain a metallic element.

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2. Name the following :

An alkali which on dissociation produces a high concentration of hydroxyl ions.

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3. Name the following :

A basic oxide which is amphoteric in nature.

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4. Name the following :

A base used as a foaming agent in fire extinguishers.

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5. Name the following :

A basic gas extremely soluble in water.

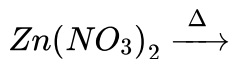
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6. Match the following bases with suitable phrases :

- | | |
|-----------------------|----------------------------------|
| 1. Slaked lime | (a) antacid |
| 2. Magnesia | (b) manufacture of soap |
| 3. Sodium hydroxide | (c) used to remove grease stains |
| 4. Ammonium hydroxide | (d) amphoteric oxide |
| 5. Zinc oxide | (e) softening of hard water |

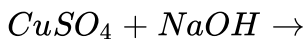
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7. Give balanced equations for the following :



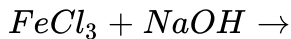
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8. Give balanced equations for the following :



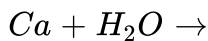
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9. Give balanced equations for the following :



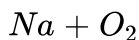
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10. Give balanced equations for the following :



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11. Give balanced equations for the following :



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12. Answer the following questions :

Name the category of compounds which liberate ammonia from

ammonium salts.

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13. Answer the following questions :

Why are alkalis used in space shuttles .

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14. Answer the following questions :

Name two bases which do not decompose on heating.

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15. Answer the following questions :

Can two bases react together ? Explain with reason.

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1. Tick the most appropriate answer :

Complex organic compounds which impart different shades of colour in the solution.

A. Indicators

B. pH

C. Bases

D. Acids

Answer:

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2. Tick the most appropriate answer :

Universal indicators impart colour in neutral solution.

A. Red

B. Yellow

C. Green

D. Blue

Answer:



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3. Tick the most appropriate answer :

A reaction in which proton combines with hydroxyl ions to form water.

A. Precipitation reaction

B. Neutralisation reaction

C. Acidification reaction

D. Amphoteric reaction

Answer:

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4. Tick the most appropriate answer :

The acidic or basic strength of a solution is measured by

- A. pH scale
- B. acidic scale
- C. neutral scale
- D. linnaeous scale

Answer:

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5. Tick the most appropriate answer :

- pH of blood is slightly

- A. acidic

B. basic

C. basic

D. none of these

Answer:

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6. Fill in the blanks with suitable words :

Universal indicator is a mixture of organic

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7. Fill in the blanks with suitable words :

For pure water hydroxyl ion concentration is equal to
..... concentration.

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8. Fill in the blanks with suitable words :

The product of $[H^+](aq.)$ and $[OH^-](aq.)$ is called the

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9. Fill in the blanks with suitable words :

Gastric juices secreted in our stomach are in nature.

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10. Fill in the blanks with suitable words :

Concentration of H^+ ions in water is

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11. Answer the following questions :

How is the acidity of soil removed ?

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12. Answer the following questions :

Why acetic acid is rubbed on the area where yellow wasps bite ?

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13. Answer the following questions :

Why is soil tested for pH ?

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14. Calculate the pH value of 0.001 M HCl if HCl is completely ionised

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15. Solution A has a pH of 12, solution B has a pH of 4 and solution C has a pH of 3 which solution:

Will liberate ammonia from ammonium sulphate on heating ?

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16. Solution A has a pH of 12, solution B has a pH of 4 and solution C has a pH of 3 which solution:

Is a strong acid

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17. Solution A has a pH of 12, solution B has a pH of 4 and solution C has a pH of 3 which solution:

Contains molecules as well as ions ?

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1. Match the following salts with their examples :

- | | |
|-----------------|---|
| 1. Normal salt | $K_4[Fe(CN)_6]$ |
| 2. Acid salts | K_2SO_4 , $Al_2(SO_4)_3 \cdot 24H_2O$ |
| 3. Basic salt | $CaOCl_2$ |
| 4. Double salt | $NaCl$ |
| 5. Mixed salt | $NaHSO_4$ |
| 6. Complex salt | $Cu(OH)Cl$ |



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2. Write the formula for :

Bleaching powder :



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3. Write the formula for :

copper chloride:



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4. Write the formula for :

Potash alum :



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5. Write the formula for :

Potassium ferrocyanide :



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6. Write the formula for :

Sodium bisulphate :



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7. Give the effect of litmus on the following salts : (Use hydrolysis mechanism)

Ferric chloride

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8. Give the effect of litmus on the following salts : (Use hydrolysis mechanism)

Potassium carbonate

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9. Give the effect of litmus on the following salts : (Use hydrolysis mechanism)

Ammonium acetate

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10. Give the effect of litmus on the following salts : (Use hydrolysis mechanism)

Sodium sulphate

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11. On the basis of graph shown answer the following questions :

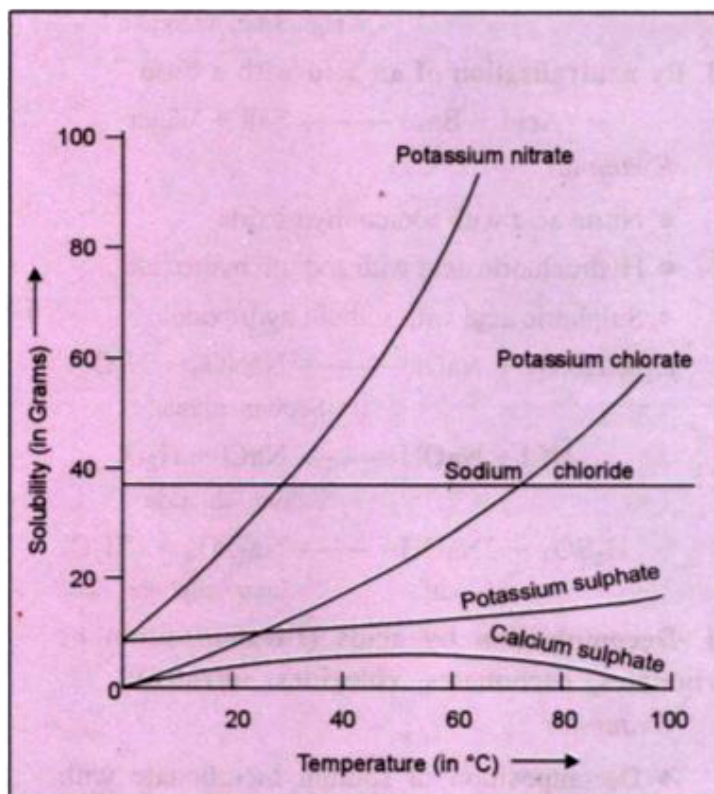


Fig. Variation in solubility of some salts with change in temperature.

A salt whose solubility increases with increase in temperature.

.....

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12. On the basis of graph shown answer the following questions :

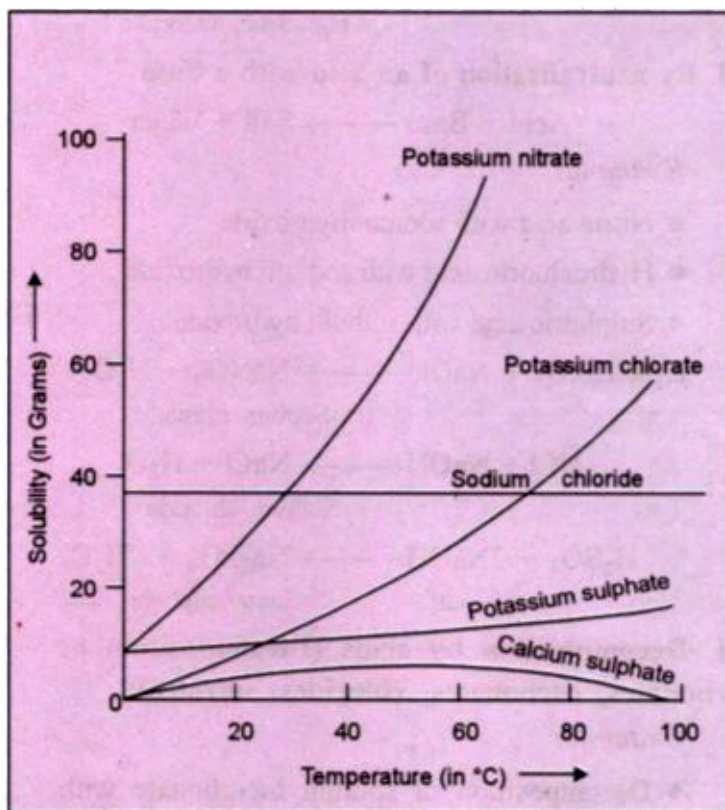


Fig. Variation in solubility of some salts with change in temperature.

A salt whose solubility first increase and then decrease.

.....

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13. On the basis of graph shown answer the following questions :

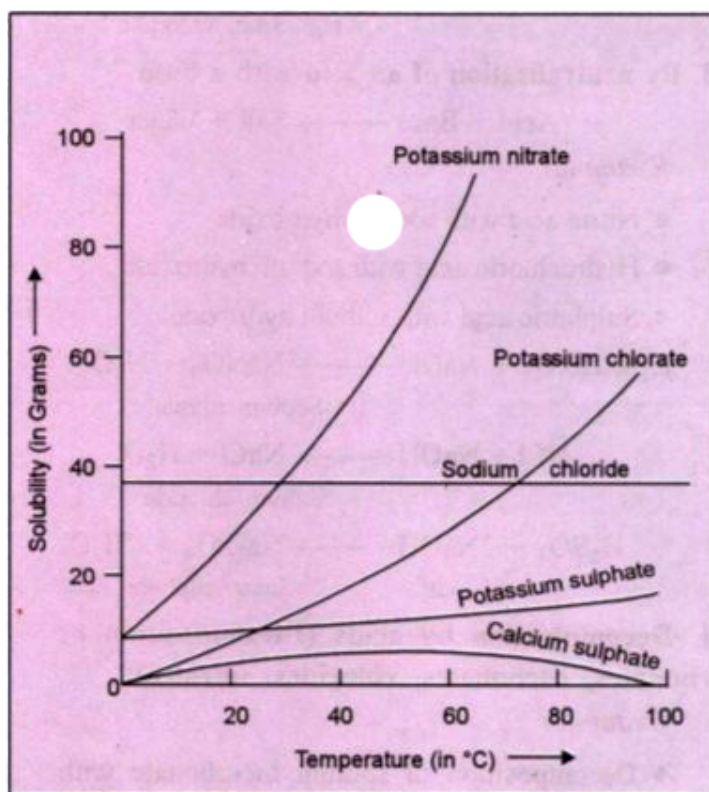


Fig. Variation in solubility of some salts with change in temperature.

A salt whose solubility remains constant.

.....

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Worksheet 5

1. The question refer to the following salt solutions listed A to F

(A) Copper nitrate [B] Iron sulphate

[C] Iron (III) chloride [D] Lead nitrate

[E] Magnesium sulphate [F] Zinc chloride

Which two solutions will give a white precipitate when acidified dilute hydrochloric acid followed by barium chloride solution ?

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2. The question refer to the following salt solutions listed A to F

(A) Copper nitrate [B] Iron sulphate

[C] Iron (III) chloride [D] Lead nitrate

[E] Magnesium sulphate [F] Zinc chloride

Which two solutions will give a white precipitate when treated with dilute nitric acid followed by silver nitrate solution ?



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3. The question refer to the following salt solutions listed A to F

[A] Copper nitrate [B] Iron sulphate

[C] Iron (III) chloride [D] Lead nitrate

[E] Magnesium sulphate [F] Zinc chloride

Which solutions will give a white precipitate when dilute sulphuric acid is added it ?



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4. The question refer to the following salt solutions listed A to F

[A] Copper nitrate [B] Iron sulphate

[C] Iron (III) chloride [D] Lead nitrate

[E] Magnesium sulphate [F] Zinc chloride

Which solution develops deep inky blue colour when excess of ammonium hydroxide is added to it ?

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5. The question refer to the following salt solutions listed A to F

[A] Copper nitrate [B] Iron sulphate

[C] Iron (III) chloride [D] Lead nitrate

[E] Magnesium sulphate [F] Zinc chloride

Which solution gives a white precipitate with excess ammonium hydroxide ?

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6. Some methods used for the laboratory preparation of salts are :

[A] Metal + acid, [B] Carbonate + acid,

[C] Carbonate + acid, [D] Precipitation [double decomposition] ,

[E] Titration , [F] Direct synthesis.

State the methods of preparation i.e., A, B, C, D or E for each of the following salts.

Ammonium sulphate

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7. Some methods used for the laboratory preparation of salts are :

[A] Metal + acid, [B] Carbonate + acid,

[C] Carbonate + acid, [D] Precipitation [double decomposition] ,

[E] Titration , [F] Direct synthesis.

State the methods of preparation i.e., A, B, C, D or E for each of the following salts.

Calcium carbonate

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8. Some methods used for the laboratory preparation of salts are :

[A] Metal + acid, [B] Carbonate + acid,

[C] Carbonate + acid, [D] Precipitation [double decomposition] ,

[E] Titration , [F] Direct synthesis.

State the methods of preparation i.e., A, B, C, D or E for each of the following salts.

Iron (III) chloride

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9. Some methods used for the laboratory preparation of salts are :

[A] Metal + acid, [B] Carbonate + acid,

[C] Carbonate + acid, [D] Precipitation [double decomposition] ,

[E] Titration , [F] Direct synthesis.

State the methods of preparation i.e., A, B, C, D or E for each of the following salts.

Zinc sulphate

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10. Some methods used for the laboratory preparation of salts are :

[A] Metal + acid, [B] Carbonate + acid,

[C] Carbonate + acid, [D] Precipitation [double decomposition] ,

[E] Titration , [F] Direct synthesis.

State the methods of preparation i.e., A, B, C, D or E for each of the following salts.

Lead nitrate

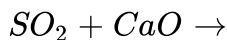
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11. Complete the following equations :



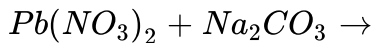
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12. Complete the following equations :



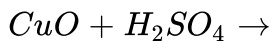
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13. Complete the following equations :



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14. Complete the following equations :



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15. Complete the following equations :



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16. With respect to the titration of acid and base. Answer the following questions :

Which solution is taken in the flask ?

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17. With respect to the titration of acid and base. Answer the following questions :

Which solution is taken in the burette ?

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18. With respect to the titration of acid and base. Answer the following questions :

What is the reaction between acid and base called ?

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19. With respect to the titration of acid and base. Answer the following questions :

Name the indicator used in the above process.

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Additional Questions For Practice

1. Explain why :

Sulphuric acid forms two series of salts?

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2. Explain why :

Phosphoric acid forms three series of salts?

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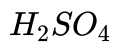
3. Give ionisation reaction of :

$NaCl$



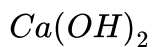
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4. Give ionisation reaction of :



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5. Give ionisation reaction of :



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6. Define the following term, giving at least two examples :

normal salt



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7. Define the following terms, giving at least two examples :

acid salt

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8. Define the following terms, giving at least two examples :

basic salt

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9. Define the following terms, giving at least two examples :

double salt

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10. Define the following terms, giving at least two examples :

mixed salt



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11. Define the following terms, giving at least two examples :

complex salt

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12. Pick out (i) soluble salt (ii) insoluble salt from the following :

ammonium carbonate,

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13. Pick out (i) soluble salt (ii) insoluble salt from the following :

lead sulphate

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14. Pick out (i) soluble salt (ii) insoluble salt from the following :

copper nitrate

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15. Pick out (i) soluble salt (ii) insoluble salt from the following :

zinc sulphide

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16. Pick out (i) soluble salt (ii) insoluble salt from the following :

calcium bicarbonate

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17. Pick out (i) soluble salt (ii) insoluble salt from the following :

sodium sulphite





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18. Pick out (i) soluble salt (ii) insoluble salt from the following :

aluminium sulphate



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19. Pick out (i) soluble salt (ii) insoluble salt from the following :

silver nitrate



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20. Pick out (i) soluble salt (ii) insoluble salt from the following :

magnesium bisulphate



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21. Pick out (i) soluble salt (ii) insoluble salt from the following :
potassium chloride.

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22. Briefly describe how will you obtain crystals of zinc sulphate starting from zinc and dilute sulphuric acid ?

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23. You are required to prepare lead sulphate from lead carbonate. Briefly explain how will you proceed ?

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24. Differentiate alkali and a base.

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25. While preparing the solution of silver nitrate in distilled water, we always add a few drops of nitric acid. Explain your answer.

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26. Show the hydrolysis of sodium carbonate.

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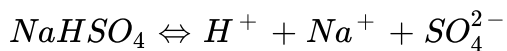
27. How does carbonates react with dilute acids ?

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28. Give reasons for the following :

Sodium hydrogen sulphate is not an acid but it dissolves in water to give

hydrogen ions, according to the equation



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29. For each of the salt : A, B, C and D, suggest a suitable method of its preparation :

A is a sodium salt.

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30. For each of the salt : A, B, C and D, suggest a suitable method of its preparation :

B is an insoluble salt.

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31. For each of the salt : A, B, C and D, suggest a suitable method of its preparation :

C is a soluble salt of copper

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32. For each of the salt : A, B, C and D, suggest a suitable method of its preparation :

D is a soluble salt of zinc.

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33. The pH value of pure water is 7. Compare the pH values of sulphur dioxide solution and ammonia solution with that of pure water.

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34. A solution has a pH of 7. Explain how you would :

(i) increase its pH, (ii) decrease its pH

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35. If a solution changes the colour of litmus from red to blue, what can you say about its pH.

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36. What can you say about the pH of a solution, that liberates carbon dioxide from sodium carbonate?

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37. A few drops of sodium hydroxide solution are added to very slightly acidic indicators. State the change in colour in case of (1) methyl orange

solution, (2) phenolphthalein solution, (3) litmus solution.

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38. What do you understand by the pH value of a solution?

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39. What is the pH value for water ?

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40. Will the given solution be acidic or alkaline if
its pH value is less than 7 ?

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41. Will the given solution be acidic or alkaline if more than 7 ?

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Questions From Previous Icse Board Papers

1. What will be the effect of the following solutions on blue litmus ?

Aqueous solution of sodium carbonate.

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2. What will be the effect of the following solutions on blue litmus ?

Aqueous solution of magnesium chloride.

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3. From the list of metals given below, select a metal whose hydroxide is soluble in sodium hydroxide solution:

List : Calcium, magnesium, iron, zinc.

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4. List below gives salts solutions to be prepared in laboratory.

(A) Sodium chloride solution.

(B) Sodium sulphate solution.

(C) Lead nitrate solution.

Write balanced chemical equations for their preparation using the reactants given below :

Solution A from sodium carbonate solution and dilute hydrochloric acid.

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5. List below gives salts solutions to be prepared in laboratory.

(A) Sodium chloride solution.

(B) Sodium sulphate solution.

(C) Lead nitrate solution.

Write balanced chemical equations for their preparation using the reactants given below :

Solution A from sodium hydroxide solution and dilute hydrochloric acid.

Solution B from sodium hydroxide solution and dilute sulphuric acid.

Solution C from lead carbonate and dilute nitric acid.

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6. List below gives salts solutions to be prepared in laboratory.

(A) Sodium chloride solution.

(B) Sodium sulphate solution.

(C) Lead nitrate solution.

Write balanced chemical equations for their preparation using the reactants given below :

Solution C from lead carbonate and dilute nitric acid.

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7. List below gives salts solutions to be prepared in laboratory.

(A) Sodium chloride solution.

(B) Sodium sulphate solution.

(C) Lead nitrate solution.

The solution A is added to solution C. Write the equation for the reaction and name the insoluble product.

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8. List below gives salts solutions to be prepared in laboratory.

(A) Sodium chloride solution.

(B) Sodium sulphate solution.

(C) Lead nitrate solution.

Solution B is added to solution C. Write the equation for the reaction and name the insoluble product formed.

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9. Match the description below with appropriate term from the list A to D.

A. Acidic oxide B. Alkali C. Amphoteric oxide D. Basic oxide

A compound which is soluble in water and only negative ions in the solution are hydroxide ions.

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10. Match the description below with appropriate term from the list A to

D.

A. Acidic oxide B. Alkali C. Amphoteric oxide D. Basic oxide

An oxide, which forms salts when it reacts both with acids and alkalis

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11. The preparation of lead sulphate from lead carbonate is a two step process. [Lead sulphate cannot be prepared by adding dilute sulphuric acid to lead carbonate].

What is the first step required to prepare lead sulphate from lead carbonate ?

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12. The preparation of lead sulphate from lead carbonate is a two step process. [Lead sulphate cannot be prepared by adding dilute sulphuric acid to lead carbonate].

Write the equation for the reaction that will take place when this first step is carried out.

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13. The preparation of lead sulphate from lead carbonate is a two step process. [Lead sulphate cannot be prepared by adding dilute sulphuric acid to lead carbonate].

Why is direct addition of dilute sulphuric acid to lead carbonate impractical method of preparing lead sulphate ?

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14. Fill in the blanks with suitable words :

An acid is a compound which dissolves in water to form hydronium ions as the only ions. A base is a compound which if soluble in water contains ions. A base reacts with an acid to form a and water only. The type of reaction is known as

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15. Mention the colour changes observed when the following indicators are added to acids :

Alkaline phenolphthalein solution

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16. Mention the colour changes observed when the following indicators are added to acids :

Methyl orange solution



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17. Mention the colour changes observed when the following indicators are added to acids :

Neutral litmus solution.



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18. Which of the following hydroxides is an alkali?

- a) ammonium hydroxide
- b) calcium hydroxide
- c) copper hydroxide
- d) sodium hydroxide.

A. ammonium hydroxide

B. calcium hydroxide

C. copper hydroxide

D. sodium hydroxide.

Answer:



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19. From the list given below, select the word(s) required to correctly complete blank (i) to (v) in the following passage :

ammonia, ammonium carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water.

A solution X turns blue litmus red, so it must contain :

(i) ions, another solution Y turns red litmus blue and therefore, must contain (ii) ions. When solutions X and Y are mixed together, the products will be a (iii) and (iv)

.. If a piece of magnesium were put into solution X, (v) gas would be evolved. (Note : Words chosen from the list are to be used only once. Write the answers as (a) (i), (ii) (iii) and so on. Do not copy the passage.)

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20. Match the following :

Column A	Column B
1. Acid salt	A. Sodium potassium carbonate
2. Mixed salt	B. Alum
3. Complex salt	C. Sodium carbonate
4. Double salt	D. Sodium zincate
5. Normal salt	E. Sodium hydrogencarbonate

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21. Write balanced equations for the following reactions :

Lead sulphate from lead nitrate solution and dilute sulphuric acid.

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22. Write balanced equations for the following reactions :

Copper sulphate from copper and concentrated sulphuric acid.

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23. Write balanced equations for the following reactions :

Lead chloride from lead nitrate solution and sodium chloride solution

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24. Write balanced equations for the following reactions :

Ammonium sulphate from ammonia and dilute sulphuric acid.

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25. Write balanced equations for the following reactions :

Sodium chloride from sodium carbonate solution and dilute hydrochloric

acid.



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26. Marking use only of substances chosen from those given below

Dilute sulphuric acid

zinc

lead

sodium carbonate

sodium sulphite

calcium carbonate

Give the equations for the reaction by which you could obtain

hydrogen



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27. Marking use only of substances chosen from those given below

Dilute sulphuric acid

zinc

lead

sodium carbonate

sodium sulphite

calcium carbonate

Give the equations for the reaction by which you could obtain

sulphur dioxide



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28. Marking use only of substances chosen from those given below

Dilute sulphuric acid

zinc

lead

sodium carbonate

sodium sulphite

calcium carbonate

Give the equations for the reaction by which you could obtain

carbon dioxide



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29. Marking use only of substances chosen from those given below

Dilute sulphuric acid

zinc

lead

sodium carbonate

sodium sulphite

calcium carbonate

Give the equations for the reaction by which you could obtain zinc carbonate (two steps required).



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30. Solution A is a strong acid

Solution B is a weak alkali

Solution C is a strong alkali

Which solution contains solute molecules in addition to water molecules ?



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31. Solution A is a strong acid

Solution B is a weak alkali

Solution C is a strong alkali

Which solution will give a gelatinous white precipitate with zinc sulphate solution ? The precipitate disappears when an excess of the solution is added.



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32. Solution A is a strong acid

Solution B is a weak alkali

Solution C is a strong alkali

Which solution could be a solution of glacial acetic acid ?



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33. Solution A is a strong acid

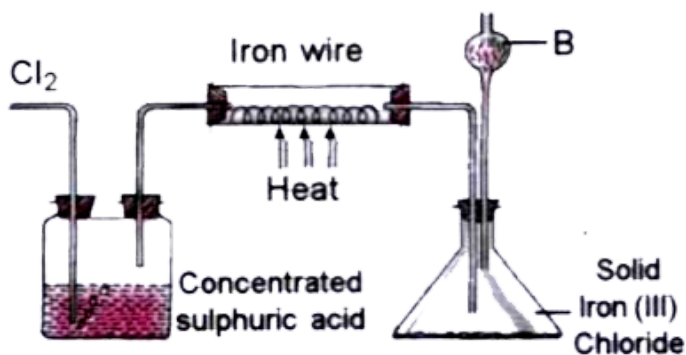
Solution B is a weak alkali

Solution C is a strong alkali

Give an example of a solution which is a weak alkali.

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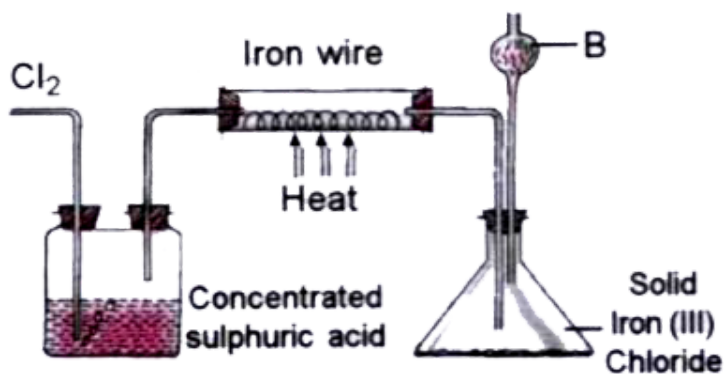
34. The diagram given below is to prepare Iron (III) chloride in the laboratory



What is substance B?

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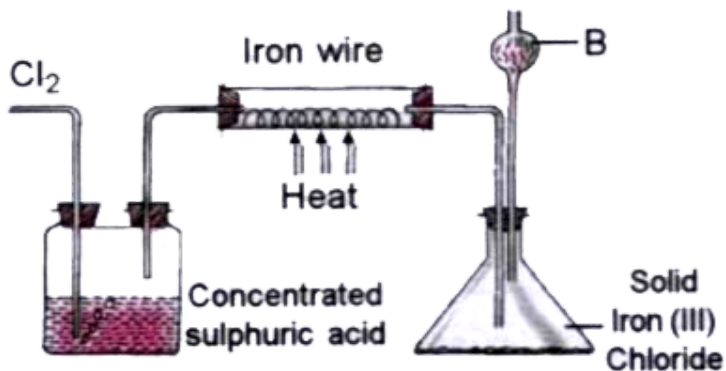
35. The diagram given below is to prepare Iron (III) chloride in the laboratory



What is the purpose of B?

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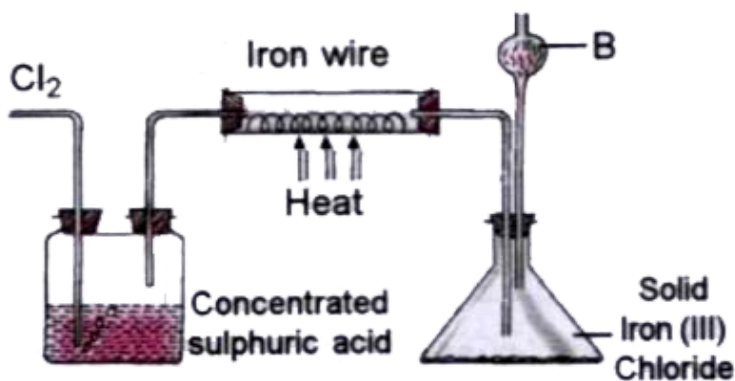
36. The diagram given below is to prepare Iron (III) chloride in the laboratory



Why is iron(III) chloride to be stored in a closed container?

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37. The diagram given below is to prepare Iron (III) chloride in the laboratory



Write the equation for the reaction between iron and chlorine.

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38. Equation(s) for the reaction(s) to prepare lead sulphate from lead carbonate.

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39. Define neutralisation.

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40. Select from the below given (a) and (b) one substances in each case which matches the description.

(a) Lead (II) Chloride (b) Sodium Chloride

A compound which is insoluble in cold water, but soluble in hot water.

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41. Select from the below given (a) and (b) one substances in each case which matches the description.

(a) Lead (II) Chloride (b) Sodium Chloride

A compound whose aqueous solution is neutral in nature.

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42. An example of a complex salt is :

A. Zinc sulphate

B. Sodium hydrogensulphate

C. Iron (II) ammonium sulphate

D. Tetrammine copper (II) sulphate.

Answer:

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43. Give the equation for the preparation of each of the following salts from the starting material given

Copper sulphate from copper (II) oxide.

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44. Give the equation for the preparation of each of the following salts from the starting material given

Iron (III) chloride from iron.

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45. Give the equation for the preparation of each of the following salts from the starting material given

Potassium sulphate from potassium hydroxide solution.

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46. Give the equation for the preparation of each of the following salts from the starting material given

Lead chloride from lead carbonate (two equations).

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47. Write the balanced chemical equation for each of the following reactions:

Lead nitrate solution is added to sodium chloride solution.

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48. Name the method used for preparation of the following salts from the list given below :

(i) Sodium nitrate (ii) Iron (III) chloride (iii) Lead chloride (iv) Zinc sulphate
(v) Sodium hydrogen sulphate.

List : (A) Simple displacement (B) Neutralization (C) Decomposition by acid (D) Double decomposition (E) Direct synthesis

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49. State one observation for the following : A zinc granule is added to copper sulphate solution.

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50. Match the following:

Column A	Column B
1. Acid salt	A. Ferrous ammonium sulphate
2. Double salt	B. Contains only ions
3. Ammonium hydroxide solution	C. Sodium hydrogen sulphate
4. Dilute hydrochloric acid	D. Contains only molecules
5. Carbon tetrachloride	E. Contains ions and molecules

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51. From the list given below, select the word(s) required to correctly complete blanks (i) to (ii) in the following passage. The words from the list are to be used only once. Write the answers as (a) (i), (ii), (iii). Do not copy the passage.

[ammonia, ammonium, carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water):

(i) A solution M turns blue litmus red, so it must contain (i) ions, another solution O turns red litmus blue and hence, must contain (ii) ions.

(ii) When solutions M and O are mixed together, the products will be (iii) and (iv)

(iii) If a piece of magnesium was put into a solution M, (v) gas would be evolved.



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52. State one appropriate observation for each of the following:

Copper sulphide is treated with dilute hydrochloric acid.

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53. Give suitable chemical terms for the following :

A salt formed by incomplete neutralisation of an acid by a base.

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54. Give suitable chemical terms for the following :

A definite number of water molecules bound to some salts.

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

Which one of the following will not produce an acid when made to react with water?

A. Carbon monoxide

B. Carbon dioxide

C. Nitrogen dioxide

D. Sulphur trioxide

Answer:



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56. 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(II)oxide

A. Calcium oxide

B. Barium oxide

C. Zinc oxide

D. Copper(II)oxide

Answer:

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57. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the laboratory to obtain the following salts:

Dilute	Copper	Copper(II) carbonate
Sulphuric acid	Iron	Sodium carbonate
	Sodium	Sodium chloride
		Zinc nitrate

Sodium sulphate

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58. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the

laboratory to obtain the following salts:

Dilute	Copper	Copper(II) carbonate
Sulphuric acid	Iron	Sodium carbonate
	Sodium	Sodium chloride
		Zinc nitrate

Zinc carbonate

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59. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the laboratory to obtain the following salts:

Dilute	Copper	Copper(II) carbonate
Sulphuric acid	Iron	Sodium carbonate
	Sodium	Sodium chloride
		Zinc nitrate

Copper(II) sulphate

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60. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the laboratory to obtain the following salts:

Dilute Sulphuric acid	Copper	Copper(II) carbonate
	Iron	Sodium carbonate
	Sodium	Sodium chloride
		Zinc nitrate

Iron(II) sulphate.

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61. Fill in the blank from the choices given within bracket:

The basicity of Acetic Acid is (3, 1, 4)

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62. Dilute sulphuric acid and dilute hydrochloric acid (using barium chloride solution)

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63. Give balanced chemical equations to prepare the following salts:

Lead sulphate from lead carbonate.

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64. Give balanced chemical equations to prepare the following salts:

Sodium sulphate using dilute sulphuric acid.

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65. Give balanced chemical equations to prepare the following salts:

Copper chloride using copper carbonate

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66. Identify the acid which matches the following description :

The acid which is used in the preparation of a non-volatile acid.

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67. Identify the acid which matches the following description :

The electrical conductivity of acetic acid is less in comparison to the electrical conductivity of dilute sulphuric acid at a given concentration

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68. Identify the acid which matches the following description :

Give balanced chemical equations for the following conversions A, B and

C :



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69. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

[SO_2 , SiO_2 , Al_2O_3 , MgO , CO , Na_2O]

A basic oxide.

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70. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

[SO_2 , SiO_2 , Al_2O_3 , MgO , CO , Na_2O]

An oxide which dissolves in water forming an acid.

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71. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

[SO_2 , SiO_2 , Al_2O_3 , MgO , CO , Na_2O]

An amphoteric oxide.





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72. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

$[SO_2, SiO_2, Al_2O_3, MgO, CO, Na_2O]$

A covalent oxide of a metalloid.



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73. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

An insoluble chloride.



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74. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

On heating, this salt gives a yellow residue when hot and white when cold.

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75. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

On heating this salt, a brown coloured gas is evolved.

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76. Fill in the blank with the choices given in brackets.

Higher the pH value of a solution, the more (acidic/alkaline) it is

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77. Match the salts given in Column I with their . method of preparation given in Column II :

Column I	Column II
(i) $\text{Pb}(\text{NO}_3)_2$ from PbO	(A) Simple displacement
(ii) MgCl_2 from Mg	(B) Titration
(iii) FeCl_3 from Fe	(C) Neutralization
(iv) NaNO_3 from NaOH	(D) Precipitation
(v) ZnCO_3 from ZnSO_4	(E) Combination

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78. Fill in the blank with the choices given in bracket.

When a metallic oxide is dissolved in water, the solution formed has a high concentration of Ions. (H^+ , H_3O^+ , OH^-)

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

To increase the pH value of a neutral solution, we should add

- A. an acid
- B. an acid salt
- C. an alkali
- D. a salt

Answer:



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80. 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:

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81. Identify the substance underlined in the following case :

A solid formed by reaction of two gases, one of which is acidic and the other basic in nature.

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82. Write a balanced chemical equation for the preparation of the following salt :

Copper carbonate

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83. Write a balanced chemical equation for the preparation of the following salt :

Ammonium sulphate crystals

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84. State one relevant observation for the following: Anhydrous calcium chloride is exposed to air for some time

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85. State one relevant observation for each of the following :

Barium chloride solution is slowly added to sodium sulphate solution.

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86. Give a reason for the following :

Conductivity of dilute hydrochloric acid is greater than that of acetic acid.

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87. Fill up the blank with the correct choice given in bracket. The salt prepared by the method of direct combination is _____

(iron (II) chloride/ iron (III) chloride)

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88. Three solutions P, Q and R have pH value of 3.5, 5.2 and 12.2 respectively.

Which one of these is a :

Weak acid ?

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89. Three solutions P, Q and R have pH value of 3.5, 5.2 and 12.2 respectively.

Which one of these is a :

Strong alkali ?

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90. Write a balanced equation for the preparation of each of the following salts:

Copper sulphate from Copper carbonate

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91. Write a balanced equation for the preparation of the following salt:

Zinc carbonate from Zinc sulphate

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1. An acid is a compound which when dissolved in water gives..... ions as the only ions.

A. Hydronium, negative

B. Hydronium, positive

C. Peroxide, negative

D. Peroxide, positive

Answer: B



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2. A acid undergoes almost complete dissociation on dissolving in water.

A. strong

B. Weak

C. Normal

D. None of the above

Answer: A



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3. An example of mineral acid is ..

A. $CaCO_3$

B. H_2O_2

C. ATP

D. HCl

Answer: D



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4. Vinegar contains..... acid.

- A. Acetic
- B. Hydrochloric
- C. Sulphuric
- D. Phenol

Answer: A



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5. Sodium acetate on hydrolysis forms sodium hydroxide and.....

- A. benzene
- B. cytosine
- C. glycerol
- D. acetic acid

Answer: D



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6. The basicity of acetic acid is

A. 1

B. 2

C. 3

D. 4

Answer: A



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7. An alkali which completely dissociates into ions is.....

A. ammonium hydroxide

B. calcium hydroxide

C. barium hydroxide

D. None of the above

Answer: B



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8. As the pH of solution decreases, its acidic strength progressively

A. Increases

B. Decreases

C. Does not change

D. Depends on the quantity of solution

Answer: A



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9. As the pH of solution increases, the strength of the solution progressively decreases.

- A. Atomic
- B. Acidic
- C. Basic
- D. None of the above

Answer: B



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10. Higher the pH value of a solution, the more.....it is.

- A. Evaporative
- B. Basic
- C. Alkaline
- D. None of the above

Answer: C



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11. Ammonium hydroxide is a base.

- A. Strong
- B. Weak
- C. does not change
- D. None of the above

Answer: B



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12. Methyl orange turns in acidic solution.

- A. Yellow

B. Blue

C. Red

D. Pink

Answer: C

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13. When a metallic oxide is dissolved in water, the solution formed has high concentration of ions.

A. $H_2O_2^-$

B. H^+

C. OH^-

D. None of the above

Answer: C

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14. A chemical reaction between hydronium ions of an acid and OH^- ions of a base to form unionised water is called

- A. Neutralisation
- B. Galvanisation
- C. Alkalisiation
- D. Formation

Answer: A



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15. Sodium hydrogen sulphate is salt.

- A. Acidic
- B. Basic
- C. Neutral

D. Depends

Answer: A



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16. The salt of the acid HNO_2 are called.....and those of the acid HNO_3 are called.

A. nitrates, nitrites

B. nitrites, nitrous

C. nitrites, nitrates

D. nitrous, nitrates

Answer: C



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17. Sodium sulphite reacts with dilute sulphuric acid to form sodium sulphate, gas and water.

A. HO_2

B. SO_2

C. H_2SO_4

D. HNO_3

Answer: B



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18. Copper (II) chloride reacts with sodium hydroxide to form copper hydroxide and sodium chloride.

A. Does not react

B. Depends on the catalyst

C. Soluble

D. Insoluble

Answer: D



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19. The salt prepared by the method of direct combination is

A. iron (III) Chloride

B. iron (III) Sulphide

C. iron (III) Sulphide

D. None of the above

Answer: A



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20. The divalent metal whose oxide is reduced to metal by electrolysis of its fused salt is.....

A. Ca

B. Al

C. Mg

D. Ag

Answer: C



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21. A salt which absorbs moisture from the air, but does not change in physical state is called salt.

A. hygroscopic

B. Acidic

C. Alkaline

D. Microscopic

Answer: A



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22. An example of a deliquescent salt is.....

A. $CaCO_3$

B. KCN

C. DDT

D. anhydrous $CaCl_2$

Answer: D



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23. pH of acetic acid is greater than dilute sulphuric acid. So acetic acid contains..... concentration of H^+ ions.

- A. Same
- B. Lower
- C. Greater
- D. cannot say

Answer: B



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24. The acid which cannot act as an oxidizing agent is.....

- A. conc. H_2SO_4
- B. conc. HNO_3
- C. conc. HCl
- D. None of the above

Answer: C



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Multiple Choice Questions

1. What happens when a solution of an acid is mixed with a solution of a base in a test tube?

- A. Temperature of the solution decreases.
- B. Temperature of the solution increases.
- C. Temperature of the solution remains the same
- D. None of the above

Answer: B



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2. Which one of the following salts does not contain water of crystallisation?

- A. Blue vitriol
- B. Baking soda
- C. Washing soda
- D. Gypsum

Answer: B



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3. In terms of acidic strength, which one of the following is in the correct increasing order?

- A. Water < Acetic acid < Hydrochloric acid
- B. Water < Hydrochloric acid < Acetic acid
- C. Acetic acid < Water < Hydrochloric acid

D. Hydrochloric acid < Water < Acetic acid 1

Answer: A



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4. What is formed when zinc reacts with sodium hydroxide?

- A. Zinc hydroxide and sodium
- B. Sodium zincate and hydrogen gas
- C. Sodium zinc-oxide and hydrogen gas
- D. Sodium zincate and water

Answer: B



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5. Methyl orange is:

- A. Pink in acidic medium, yellow in basic medium
- B. Yellow in acidic medium, pink in basic medium
- C. Colourless in acidic medium, pink in basic medium
- D. Pink in acidic medium, colourless in basic medium

Answer: A

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6. Brine is an:

- A. aqueous solution of sodium hydroxide
- B. aqueous solution of sodium carbonate
- C. aqueous solution of sodium chloride
- D. aqueous solution of sodium bicarbonate

Answer: C

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7. $Na_2CO_3 \cdot 10H_2O$ is:

- A. washing soda
- B. baking soda
- C. bleaching powder
- D. tartaric acid

Answer: A



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8. How many water molecules does hydrated calcium sulphate contain?

- A. 5
- B. 10
- C. 7

D. 2

Answer: D



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9. Sodium carbonate is a basic salt because it is a salt of a:

A. strong acid and strong base

B. weak acid and weak base

C. strong acid and weak base

D. weak acid and strong base

Answer: D



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10. Alkalis are:

- A. acids, which are soluble in water
- B. acids, which are insoluble in water
- C. bases, which are insoluble in water
- D. bases, which are soluble in water

Answer: D

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11. Which of the following statements is correct about an aqueous solution of an acid and of a base?

- (i) Higher the pH, stronger the acid
- (ii) Higher the pH, weaker the acid
- (iii) Lower the pH, stronger the base
- (iv) Lower the pH, weaker the base

A. (i) and (iii)

B. (ii) and (iii)

C. (i) and (iv)

D. (ii) and (iv)

Answer: D



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12. A strong acid:

A. Completely gets ionized in water

B. Partially gets ionized in water

C. Do not get ionized in water

D. All the these

Answer: A



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13. Rain is called acid rain when its:

- A. pH falls below 7
- B. pH falls below 6
- C. pH falls below 5.6
- D. pH is above

Answer: C



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14. Sodium hydroxide is a:

- A. weak base
- B. weak acid
- C. strong base
- D. strong acid

Answer: C



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15. An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change?

- A. Baking powder
- B. Lime
- C. Ammonium hydroxide solution
- D. Hydrochloric acid

Answer: D



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16. When copper oxide and dilute hydrochloric acid react, colour changes to:

- A. white
- B. bluish-green
- C. blue-black
- D. black

Answer: B

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17. Sodium hydroxide is used:

- A. as an antacid
- B. in manufacture of soap
- C. as a cleansing agent
- D. in alkaline batteries

Answer: B

 [View Text Solution](#)

18. Sodium hydroxide turns phenolphthalein solution.

- A. pink
- B. yellow
- C. colourless
- D. orange

Answer: A



[View Text Solution](#)

19. Which of the following does not form an acidic salt?

- A. Phosphoric acid
- B. Carbonic acid
- C. Hydrochloric acid

D. Sulphuric acid

Answer: B



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20. Some fruits like mango, lemon, raw grapes, orange, etc., have a sour taste due to the presence of:

A. Acetic acid

B. Citric acid

C. Lactic acid

D. Oxalic acid

Answer: B



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21. You are supplied with five solutions : A,B,C,D and E with pH values as follows: A =1.8, B=7, C=8.5, D =13 and E=5

- A. A is neutral
- B. A is strong base
- C. A is strong acid
- D. cannot say

Answer: C



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22. Which of the given is a strong base?

- A. Calcium hydroxide
- B. Magnesium hydroxide
- C. Ammonium hydroxide
- D. Potassium hydroxide

Answer: D



[View Text Solution](#)

23. Which one of the given is the pH value of pure water?

A. 0

B. 7

C. 8

D. 1

Answer: B



[View Text Solution](#)

24. Which one among the given is a weak base?

A. Sodium hydroxide

B. Potassium hydroxide

C. Ammonium hydroxide

D. All the these

Answer: C



[View Text Solution](#)

25. What is the pH value of sodium chloride?

A. 7

B. more than 7

C. less than 7

D. zero

Answer: A



[View Text Solution](#)

26. Which one of the following will not produce an acid when made to react with water ?

- A. Carbon monoxide
- B. Carbon dioxide
- C. Nitrogen dioxide
- D. Sulphur trioxide

Answer: A



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27. To increase the pH value of neutral solution, we should add:

- A. An acid
- B. An acid salt
- C. An alkali
- D. A salt

Answer: C



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28. 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



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29. During ionisation metals lose electrons, this change can be called :

- A. Oxidation

B. Reduction

C. Redox

D. Displacement

Answer: A



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30. An example of a complex salt is:

A. Zinc sulphate

B. Sodium hydrogen sulphate

C. Iron(II) ammonium sulphate

D. Tetrammine copper(II) sulphate

Answer: D



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31. 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: B



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32. The acid which can produce carbon from cane sugar, is :

- A. Concentrated Hydrochloric acid
- B. Concentrated Nitric acid
- C. Concentrated Sulphuric acid

D. Concentrated Acetic acid

Answer: C



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33. A particular solution contains molecules and ions of the solute so it is
a:

A. Weak acid

B. Strong acid

C. Strong base

D. Salt solution

Answer: A



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34. Select the acid which contains four hydrogen atoms in it:

- A. Formic acid
- B. Sulphuric acid
- C. Nitric acid
- D. Acetic acid

Answer: D



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35. An organic weak acid is :

- A. Formic acid
- B. Sulphuric acid
- C. Nitric acid
- D. Hydrochloric acid

Answer: A



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36. The aqueous solution of the following compounds which contains both ions and molecules is:

A. Sulphuric acid

B. Hydrochloric acid

C. Nitric acid

D. Acetic acid

Answer: D



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37. An acid which is not a hydracid is :

A. H_2S

B. H_2SO_3

C. HBr

D. HCl

Answer: D

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38. To increase the pH value of neutral solution, we should add :

A. an acid

B. an acid salt

C. an alkali

D. a salt

Answer: C

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39. Which one of the following will not produce an acid when made to react with water?

- A. Carbon monoxide
- B. Carbon dioxide
- C. Nitrogen dioxide
- D. Sulphur trioxide

Answer: A



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40. Which the gas evolved when the following reactions takes place:

- A. H_2
- B. CO_2
- C. SO_2

D. H_2S

Answer: A



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41. Which gas is evolved when dilute $MgSO_4$ react with active metals such as Mg?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: A



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42. Which gas is evolved when HCl react with calcium carbonate?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: B



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43. Which gas is evolved when HNO_3 react with sodium bicarbonate?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: B



[View Text Solution](#)

44. Which gas is evolved when HCl react with zinc sulphide?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: D



[View Text Solution](#)

45. Which gas is liberated when metals like sodium, potassium and calcium react with cold water?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: A



[View Text Solution](#)

46. The gas liberated when sodium sulphite reacts with dilute sulphuric acid:

A. Carbon dioxide

B. Hydrogen

C. Hydrogen sulphide

D. Sulphur dioxide

Answer: D

Match The Following

1. Match the columns :

Column A	Column B
A. Acid salt	(i) Ferrous ammonium sulphate
B. Double salt	(ii) Contains only ions
C. Ammonium hydroxide solution	(iii) sodium hydrogen sulphate
D. Dilute hydrochloric acid	(iv) Contains only ions
E. Carbon tetrachloride	(v) contains ions and molecules

A. A-v, B-i, C-ii, D-iv, E-iii

B. A-iii, B-i, C-iv, D-ii, E-iv

C. A-i, B-iv, C-ii, D-v, E-iii

D. A-ii, B-iv, C-i, D-v, E-iii

Answer: A

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2. Match the columns :

Column A	Column B
A. Acid salt	(i) Sodium potassium carbonate
B. Mixed salt	(ii) Alum
C. Complex salt	(iii) Sodium carbonate

D. Double salt	(iv) Sodium zincate
E. Normal salt	(v) Sodium hydrogen carbonate

A. A-i, B-ii, C-ii, D-v, E-iii

B. A-iii, B-i, C-ii, D-v, E-iv

C. A-v, B-i, C-iv, D-ii, E-iii

D. A-iv, B-v, C-i, D-ii, E-iii

Answer: A



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Reason Based Questions

1. Hydrochloric acid is considered as a strong acid whereas acetic acid is a weak acid. Why?

- A. Because it dissociates completely in water.
- B. Because it dissociates partially when dissolved in water.
- C. Both (a) and (b) are correct
- D. None of the above

Answer: C



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2. Acetic acid is monobasic. Why?

- A. Because it has one ionisable hydrogen ion and combines with one hydroxyl ion
- B. Because it has single electron at its valence cell
- C. Both (a) and (b) are correct
- D. None of the above

Answer: A

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3. Carbonic acid is a dibasic acid. Why?

- A. Because it has two replaceable hydrogen atoms
- B. Because it has double electron at its valence cell
- C. Both (a) and (b) are correct
- D. None of the above

Answer: A



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4. Sodium hydroxide is a monoacidic base. Why?

- A. It combines with only one hydrogen ion.
- B. Because it has single electron at its valence cell
- C. Because it has double electron at its valence cell
- D. None of the above

Answer: A



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5. Lime juice has a sour taste while lime water is slightly bitter. Why?

- A. Lime juice contains citric acid
- B. Lime water is alkaline
- C. Both (a) and (b) are correct

D. None of the above

Answer: C

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6. Why fused calcium chloride is used in the preparation of $FeCl_3$?

- A. $FeCl_3$ is highly acidic
- B. $FeCl_3$ is highly basic
- C. $FeCl_3$ is highly reactive
- D. $FeCl_3$ is highly deliquescent

Answer: D

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7. Why zinc chloride is stored in air-tight bottles?

A. Because it is a deliquescent substance

B. Because it is highly substance

C. Because it is highly acidic substance

D. Because it is highly basic substance

Answer: A

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Figure Based Questions

1. The pH values of three solutions, A, B and C are given in the table.

Solution	pH value
A	12
B	2
C	7

Which solution will have no effect on litmus solution?

A. C

B. B

C. A

D. None of these

Answer: A

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2. The pH values of three solutions, A, B and C are given in the table.

Solution	pH value
A	12
B	2
C	7

Which solution will liberate CO_2 when reacted with sodium carbonate ?

A. C

B. B

C. A

D. None of these

Answer: B



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3. The pH values of three solutions, A, B and C are given in the table.

Solution	pH value
A	12
B	2
C	7

Which solution will turn red litmus solution blue?

A. C

B. B

C. A

D. None of these

Answer: C

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4. Copy and complete the following table which refers to the conversion of ions to neutral particles:

Conversion	Ionic Equation	
Chloride ion to chlorine molecule	$\text{Cl}^- - e^- \rightarrow \frac{1}{2} \text{Cl}_2(\text{g})$	(X)
Lead(II) ion to lead	$\text{Pb}^{2+} + 2e^- \rightarrow \text{Pb}(\text{s})$	(Y)

What kind of reaction is shown by (X)?

- A. Oxidation
- B. Reduction
- C. Sublimation
- D. None of these

Answer: A

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5. Copy and complete the following table which refers to the conversion of ions to neutral particles:

Conversion	Ionic Equation	
Chloride ion to chlorine molecule	$\text{Cl}^- - e^- \rightarrow \frac{1}{2} \text{Cl}_2(\text{g})$	(X)
Lead(II) ion to lead	$\text{Pb}^{2+} + 2e^- \rightarrow \text{Pb}(\text{s})$	(Y)

What kind of reaction is shown by (Y)?

- A. Oxidation
- B. Reduction
- C. Sublimation
- D. None of these

Answer: B



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Name The Gas Evolved When The Following Reaction Takes Place

1. Which gas is evolved when dilute HCl react with active metals such as Zn? (a)

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: A



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2. Which gas is evolved when dilute $MgSO_4$ react with active metals such as Mg? (a)

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: A

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3. Which gas is evolved when HCl react with calcium carbonate?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: B

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4. Which gas is evolved when HNO_3 react with sodium bicarbonate?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: B



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5. Which gas is evolved when HCl react with zinc sulphide?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: D



[View Text Solution](#)

6. Which gas is liberated when metals like sodium, potassium and calcium react with cold water?

A. H_2

B. CO_2

C. SO_2

D. H_2S

Answer: A



[View Text Solution](#)

7. The gas liberated when sodium sulphite reacts with dilute sulphuric acid:

- A. Carbon dioxide
- B. Hydrogen
- C. Hydrogen sulphide
- D. Sulphur dioxide

Answer: D

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Assertion And Reason Based Questions

1. Assertion: Solutions of compounds like alcohol and glucose do not show acidic character.

Reason: They do not show acidic character because they do not dissociate into ions.

- A. Assertion and Reason both are correct statement and reason is the correct explanation of the assertion.

B. Assertion and Reason both are correct statement but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason false.

D. Assertion is false, but reason true.

Answer: A

 [View Text Solution](#)

2. Assertion: Dry HCl gas does not change the colour of the dry litmus paper.

Reason: It is because dry HCl does not contain the OH^- ions.

A. Assertion and Reason both are correct statement and reason is the correct explanation of the assertion.

B. Assertion and Reason both are correct statement but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason false.

D. Assertion is false, but reason true.

Answer: C

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3. Assertion: Calcium starts floating when added in water.

Reason: Calcium starts floating because the bubbles of oxygen gas which are formed during the reaction stick to the surface of the metal.

A. Assertion and Reason both are correct statement and reason is the correct explanation of the assertion.

B. Assertion and Reason both are correct statement but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason false.

D. Assertion is false, but reason true.

Answer: C



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4. Assertion: Tap water conducts electricity but distill water does not conducts electricity.

Reason: Tap water conducts electricity as it contains ions whereas distilled water does not contain ions.

- A. Assertion and Reason both are correct statement and reason is the correct explanation of the assertion.
- B. Assertion and Reason both are correct statement but reason is not the correct explanation of the assertion.
- C. Assertion is true, but reason false.
- D. Assertion is false, but reason true.

Answer: A



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5. Assertion: All metals give hydrogen while reacting with nitric acid.

Reason: Nitric acid is a strong oxidising agent.

A. Assertion and Reason both are correct statement and reason is the correct explanation of the assertion.

B. Assertion and Reason both are correct statement but reason is not the correct explanation of the assertion.

C. Assertion is true, but reason false.

D. Assertion is false, but reason true.

Answer: D



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