



# CHEMISTRY

## BOOKS - NAVNEET PUBLICATION

### ACIDS, BASES AND SALTS

#### Examples

1. On mixing the substances as shown here, what are the resulting mixtures formed by

mixing the following substances called ?

Water and salt



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2. On mixing the substances as shown here,  
what are the resulting mixtures formed by  
mixing the following substances called ?

water and sugar



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3. On mixing the substances as shown here, what are the resulting mixtures formed by mixing the following substances called ?

water and sand



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4. On mixing the substances as shown here, what are the resulting mixtures formed by mixing the following substances called ?

water and sawdust





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## Exercise

1. Fill in the blanks:

Ionic compound.....in aqueous solution.



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2. Fill in the blanks:

.....is a weak alkali.



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**3. Fill in the blanks:**

The number of  $H^+$  ions obtained from one molecule of  $H_3PO_4$  are .....



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**4. Fill in the blanks:**

The number of  $OH^-$  ions obtained from one molecule of  $Ca(OH)_2$  are .....



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5. Fill in the blanks:

The proportion of a solute in a solution is called the .....of the solute.



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6. Fill in the blanks:

When the concentration of a solute in its solution is low, it is a .....solution.



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**7. Fill in the blanks:**

In the .....reaction, an acid reacts with a base to form a salt and water.



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**8. Fill in the blanks:**

The pH of a basic solution is.....than 7.



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**9. Fill in the blanks:**

The separation of ions from an electrolyte is termed as.....



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**10. Fill in the blanks:**

The positive terminal of an electrolytic cell is called.



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**11.** Choose the correct alternative and write it along with its allotted alphabet:

At what pH value is the solution considered to be acidic?

A. 6

B. 7

C. 10

D. 14

**Answer: A**



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**12.** Choose the correct alternative and write it along with its allotted alphabet:

What is the colour of a universal indicator in neutral solution?

A. red

B. blue

C. greenish yellow

D. green

**Answer: D**



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**13.** Choose the correct alternative and write it along with its allotted alphabet:

Which of the following solutions has pH more than 7?

A. pure water

B.  $NaOH$  solution

C.  $HCl$  solution

D. Lemon juice

**Answer: B**



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**14.** Choose the correct alternative and write it along with its allotted alphabet:

Which of the following has pH 7?

A. A. pure water

B. B.  $HNO_3$  solution in water

C. C.  $Na_2CO_3$  solution in water

D. D. HCl solution in water

**Answer: A**



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**15.** Choose the correct alternative and write it along with its allotted alphabet:

Which of the following has pH 7?

A. Phenolphthalein

B. Beet

C. Litmus

D. Turmeric

**Answer: A**



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**16.** Choose the correct alternative and write it along with its allotted alphabet:

The

reaction



$\text{KNO}_{3(aq)}$  is a/an ..... reaction.

- A. Universal indicator
- B. olfactory indicator
- C. natural indicator
- D. synthetic indicator

**Answer: A**



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17. Choose the correct alternative and write it along with its allotted alphabet:

Phenolphthalein is .....

A. A. the natural indicator

B. B. the synthetic indicator

C. C. an olfactory indicator

D. D. the universal indicator

**Answer: B**



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**18.** Choose the correct alternative and write it along with its allotted alphabet:

When phenolphthalein is added to  $NaOH$ , the colour of the solution will become.....

A. colourless

B. red

C. pink

D. yellow

**Answer: C**



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**19.** Choose the correct alternative and write it along with its allotted alphabet:

When phenolphthalein is added to HCl, the colour of the solution will be.....

A. red

B. pink

C. green

D. colourless

**Answer: D**



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**20.** Choose the correct alternative and write it along with its allotted alphabet:

.....is a natural indicator.

A. Phenolphthalein

B. Methyl orange

C. Litmus

D. Methyl red

**Answer: C**



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**21.** Choose the correct alternative and write it along with its allotted alphabet:

The litmus paper or the litmus solution is obtained from.....plants.

A. Moss

B. Rose

C. Hibiscus

D. Lichen

**Answer: D**



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**22.** Choose the correct alternative and write it along with its allotted alphabet:

Which of the following is not required to find the pH of a given solution?

A. pH paper

B. Litmus paper

C. standard pH chart

D. universal indicator

**Answer: B**



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**23.** Choose the correct alternative and write it along with its allotted alphabet:

.....colour will be obtained by adding universal indicator in baking solution.

A. Blue

B. Greenish blue

C. Dark blue

D. Violet

**Answer: B**



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**24.** Choose the correct alternative and write it along with its allotted alphabet :

$C_7H_{16}$  is .....

A. a general

B. an acidic

C. a basic

D. a neutral

**Answer: D**



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**25.** State whether the following statements are true or false:

Acids have bitter taste.





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**26.** State whether the following statements are true or false :

Benzene is an aromatic compound.



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**27.** State whether the following statements are true or false:

pH scale helps in measuring hydrogen ion concentration in a solution.



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**28.** State whether the following statements are true or false:

The pH of rain water is 7.



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**29.** State whether the following statements are true or false:

Salts of strong acids and strong bases are basic with the pH value greater than 7.



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**30.** State whether the following statements are true or false:

Salts of strong acids and strong bases are basic with the pH value greater than 7.





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**31.** State whether the following statements are true or false:

KCl is a stable ionic compound.



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**32.** State whether the following statements are true or false:

The bases which are highly soluble in water are called alkali.



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**33.** State whether the following statements are true or false:

Sodium chloride is a crystalline compound.



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**34.** State whether the following statements are true or false:

During electrolysis of water, hydrogen gas is formed near the anode.



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**35.** Find the odd man out:

Chloride, nitrate, hydride, ammonium



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**36.** Find the odd out and give reason:

Citric acid, formic acid, lactic acid, nitric acid.



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**37.** Find the odd one out



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**38.** Find the odd out and give reason:

Ammonium chloride, sodium chloride,  
potassium nitrate, sodium sulphate.



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**39.** Find the odd out and give reason:

Sodium nitrate, sodium carbonate, sodium sulphate, sodium chloride.



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**40.** Select the odd man out

Calcium oxide, magnesium oxide, zinc oxide, sodium oxide.



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**41.** Write the chemical formula and select the odd man out in the following solids:

Crystalline blue vitriol, crystalline common salt, crystalline ferrous sulphate, crystalline sodium carbonate.



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**42.** Write the chemical formula for the following:

Sodium chloride, potassium hydroxide, acetic acid, sodium acetate.



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43. Find the odd one out



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44. Find the odd out and give reason:

$\text{NaOH}$ ,  $\text{Ca}(\text{OH})_2$ ,  $\text{NH}_4\text{OH}$ ,  $\text{Ba}(\text{OH})_2$



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**45.** Find the odd one out



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**46.** Find the odd out and give reason:

Citric acid, formic acid, lactic acid, nitric acid.



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47. Match the following :

[1] Column I	Column II
(1) Cation	(a) Water of crystallization
(2) Anion	(b) Electrolyte
	(c) Positively charged ion
	(d) Negatively charged ion



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**48.** Match the following :

Column A	Column B
(1) Weather satellite	(a) Information of the area on protection point
(2) Communication satellite	(b) To decide accurate latitude and longitude
(3) Navigational satellite	(c) Communicate various places through waves
(4) Military satellite	(d) To predict weather forecast



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**49.** Define acid base according to Bronsted-Lowry theory.



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**50.** Define acid base according to Bronsted-Lowry theory.



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**51.** Define capacity of a conductor . State and define S.I. unit of capacity of conductor



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**52.** Define acidity of bases.



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**53.** Define universal indicator.



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**54.** Define pH and pOH. Derive relationship between pH and pOH.



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**55.** Define Neutralization.



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**56.** Define electrolytes.



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**57.** What is the difference between electrolytic cell and voltaic cell?







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**58.** Explain by drawing a figure of the electronic configuration.

Formation of sodium chloride from sodium and chlorine.



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**59.** Explain by drawing a figure of the electronic configuration.

Formation of Magnesium chloride from magnesium and chlorine.



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**60.** Answer the following questions:

Explain the dissociation of an ionic compound?



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**61.** Answer the following questions:

What is meant by strong acid ? Give two examples.



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**62.** Answer the following questions:

What is meant by weak acid? Give two examples.



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**63.** Answer the following questions:

What is meant by strong base? Give two examples.



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**64.** Answer the following questions:

What is meant by weak base? Give an example.



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**65.** Answer the following questions:

What is meant by weak acid? Give two examples.



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**66.** Answer the following questions:

What is meant by a cathode?



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**67.** Answer the following questions:

What is meant by a concentrated solution?



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**68.** Answer the following questions:

what is meant by a dilute solution?



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**69.** Classify the acids according to their basicity and give one example of each type.



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**70.** Answer the following questions:

What is meant by an anode?



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**71.** Answer the following questions:

What type of compound is a metal oxide, with reference to neutralization reaction?



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**72.** Answer the following questions:

What is the difference in the pH of pure water and rain water? If it is so, explain.



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**73.** Answer the following questions:

How do you measure pH on a pH scale?



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**74.** Answer the following questions:

What would be the pH of a salt of a strong acid and a strong base?



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**75.** Answer the following questions:

What would be the pH of a salt of a weak acid and a strong base?



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**76.** Answer the following questions:

What is the pH range of human blood at which it works?



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77. Answer the following questions:

Classify aqueous solutions of the following substances according to their pH into three groups: 7, more than 7, less than 7.

Common salt, sodium acetate, hydrochloric acid, carbon dioxide, potassium bromide, calcium hydroxide, ammonium chloride, vinegar, sodium carbonate, ammonium, sulphur dioxide.



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**78.** Answer the following questions:

Write a note on pH scale.



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**79.** Answer the following questions:

How does a metal react with an acid?



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**80.** Answer the following questions:

How do metal oxides react with acid?



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**81.** Answer the following question:

How does a computer work?



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**82.** Answer the following questions :

Explain the structure of Benzene.



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**83.** Answer the following questions:

Classify the following oxide into three types and name the types.

$\text{CaO}$ ,  $\text{MgO}$ ,  $\text{CO}_2$ ,  $\text{SO}_3$ ,  $\text{Na}_2\text{O}$ ,  $\text{ZnO}$ ,  $\text{Al}_2\text{O}_3$ ,

$\text{Fe}_2\text{O}_3$



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**84.** Answer the following questions:

How do metal carbonates and bicarbonates react with acid? Reaction of acids with carbonates and bicarbonates of metals



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**85.** Use your brain power

Classify the following salts into the types acidic, basic and neutral, sodium sulphate, potassium chloride, ammonium nitrate,

sodium carbonate, sodium acetate, sodium chloride.



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**86.** Answer the following questions:

Classify the following salts into the types acidic, basic and neutral

Potassium sulphate



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**87.** Answer the following questions:

Classify the following salts into the types acidic, basic and neutral

Ammonium chloride



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**88.** Answer the following questions:

Classify the following salts into the types acidic, basic and neutral

Potassium acetate





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**89.** Answer the following questions:

Classify the following salts into the types acidic, basic and neutral

Potassium acetate



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**90.** Answer the following questions:

Classify the following salts into the types

acidic, basic and neutral

calcium chloride.



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**91.** Answer the following question:

What is meant by soap?



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**92.** Answer the following questions:

Name two crystalline salts that contain water

of crystallization. what would you observe  
,When water of crystallization is lost from  
these salts.



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**93.** Answer the following questions:

What is wave?



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**94.** Answer the following questions:

What is meant by a cathode?



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**95.** Answer the following questions:

What is meant by an anode?



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**96.** Answer the following questions:

State the different uses of an electrolyte.



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**97.** Answer the following questions :

What is meant by copolymers?



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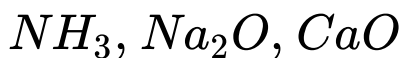
**98.** Answer the following questions:

Show the dissociation of the following compounds on dissolving in water, with the help of chemical equation and write whether the proportion of dissociation is small or large. Hydrochloric acid, sodium chloride, potassium hydroxide, ammonia, acetic acid, magnesium chloride, copper sulphate.



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**99.** What are the names of the following compounds?

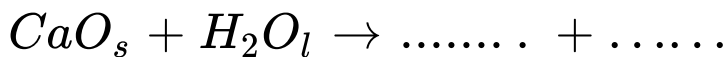
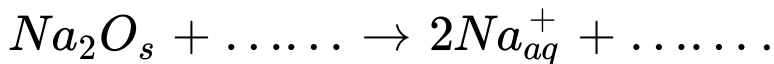
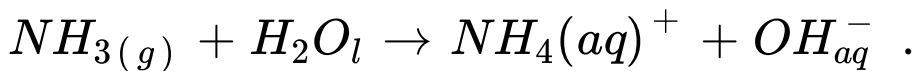


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**100.** Use your brain power

When the above compounds are mixed with water they combine with water. Complete the following table by writing the ions formed by their combination with water.





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**101.** Explain the working of a syringe used by children when they play with coloured water.



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## 102. Use your brain power

On the basis of the below table give examples of monobasic, dibasic and tribasic radicals.



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## 103. Use your brain power

On the basis of the below table give three types of bases their examples.



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**104.** What would be the definition of an acid and a base with reference to the neutralization reaction?



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**105.** Use your brain power

Classify the following salts into the types acidic, basic and neutral, sodium sulphate, potassium chloride, ammonium nitrate, sodium carbonate, sodium acetate, sodium chloride.



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**106.** Write chemical equation for the following events:

Copper reacts with concentrated nitric acid



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**107.** Can we call  $Al_2O_3$  and  $ZnO$  acidic oxides on the basis of these reactions?



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**108.** Define 'amphoteric oxides' and give two examples.



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**109.** Use your brain power

With which solutions did the bulb glow?



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## 110. Use your brain power

Which solutions are electrical conductors?



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111. Would water be a good conductor of electricity?



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**112.** Explain the following reaction giving their balanced chemical equations:

NaOH solution was added to HCl solution.



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**113.** Explain the following reactions giving their balanced chemical equations:

Sugar is heated.



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**114.** Explain the following reactions giving their balanced chemical equations:

Magnesium is treated with hydrochloric acid.



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**115.** Explain the following reactions giving their balanced chemical equations:

Sugar is heated.



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**116.** Explain the following reactions giving their balanced chemical equations:

Aluminium is treated with dil. hydrochloric acid.



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**117.** Explain the following reactions giving their balanced chemical equations:

Dilute sulphuric acid is added to barium chloride solution.



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**118.** Explain the following reaction giving their balanced chemical equations:

Aluminium oxide reacts with sodium hydroxide.



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**119.** Explain the following reaction giving their balanced chemical equations:

Carbon dioxide gas is passed through lime water.



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**120.** Explain the following reactions giving their balanced chemical equations:

Aluminium is treated with dil. hydrochloric acid.



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**121.** Explain the following reaction giving their balanced chemical equations:

Carbon dioxide gas was passed through KOH solution.



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**122.** Explain the following reactions giving their balanced chemical equations:

Calcium carbonate (Lime stone) is treated with dil.hydrochloric acid..



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**123.** Explain the following reaction giving their balanced chemical equations:

Potassium bicarbonate reacts with dilute nitric acid.



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**124.** Explain the following reactions giving their balanced chemical equations:

Sugar is heated.



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**125.** Explain the following reaction giving their balanced chemical equations:

Potassium carbonate is treated with dilute sulphuric acid.



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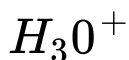
**126.** When washing soda is heated , \_\_\_\_\_.



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**127.** Give the scientific reasons:

Hydronium ions are always in the form of



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**128.** Give the scientific reasons:

Butter milk spoils if kept in a copper or brass container.



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**129.** Give the scientific reasons:

Copper sulphate crystals turn to a white amorphous powder on heating.



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**130.** Give the scientific reasons:

Ferrous sulphate crystals turn white on heating.



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**131.** Give the scientific reasons:

Glucose is non-electrolyte.



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**132.** Give the scientific reasons:

Glucose is non-electrolyte.



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**133.** Give the scientific reasons:

A solution of sodium chloride conducts electricity



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**134.** Distinguish between

Atoms and ions



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**135.** Distinguish between

Cations anions



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**136.** Distinguish between:

Negative electrode and positive electrode.



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**137.** Question based on reactions:

Complete the following table of neutralization reactions and also write down the names of the acids, bases and salts in it:



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**138.** Question based on reactions:

Complete the following table of neutralization reactions and also write down the names of the acids, bases and salts in it:

*Acid + base → salt + water*

..... + *KOH* → *KBr* + .....



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**139.** Question based on reactions:

Complete the following table of neutralization reactions and also write down the names of the acids bases and salts in it:

*Acid + base → salt + water*

.....+*2NH<sub>4</sub>OH* → (*NH<sub>4</sub>*)<sub>2</sub>*SO<sub>4</sub>* + .....



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**140.** Write the concentration of each of the following solutions in g/L and mol/L:

7.3g HCl in 100 ml solution



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**141.** Write the concentration of each of the following solutions in g/L and mol/L:

2g NaOH in 50ml solution



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**142.** Write the concentration of each of the following solutions in g/L and mol/L:

3g  $CH_3COOH$  in 100ml solution



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**143.** Write the concentration of each of the following solutions in g/L and mol/L:

4.9  $H_2SO_4$  in 200 ml solution



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