

Chemistry Worksheets Class 10 on Chapter 2 Acids, Bases and Salts with Answers - Set 2

Q1. Fresh milk has a pH of 6. When milk changes into curd, the pH value will:

- a.) become 7
- b.) become less than 6
- c.) become more than 7
- d.) remains unchanged

Correct Answer– (b.) become less than 6

Q2. Which of the following is medicine for indigestion?

- a.) sodium hydroxide
- b.) manganese hydroxide
- c.) magnesium hydroxide
- d.) potassium hydroxide

Correct Answer– (c.) magnesium hydroxide

Q3. How many number of water of crystallisation is present in copper sulphate crystals?

- a.) 3
- b.) 5
- c.) 7
- d.) None

Correct Answer– (b.) 5

Q4. The indicators which turn red in acid solution are:

- a.) turmeric and litmus
- b.) phenolphthalein and methyl orange
- c.) litmus and methyl orange
- d.) phenolphthalein and litmus

Correct Answer– (c.) litmus and methyl orange.

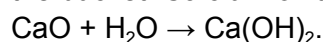
Q5. The salt which will give an acidic solution on dissolving in water is:

- a.) KCl
- b.) NH_4Cl
- c.) Na_2CO_3
- d.) CH_3COONa

Correct Answer– (b.) NH_4Cl

Q6. What are the observations when quick lime is added to water?

Answer. When water is added to quicklime rise in temperature is observed. When quicklime is added to water, it forms slaked lime along with the evolution of heat. There will be a rise in the temperature of the bucket. Calcium oxide reacts with water to form calcium hydroxide, also called slaked lime.



Q7. Which indicator gives pink colour in the basic solution?

Answer. Phenolphthalein is a colourless indicator which gives pink colour in basic solution. It does not give any colour for acidic solutions.

Q8. Fill in the blanks.

- a.) The chemical formula of washing soda is ____.
- b.) The chemical formula of sodium carbonate decahydrate is ____.

Answer.

- a.) The chemical formula of washing soda is Na_2CO_3 .
- b.) The chemical formula of sodium carbonate decahydrate is $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$.

Q9. Write the formula of the calcium sulphate and identify the acid and base.

Answer. The formula of the calcium sulphate is CaSO_4 . The acid is H_2SO_4 and the base is Ca(OH)_2 .

Q10. Name the acids present in the following:

- i.) Lemon juice
- ii.) Vinegar
- iii.) Vitamin C tablet
- iv.) Tamarind
- v.) Sour milk

Answer.

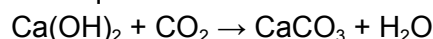
- i.) Lemon juice - Citric acid
- ii.) Vinegar - Acetic acid
- iii.) Vitamin C tablet - Citric acid
- iv.) Tamarind - Tartaric acid

v.) Sour milk - Lactic acid

Q11. What happens when carbon dioxide is passed through lime water?

Answer. When carbon dioxide gas is passed through lime water, it turns milky due to the formation of calcium carbonate.

The equation is:



When an excess of carbon dioxide is passed through lime water, the formed milkiness disappears. This is due to the formation of calcium carbonate, which is colourless and insoluble in water.

Q12. How does toothpaste prevent tooth decay?

Answer. Tooth decay occurs when the pH of the mouth falls below 5.5. The bacteria present in the mouth degrade the food remaining in the mouth after eating and produce acids. These acids lower the pH of the mouth, causing tooth decay.

Toothpaste are basic in nature, and therefore cleaning the teeth with toothpaste would result in the neutralization of excess acids. Thus, toothpaste prevents tooth decay.

Q13. Explain how the pH change in the lake water can endanger the lives of aquatic animals. What can be done to lessen the danger to the lives of aquatic animals in the lake?

Answer. The aquatic animal can survive in lake water within a narrow range of pH change. When the pH of water is about (5-6), it lowers the pH of the lake water to such an extent that the survival of the aquatic animals becomes difficult. This may result in the death of aquatic animals.

To prevent this, calcium carbonate is added to acidic lake water to neutralize the effect.

Q14. Describe how sodium hydrogen carbonate is produced on a large scale.

Answer. On a large scale, sodium hydrogen carbonate is produced by reacting a cold and concentrated solution of sodium chloride with ammonia and carbon dioxide. The reaction so involved is:



The common name of sodium hydrogen carbonate is baking soda.

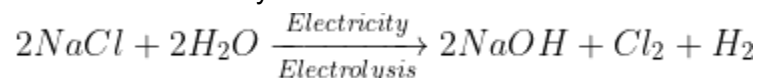
Q15. How would you show that blue copper sulphate crystals contain water of crystallisation?

Answer. The crystals of copper sulphate are blue in colour. When solid copper sulphate crystals are heated, the water of crystallisation evaporates and they turn white. The blue colour of copper sulphate is restored by adding a few drops of water to the white powder. This demonstrates that water of crystallisation exists in copper sulphate crystals.

Q16. What is the 'Chlor-alkali' process and what products are formed during the process?

Answer. When electricity is passed through a concentrated solution of sodium chloride (brine), it decomposes to form sodium hydroxide, chlorine and hydrogen.

During electrolysis, chlorine gas is produced at the anode and hydrogen gas is produced at the cathode. Sodium hydroxide solution is formed near the cathode.



Thus, the process of electrolysis of sodium chloride solution is called the Chlor-alkali process because of the products formed- chlor for chlorine and alkali for sodium hydroxide.

There are three products obtained during the process which are- sodium hydroxide, chlorine and hydrogen.

Q17.

- a.) What happens during a bee sting? What is its remedy?
- b.) What happens during a wasp sting? What is its remedy?
- c.) Name any two chemical materials which can mix with the acidic soil to adjust its pH?

Answer.

a.) When a bee stings someone, it injects an acidic liquid into their skin, causing severe pain and irritation. Its treatment is to apply a mild base solution, such as baking soda, to the stung area of the skin.

b.) When a wasp stings, an alkaline liquid is injected into the skin. Applying a mild acid, such as vinegar, to the stung area of the skin provides relief.

c.) The acidic soil should be treated with chemicals (bases) such as quick lime (calcium oxide) or slaked lime (calcium hydroxide).

Q18. You are given two solutions A and B. The pH of solution A is 6 and pH of solution B is 8.

- i.) Which solution is acidic and which is basic?
- ii.) Which solution has more H^+ ion concentration?
- iii.) Why is HCl a stronger acid than acetic acid?

Answer.

i.) The pH 6 solution is acidic, whereas the pH 8 solution is basic.

ii.) The solution with pH 6 has more H^+ ion concentration.

iii.) HCl is a stronger acid than CH_3COOH because it has a higher degree of dissociation (α) or releases more H^+ ions in solution than acetic acid.

Q19. a.) A sample of bleaching powder was kept in an air-tight container. After a month, it lost some of its chlorine content. How will you account for it?

- b.) A solution has a pH of 7. Explain how you would
- increase its pH
 - decrease its pH
- c.) On exposure to the atmosphere, Glauber's salt loses weight while quicklime gains weight.

Answer.

- a.) Bleaching powder will slowly decompose on its own, if kept in an airtight container, forming calcium chlorate and calcium chloride. The process is known as auto-oxidation. As a result, its chlorine content will decrease.
- b.) i.) By adding some alkali like NaOH
ii.) By adding some acid like HCl.
- c.) Quick lime is hygroscopic and absorbs moisture from the air, whereas Glauber's salt is efflorescent and loses water during crystallisation.

Q20. Answer the following questions:

- What is plaster of paris? Write its chemical formula.
- What happens when bleaching powder reacts with dilute sulphuric acid? Give an equation of the reaction involved.
- Give two important uses of washing sods.
- What will be the colour of the litmus in an aqueous solution of ammonium chloride salt?
- What is meant by hydrates and anhydrous salts? Explain with examples.

Answer.

- a.) Plaster of Paris is called calcium sulphate hemihydrate which is a hard substance made by the addition of water and gypsum. $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ is the formula.
- b.) When bleaching powder reacts with sulphuric acid, it liberates chlorine gas.
 $\text{CaOCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + \text{Cl}_2 + \text{H}_2\text{O}$
- c.) Important uses of washing soda are as follows:
- Used as a cleansing agent
 - Used to remove the permanent hardness of water
- d.) The colour of litmus turns red in an aqueous solution of ammonium chloride salt.
- e.) The salts which contain water of crystallization are called hydrated salt
For example: Copper sulphate crystals contain 5 molecules of water of crystallization ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$).
A compound in which all water molecules are removed is called Anhydrous salt.
Example: Heating of Copper sulphate pentahydrate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) produce anhydrous copper sulphate(CuSO_4)