

**QUESTION BANK**

**GRADE:10 CHEMISTRY**

**ACIDS BASES AND SALTS**

**SECTION – A (**Select and write one most appropriate option for each of the questions 1 – 7)

1.  What happens when a solution of an acid is mixed with a solution of a base in a test tube?  
(i) Temperature of the solution decreases  
(ii) Temperature of the solution increases  
(in) Temperature of the solution remains the same  
(iv) Salt formation takes place  
(a) (i) and (iv) (b) (i) and (iii) (c) (ii) only (d) (ii) and (iv)

2. When hydrogen chloride gas is prepared on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to  
(a) absorb the evolved gas (b) moisten the gas  
(c) absorb moisture from the gas (d) absorb Cl– ions from the evolved gas

3.  Which one of the following salts does not con-tain water of crystallisation?  
(a) Blue vitriol (b) Baking soda (c) Washing soda (d) Gypsum

4.  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

5. Sodium hydroxide turns phenolphthalein solution  
(a) pink (b) yellow (c) colourless (d) orange

Following questions (Q. No. 6 and 7) consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

(a) Both A and R is true and R is the correct explanation of A.

(b) Both A and R is true but R is not the correct explanation of A.

(c) A is true but R is false. (d) A is false but R is true.

**6. Assertion (A):** The acid must always be added to water with constant stirring.

**Reason (R):** Mixing of an acid with water decreases the concentration of H+ ions per unit volume.

**7. Assertion (A):** Baking powder is used in making cake instead of using only baking soda.  
**Reason (R):** Baking powder contains tartaric acid which reacts with sodium carbonate and removes bitter taste.

**SECTION – B (**Q. no.8 to 12 is very short answer questions)

8. With the help of an example explain what happens when a base reacts with a non- metallic oxide. What do you infer about the nature of non-metal oxide?

9. How is washing soda prepared from sodium carbonate? Give its chemical equation. State the type of this salt. Name the type of hardness of water which can be removed by it?

10. Explain the application of pH in the field of agriculture

11. Explain how an antacid works

# 12. A milkman adds a very small amount of baking soda to fresh milk. (a) Why does he shift the pH of fresh milk from 6 to slightly alkaline? (b) What do you expect to observe when the milk comes to boil? (c) Why does this milk take a long time to set as curd?

**SECTION – C** (Q.no. 13 to 17 is short answer questions)

13.Write the chemical formula of Bleaching powder. How is bleaching powder prepared? For what purpose is it used in drinking water?

14. (i) Draw a labelled diagram to show the preparation of hydrogen chloride gas in laboratory.  
(ii) Test the gas evolved first with dry and then with wet litmus paper. In which of the two cases, does the litmus paper show change in colour?  
(iii) State the reason of exhibiting acidic character by dry HCl gas/HCl solution.

15. To a solution of sodium hydroxide in a test tube, two drops of phenolphthalein are added.  
(i) State the colour change observed.  
(ii) If dil. HCl is added dropwise to the solution, what will be the colour change?  
(iii) On adding few drops of NaOH solution to the above mixture the colour of the solution reappears. Why?

16. List the important products of the Chlor-alkali process. Write one important use of each.

Explain the above observations giving suitable reasons.

17. The pH of a salt used to make tasty and crispy pakoras is 14. Identify the salt and write a chemical equation for its formation. List its two uses.

**SECTION – D (**Q.no. 18 and 19 is long answer questions.)

18. **Compound such as alcohols and glucose also contain hydrogen but are not categorized as acids. Describe an activity**

19. a. Two solutions A and B have pH 3 and 5 respectively. Which of the two solutions has more hydrogen ion concentration and which one is more acidic? Give reason for your answer.

**SECTION – E (**Q.no. 20 and 21 Case - based/data -based questions)

20. The reaction between carbon dioxide and calcium hydroxide (lime water), Calcium hydroxide, which is a base, reacts with carbon dioxide to produce a salt and water. Since this is similar to the reaction between a base and an acid, we can conclude that non-metallic oxides are acidic in nature.

Based on the above paragraph answer the following questions:

1. **What does the scale represent when pH value increases from 7 to 14?**
2. **What happens when the pH of mouth is lower than 5.5?**
3. **Two solutions X&Y. The pH of X is 4 and the pH of Y is 7. What is the nature of two solution?**

**21.** A scale for measuring hydrogen ion concentration in a solution, called pH scale has been developed. The p in pH stands for ‘potenz’ in German, meaning power. On the pH scale we can measure pH generally from 0 (very acidic) to 14 (very alkaline). pH should be thought of simply as a number which indicates the acidic or basic nature of a solution. Higher the hydronium ion concentration, lower is the pH value.

Answer the following on the basis of above paragraph:

1. **What is the nature of Carbon dioxide?**
2. **Give another reaction of non- metallic oxide and a base?**
3. **Arrange the following bases in increasing order: NaOH, Ca(OH)2 & Mg(OH)2.**
4. **What is the nature of non- metallic oxide?**