

**ACID, BASES AND SALTS**  
**FORMATIVE ASSESSMENT I**  
**Q.PAPER**

MARKS-30

TIME- 70 MINUTES

Instructions:

- Questions : 1 to 5 – 1 Mark each
- Questions : 6 to 9 – 2 Marks each
- Questions : 10 to 13 – 3 Marks each
- Question 14 – 5 Marks

- ii. Name the gas formed when sodium hydroxide reacts with zinc.
- iii. Write the chemical name of baking soda.
- iiii. What happens when gypsum is heated at 373K?
- iv. Which has a higher pH value 1M HCl or 1M NaOH solution?
- iv. Hydrogen ion concentration of an acid is  $1 \times 10^{-2}$  mol/l. what is its pH?
- ivi. What is meant by 'Water of Crystallisation' of a substance? Describe an activity to show that.
- ivii. Why does tooth decay start when the pH of mouth is lower than 5.5?
- iviii. What is baking powder? How does it make the cake soft and spongy?
- ix. Give Arrhenius definition of an acid and a base. Choose strong acid and strong base from the following:
- $\text{CH}_3\text{COOH}$ ,  $\text{NH}_4\text{OH}$ ,  $\text{KOH}$ ,  $\text{HCl}$
- ix. What happens when nitric acid is added to egg shell? Give the chemical equation.
- ixi. A student prepared solutions of an acid and a base in two separate beakers. She forgot to label the solutions and litmus paper is not available in the laboratory. Since both the solutions are colourless, how will she distinguish between the two?
- ixii. Identify the compound 'X' on the basis of the reactions given below. Write the names and chemical formulae of A, B, C

Compound X	+ Zn	(A) + $\text{H}_2$ (g)
	+HCl	(B) + $\text{H}_2\text{O}$
	+ $\text{CH}_3\text{COOH}$	(C) + $\text{H}_2\text{O}$

- ixiii. How is plaster of Paris prepared? What is its chemical formula? Write its chemical name.
- ixiv.
- Define strong acid and weak acid.
  - A student working in the laboratory added some water to a syrupy liquid taken in a tube. The tube immediately cracked and the liquid escaped out, that produced blisters on the skin of the student. Why?

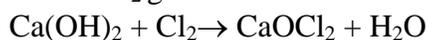
### HOTS QUESTIONS

Q.1. In one of the industrial processes used for the manufacture of sodium hydroxide, a gas 'X' is formed as a by-product. The gas 'X' reacts with lime water to give a compound 'Y' which is used as a bleaching agent in the chemical industry. Identify 'X' and 'Y' giving the chemical equation of the reaction.

Ans. In the manufacture of sodium hydroxide, hydrogen gas and chlorine gas (X) are formed as by-products. When chlorine gas (X) reacts with lime water, it forms calcium oxychloride (bleaching powder) Y.



'X'  $\Rightarrow$   $\text{Cl}_2$  gas

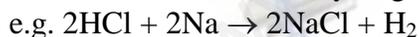


Q.2. Dry hydrogen chloride gas does not turn blue litmus, whereas hydrochloric acid does. Why?

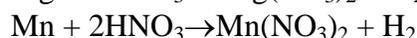
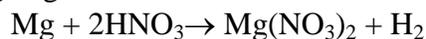
Ans. In the dry state, hydrogen chloride (HCl) does not release  $\text{H}^+$  ions. Therefore, it cannot behave as an acid. When dissolved in water, it forms hydrochloric acid. It dissociates to give  $\text{H}^+$  ions in solution and behaves as an acid.

Q.3. Acids when they react with metals release hydrogen gas but there is one acid which when it reacts with metals does not release hydrogen except for two metals. Prove this statement.

Ans. Acid + Metal  $\rightarrow$  Salt + Hydrogen



Because nitric acid is a strong oxidising agent. Nitric acid reacts only with Mg and Mn to give hydrogen gas.



- Q. 4 Name the properties responsible for the following uses of baking powder. (i) Baking industry (ii) As an antacid (iii) As a soda-acid fire extinguisher.
- Q. 5 What is meant by water of crystallisation of a substance? What is its importance?
- Q. 6 What effect does an increase in concentration of 'H' ions in a solution have on the pH of a solution?
- Q. 7 Fresh milk has a pH of 6. When it changes to curd, will its pH value increase or decrease? Why?

- Q. 8 How does the flow of acid rain water into a river make the survival of aquatic life in a river difficult?
- Q. 9 Arrange in the increasing order of their pH values: NaOH solution, Blood, Lemon juice,
- Q. 10 Two solutions A and B have pH values of 5 and 8 respectively. Which solution will be basic in nature?
- Q. 11 Why does an aqueous solution of acid conduct electricity?
- Q. 12 How is alkali different from a base?

**FA II**  
**ACIDS, BASES AND SALTS**  
**ORAL QUESTIONS – (Conversation Type)**

1. a) Acids are sour in taste. Is it a way to find whether a substance is an acid or a base?  
b) What is other physical test?  
c) Any test with solid acid?  
d) Can you check the evolution of CO<sub>2</sub> chemically?
2. a) What are acids?  
b) Can presence of H<sup>+</sup> ion in water be estimated? How?  
c) How is pH related to strength of an acid?  
d) Name one strong acid and one weak acid.
3. a) What are salts?  
b) How many types of salts are formed?  
c) What are neutral salts?  
d) What do you mean by acidic salts?  
e) Define basic salts.  
f) Give the corresponding acid and base from which sodium carbonate is formed.
4. a) What is common salt?  
b) Why does common salt become moist in rainy season?  
c) How is it used as a freezing mixture?  
d) Name two important laboratory chemicals prepared from common salt on large scale.
5. a) What is washing soda?

- b) Name the process by which sodium carbonate is manufacture.
  - c) What are the raw materials used in the preparation of washing soda?
  - d) Sodium carbonate is obtained from another carbonate on heating. Name it.
- 6.
- a) Name the substance used for bleaching cotton and wood pulp in textiles.
  - b) What is its chemical name?
  - c) How is it manufactured?
  - d) What is slaked lime?
  - e) Why does bleaching powder smell of chlorine?

### **ORAL QUESTIONS**

1. Name the acid present in lemon juice.
2. What is the chemical difference between washing soda and baking powder?
3. Name the acid present in ant sting.
4. What is the ideal pH of the soil for the healthy growth of a plant?
5. At what pH the mouth teeth start decaying?
6. How is pH of an acid solution affected when it is diluted?
7. Name the gas responsible for extinguishing fire in a soda – acid fire extinguisher.
8. Out of glucose and acetic acid which one will conduct electricity in water?
9. What is the pH of blood?
10. What is the chemical name of the compound which has the property of hardening when mixed with water?

### **QUIZ – WHO AM I**

1. I can roughly measure pH value from 0 – 14.
2. I am called antichlor and am used to remove excess chlorine from clothes when treated with bleaching powder.
3. I am a product of gypsum and am used to making chalks and fire proof materials.
4. I am a compound of calcium and can be used for disinfecting drinking water as well as for decolourisation.
5. I give different smell in acid and base solution.

6. I am an oxide capable of showing properties for both acids and bases.
7. I am a covalent compound and conducts electricity in aqueous medium.
8. I am a salt of potassium hydroxide and nitric acid.
9. I am the term used when a solid becomes liquid when exposed to moist air.
10. I am derived from tomato and turn blue litmus into red.

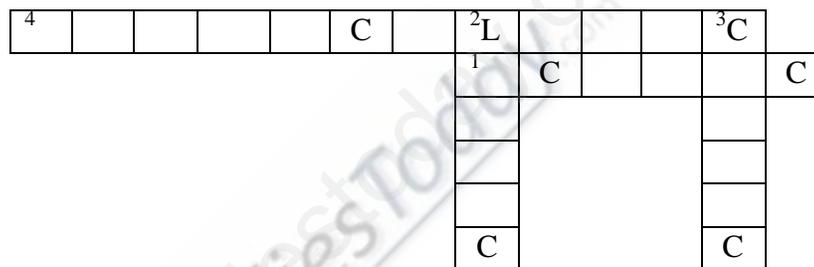
**PUZZLES**

1. ⇒ **Across**

1. Known as vinegar (6)
4. A mineral acid (12)

⇓ **Down**

2. Acid obtained from milk (6)
3. An acid obtained from lemon (6)

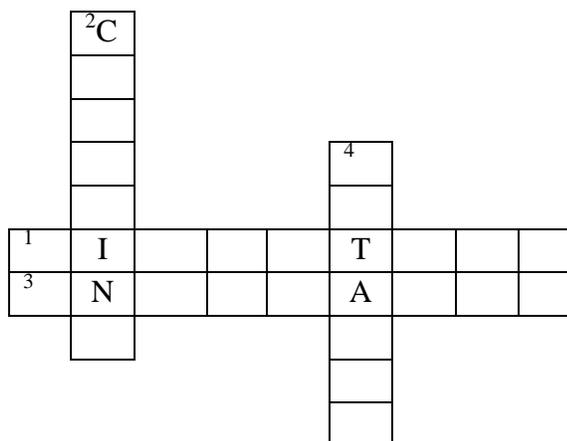


2. ⇒ **Across**

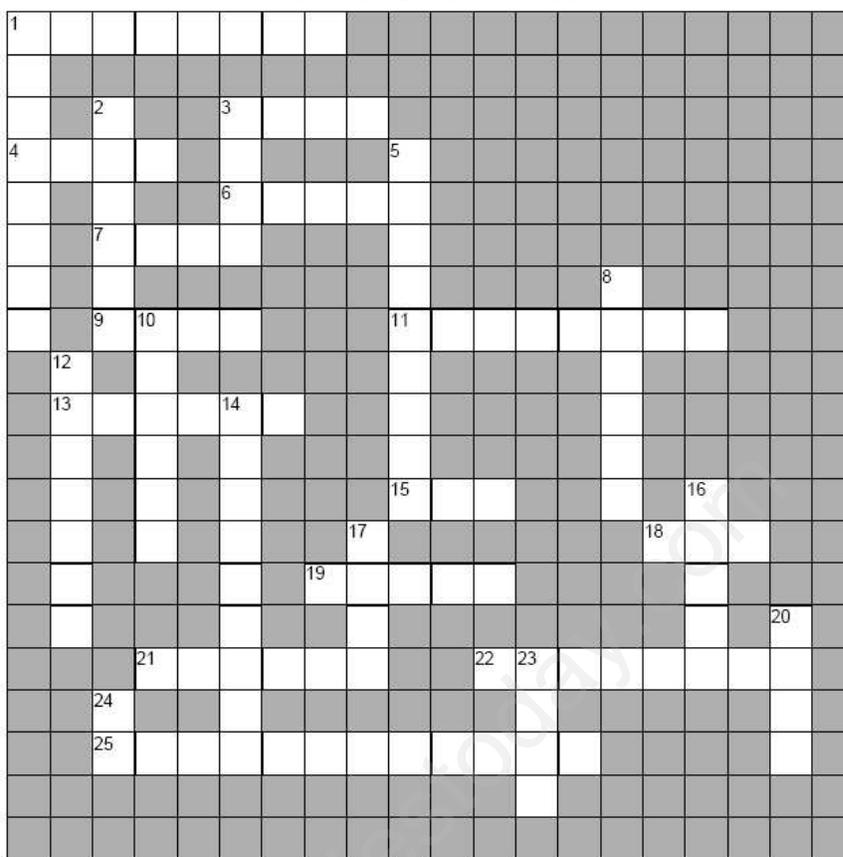
1. A stone used for manufacture of sodium carbonate (9)
3. A substance that changes colour in acid – base solution (9)

⇓ **Down**

2. A gas obtained in the electrolysis of sodium chloride (8)
3. A substance that gives relief from acidity (7)



## Acids and Bases

Across

1. Name of acid in softdrink.[8]
3. Chemical containing hydroxide ions.[4]
4. Chemical that is corrosive, has a sour taste and a pH less than 7.[4]
6. Neutral substances have this pH.[5]
7. Alkalis have a pH \_\_\_\_ than 7.[4]
9. Acid and base neutralise to form \_\_\_\_ and water.[4]
11. Household bases are suitable for \_\_\_\_.[8]
13. Chemical with a soapy feel and pH more than 7.[6]
15. Acids change blue litmus paper \_\_\_\_.[3]
18. Sulphuric acid turns litmus paper \_\_\_\_.[3]
19. Salt has this pH.[5]
21. Alkalis turn \_\_\_\_ paper blue.[6]
22. Carbon dioxide and water form \_\_\_\_ acid.[8]
25. Stomach acid.[12]

Down

1. Many household \_\_\_\_ products are bases.[8]
2. Indicator made from lichens.[6]
3. Chemical that neutralises an acid.[4]
5. Chemical that changes colour in acids and bases.[9]
8. Common indicator used in liquid or paper form.[6]
10. Soluble base.[6]
12. Common name for sodium hydroxide is \_\_\_\_ soda.[7]
14. Common name for calcium hydroxide.[9]
16. Distilled water has this pH.[5]
17. Acids have a pH that is \_\_\_\_ than 7.[4]
20. \_\_\_\_ rain is an environmental problem in industrial areas.[4]
23. Reacts with a metal to form hydrogen gas and a salt.[4]
24. Measure of amount of hydrogen ions released in solution.[2]