



**परमाणु ऊर्जा शिक्षण संस्था**  
**Atomic Energy Education Society**  
**WORK SHEET**

CLASS—X

MAX.MARKS—80

Chapter: Acids, Bases &amp; Salts

Section-A**I. This section has 10 multiple choice questions only ONE option is correct. (10 x 1M=10M)**

1. Calcium Carbonate is the Chemical formula of:
 

|               |                          |
|---------------|--------------------------|
| (a) Limestone | (b) Chalk                |
| (c) Marble    | (d) All (a), (b) and (c) |
2. Human body works within the pH range of:
 

|                  |                |
|------------------|----------------|
| (a) 7.0 to 7.8   | (b) 4.5 to 5.6 |
| (c) 13.0 to 14.0 | (d) 1.2 to 2.2 |
3. Which solution will change blue litmus to red?
 

|              |   |
|--------------|---|
| (a) NaOH(aq) | (b) H <sub>2</sub> SO <sub>4</sub> (aq) |
| (c) KCl (aq) | (d) NH <sub>4</sub> OH(aq)              |
4. 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 <sup>-</sup> ions from the evolved gas. |
5. What is formed when Zinc reacts with Sodium Hydroxide?
 

|  |                                     |
|--|-------------------------------------|
| (a) Zinc hydroxide & Sodium            | (b) Sodium Zincate and hydrogen gas |
| (c) Sodium Zinc oxide and hydrogen gas | (d) Sodium zincate and water        |
6. 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   |
7. Nettle sting is a natural source of which acid?
 

|                    |                   |
|--------------------|-------------------|
| (a) Methanoic acid | (b) Lactic acid.  |
| (c) Citric acid    | (d) Tartaric acid |
8. Sodium hydroxide turns phenolphthalein solution.
 

|                |             |
|----------------|-------------|
| (a) pink       | (b) yellow. |
| (c) colourless | (d) orange  |
9. Brine is used for industrial production of
 

|                      |                       |
|----------------------|-----------------------|
| (a) NaOH             | (b) KOH.              |
| (c) bleaching powder | (d) none of the above |

10. When dilute sulphuric acid is added to a solid X, a gas Y is formed along with the formation of the salt of the solid. What could be X and Y?

- (a) X: Carbon; Y: hydrogen  
(b) X: Zinc; Y: hydrogen.  
(c) X: Zinc; Y: Oxygen  
(d) X: Copper; Y: Oxygen

**II. Answer the following questions in brief:**

**(10 x 1M=10M)**

11. What is an Indicator?
12. What do all acids have in common?
13. How is the concentration of hydronium ions ( $H_3O^+$ ) affected when a solution of an acid solution is diluted?
14. Two solutions A & B have pH of 5 and 8 respectively. Which solution will be acidic in nature?
15. What do you mean by the family of salts? Give an example.
16. Name the products formed from Chlo-alkali process?
17. What is the Chemical name of 'Plaster of Paris'? Also write its Chemical Formula.
18. Name the substance which on treatment with Chlorine yields bleaching powder.
19. Name the Sodium Compound which is used for softening of Hard Water?
20. Which gas is usually liberated when an acid reacts with a metal?

**SECTION -B**

**III. Answer the following questions:**

**(10 x 2M=20M)**

21. What are bases? How does a base like NaOH react with zinc?
22. Write two tests you would perform to detect whether the given colourless liquid is Acetic acid or not?
23. What do you observe when dil HCL is added to Zinc pieces taken in a test tube? How would you identify the gas evolved?
24. Which gas is usually liberated when an acid reacts with a metal? Illustrate with an example.
25. What are olfactory indicators? Give 2 examples.
26. What happens when acetic acid is added in a solution of  $Na_2CO_3$  in a test tube? Write the Chemical equation.
27. Why does dry HCl gas not change the colour of the dry litmus paper?
28. Twenty (20) ml of water and five (5) ml of concentrated Sulphuric acid are to be mixed in a beaker.
  - i) State the method that should be followed with reason.
  - ii) What is this process called?
29. Write a balanced Chemical equation involved when:

- i) Chlorine is passed over dry slaked lime.
- ii) Sodium Bicarbonate is heated.

30. Give any (2) two uses of bleaching powder.

### SECTION-C

**IV. Answer the following questions**

**( 5 x 3M= 15 M)**

31. Illustrate 3 properties of acids with examples.

32. Identify 'X', 'Y' and 'Z' in the following reactions. Write the chemical name of 'X', 'Y' and 'Z'.

- i)  $\text{HNO}_3 + \text{NaOH} \rightarrow \text{'X'} + \text{H}_2\text{O}$ .
- ii)  $\text{'Y'} + \text{Ca(OH)}_2 \rightarrow \text{CaSO}_4 + 2\text{H}_2\text{O}$
- iii)  $\text{HCl} + \text{'Z'} \rightarrow \text{KCl} + \text{H}_2\text{O}$ .

33. Write the Chemical Equation involved in the preparation of NaOH. Name the process.

34. a) Write the name given to bases that are highly soluble in water. Give an example.

b) How is tooth decay related to pH? How can it be prevented?

35. Give any three (3) practical applications of Neutralization reaction.

### SECTION-D

**V. Answer the following Long Answer Questions**

**( 5 x 5M= 25 M)**

34 a) Write the formula for hydrated Copper Sulphate and anhydrous copper sulphate. Give an activity to explain how these two are interconvertible.

b) Write chemical names & formulae of Plaster of Paris and Gypsum.

35. a) What is the chemical name and chemical formula of Plaster of Paris?

b) Write a reaction between Plaster of Paris and water.

c) Write two uses of washing soda.

d) What is chlor- alkali process? Name two products obtained during this process.

36. a) How do metal carbonates and metal hydrogen carbonates react with acids?

b) i) Give their chemical equations.

c) Name the gas evolved during the reaction.

d) What will happen when this gas is passed through lime water?

37. a) Identify the acid and the base whose combination forms the common salt that you use in your food. Write its formula and chemical name of this salt. Name the source from where it is obtained.

b) What is rock salt? Mention its colour and the reason due to which it has this colour.

c) What happens when electricity is passed through brine? Write the chemical equation for it.

38. a) Write the common name of  $\text{CaOCl}_2$ . How is it prepared? Write the chemical equation of the reaction involved in the process. Give any two uses of it.
- b) Write the chemical name of washing soda. How is it prepared? Give the relevant Chemical equations.

### SECTION-E

**This section has Source based/ Case based questions.**

**Read the following and answer any four questions from i) to v)**

4M

39. Acids, bases and salts are three main categories of Chemical Compounds. These have certain definite properties which distinguish one class from the other.

The acids are sour in taste while bases are bitter in taste. Tasting a substance is not a good way of finding out if it is an acid or a base. Acids and bases can be better distinguished with the help of indicators. Indicators are substances that undergo a change of colour with a change of acidic, neutral, or basic medium. Many of these indicators are derived from natural substances such as extracts from flower petals and barrier. Litmus, a purple dye is extracted from the lichen plant. Some indicators are prepared artificially. For example, methyl orange and phenolphthalein. Given below is a table of indicators and their colour change in acidic and basic medium.

| Indicator       | Colour in acid | Colour in Alkali |
|-----------------|----------------|------------------|
| Litmus          | Red            | Blue             |
| Methyl Orange   | Pinkish Red    | Yellow           |
| Phenolphthalein | colourless     | Pink             |

- i) Which of the following is an example of natural indicator?
- a) Turmeric (b) Methyl Orange.  
 (c) Phenolphthalein (d) Methyl Red.

- ii) An aqueous solution turns blue litmus solution red. Excess addition of which solution would reverse the change?

- a) HCl (b)  $\text{H}_2\text{SO}_4$ .  
 (c) NaOH (d)  $\text{HNO}_3$

Ans: Blue litmus turns red, it means the solution is acidic. Excess addition of base would reverse the change.

- iii) Universal Indicators impart \_\_\_\_\_ colour in neutral solution.

- a) Red (b) Yellow.  
 (c) Green (d) Blue

- iv) An aqueous solution 'A' turns phenolphthalein solution pink. On addition of an aqueous solution 'B' to 'A', the pink colour disappears. Which of the following statement is true for solution 'A' and 'B'?
- a) 'A' is strongly basic and 'B' is a weak base.
  - b). 'A' is strongly Acidic and 'B' is a weak acid.
  - c) 'A' has a pH greater than 7 and 'B' has a pH less than 7.
  - d) 'A' has a pH less than 7 and 'B' has a pH greater than 7.
- v) If 10 mL of  $\text{H}_2\text{SO}_4$  is mixed with 10ml of  $\text{Mg}(\text{OH})_2$  of the same concentration, the resultant solution will give the following colour with universal indicator:
- a) Red
  - (b) Yellow.
  - (c) Green
  - (d) Blue
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