



परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
WORK SHEET- Ans key

CLASS—X**MAX.MARKS—80****Chapter: Acids, Bases & Salts****Section-A****I. This section has 10 multiple choice questions only ONE option is correct. (10 x 1M=10M)**

1. (d) All (a), (b) and (c)
2. (a) 7.0 to 7.8
3. (b) H_2SO_4 (aq)
4. (c) absorb moisture from the gas
5. (b) Sodium Zincate and hydrogen gas
6. (d) bases, which are soluble in water
7. (a) Methanoic acid
8. (a) pink
9. (a) NaOH
10. (b) X: Zinc; Y: hydrogen.

II. Answer the following questions in brief:**(10 x 1M=10M)**

11. A substance which gives different colour in acid or base is known as an indicator.
12. An acid produce hydrogen ion $[\text{H}^+]$ in aqueous solution. Presence of H^+ is responsible for their acidic properties.
13. When an acid solution is diluted then the concentration of hydronium ions decreases.
14. The solution 'A' with pH 5 is acidic in nature.
15. Salts having the same +ve or -ve radicals are said to belong to the same family. NaCl, KCl, CaCl_2 , MgCl_2 etc belong to the same family of salts called the family of Chloride salts.
16. NaOH, Cl_2 gas and H_2 gas.
17. Calcium Sulphate hemihydrate – $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$.
18. $\text{Ca}(\text{OH})_2$.
19. Washing Soda $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
20. H_2 gas formed gets released.

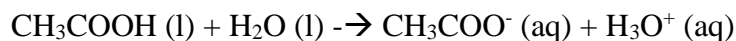
SECTION -B**III. Answer the following questions:****(10 x 2M=20M)**

21. A base give OH^- ions in water (1M). NaOH reacts with Zinc to liberate H_2 gas with the formation of Sodium Zincate. (½M). $\text{NaOH} + \text{Zn} \rightarrow \text{Na}_2\text{ZnO}_2 + \text{H}_2 \uparrow$.
Sodium Zincate

22. ANY TWO:

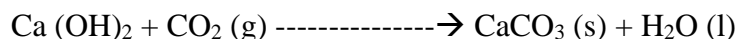
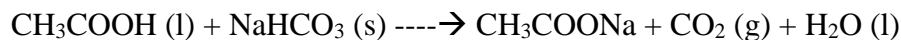
i) Odour: It smells like vinegar & sour in taste.

ii) Solubility in water: It is soluble in water & exhibits acidity.



iii) Effect on Litmus Paper: If we put a drop of the given colourless liquid on blue litmus paper, if the litmus paper changes to Red, then the given acid is Acetic acid [CH₃COOH].

iv) Reaction with NaHCO₃, liberates CO₂, which turns lime water milky.



23. A colourless gas is evolved with brisk effervescence from the test tube.

When a burning matchstick is brought near the gas, the gas burns with a 'pop' sound. The gas evolved is H₂gas.

24. H₂ gas. Equation: $\text{Zn} + 2\text{HCl (dil)} \rightarrow \text{ZnCl}_2 + \text{H}_2\uparrow$.

25. Those substances whose smell changes in acidic or basic solutions are called olfactory indicators. E.g.: Vanilla essence, onion, clove.

26. CO₂ gas is evolved with brisk effervescence.



Both reactants have to dissociate first in water, their ions then interchange species.

Here the 2 Cations Na⁺ leave the molecule of Carbonate, are attracted by the negative charge of acetate and bond to it. The H⁺ is attracted by the CO₃²⁻ and molecule of water is formed, a molecule of CO₂ gas is created and tends to join with others to form CO₂ bubbles within the solution to flee it thru its surface.

27. Without aqueous medium, HCl will not ionise to form hydrogen ions (H⁺). Hence, it will not show the acidic behaviour.

28. i) The acid is to be added slowly in the water to prevent the mixture to be splashed.

ii) Dilution.

29. i) $\text{Ca (OH)}_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2 + \text{H}_2\text{O}$.

ii) $2\text{NaHCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2 \text{ (g)}$

30. i) Used in textile industry for bleaching cotton.

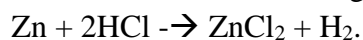
ii) Used to disinfect drinking water. OR any other correct answer.

SECTION-C

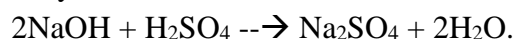
IV. Answer the following questions

(5 x 3M= 15 M)

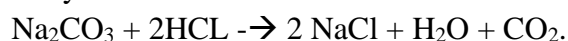
31. i) Acids react with metals to give out H₂gas.



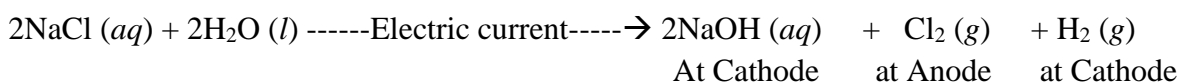
ii) They react with bases to form salt and water.



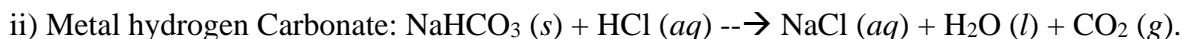
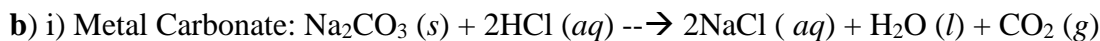
iii) They react with metal Carbonates to liberate CO₂ gas.



d) Caustic Soda (NaOH) is obtained by the electrolysis of aqueous solution of Sodium Chloride (called brine) and the process is called Chlor-alkali. Products obtained during this process are chlorine and hydrogen.



36. a) Metal Carbonates and metal hydrogen carbonates react with acids to give corresponding salt, carbon-dioxide and water.

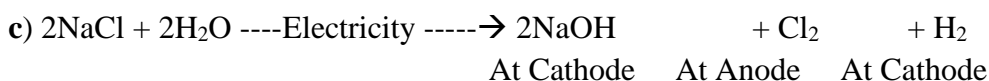


c) Gas evolved is carbon-di-oxide (CO₂).

d) When this gas is passed through lime water, it turns milky.

37 a) Hydrochloric acid and sodium hydroxide. NaCl, Sodium Chloride, ocean water.

b) Deposits of solid salt are found in several parts of the world. These large crystals are called rock salt. Brown colour, due to impurities.



38 a) The common name of CaOCl₂ is Bleaching powder. It is formed by passing chlorine gas into [Ca (OH)₂] slaked lime. $\text{Ca} (\text{OH})_2 + \text{Cl}_2 (g) \rightarrow \text{CaOCl}_2$.

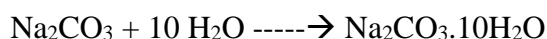
Two uses:

i) Used for bleaching cotton and linen in the textile industry and wood pulp in paper industry, etc.

ii) It is used for disinfecting drinking water.

b) Washing Soda: Na₂CO₃.10H₂O.

By heating baking soda, sodium carbonate is obtained, its recrystallisation gives washing soda. $2\text{NaHCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$.



SECTION-E

This section has Source based/ Case based questions.

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

4M

39. i) a) Turmeric

ii) (c) NaOH. Blue litmus turns red, it means the solution is acidic. Excess addition of base would reverse the change.

iii) (c) Green. After adding a universal indicator, yellow to red indicate an acidic solution, blue to violet indicate alkali and green colour indicates that a solution is neutral.

iv) (a) 'A' is strongly basic and 'B' is a weak base. 'A'; turns phenolphthalein pink so it is basic in nature and its pH is greater than 7. On adding 'B'; to 'A', pink colour disappears it means it is acidic in nature, so its pH is less than 7.

v) (c) **Green.** Both the acid and base are strong, so they neutralise each other and the colour of neutral solution on universal indicator is green.
