
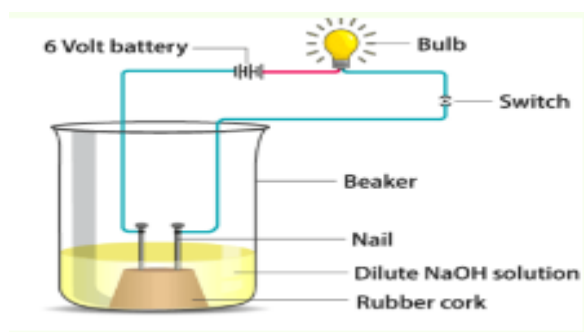
	INDIAN SCHOOL AL WADI AL KABIR	
Class: X	Department: SCIENCE (2023 – 24) SUBJECT: CHEMISTRY	Date of submission: 20-07-2023
Worksheet No: 2 WITH ANSWERS	CHAPTER / UNIT: ACIDS, BASES AND SALTS	Note: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

OBJECTIVE TYPE QUESTIONS
MULTIPLE CHOICE QUESTIONS

1. In an attempt to demonstrate electrical conductivity through an electrolyte, the following apparatus was set up. Which among the following statement(s) is(are) correct?



- 1) Bulb will not glow because the electrolyte is not acidic.
 - 2) Bulb will glow because NaOH is a strong base and furnishes ions for conduction.
 - 3) Bulb will not glow because the circuit is incomplete.
 - 4) Bulb will not glow because it depends upon the type of electrolytic solution.
 - a. (i) and (iii)
 - b. (ii) and (iv)
 - c. (ii) only
 - d. (iv) only
2. A student prepared 20% sodium hydroxide solution in a beaker containing water. The observations noted by him are given below.
- (I) Sodium hydroxide is in the form of pellets.
 - (II) It dissolves in water readily.
 - (III) The beaker appears cold when touched from outside.
 - (IV) Red litmus paper turns blue when dipped into the solution.
- The correct observations are:

- (a) (I), (II), and (III)
- (b) (II), (III) and (IV)
- (c) (II), (IV) and (I)
- (d) (I), (II) and (IV)

3. Bleaching powder's chemical name is _____

- a. Calcium hypo-Oxychloride
- b. Calcium Oxychloride
- c. Calcium Chloride
- d. Calcium Chloro-Oxide

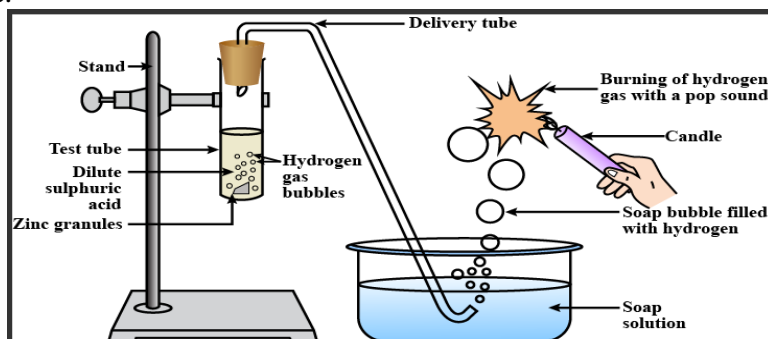
4. A solution reacts with crushed egg shells to give a gas that turns lime water milky .The solution contains -----

- a. NaCl
- b. HCl
- c. LiCl
- d. KCl

5. 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

6. In the schematic diagram for the preparation of hydrogen gas as shown in the figure, what would happen if the following changes are made? In place of zinc granules, the same amount of zinc dust is taken in the test tube.



- (a) Hydrogen gas will evolve with lesser speed
- (b) Hydrogen gas will evolve with greater speed
- (c) No gas would be evolved
- (d) Zinc dioxide gas would be formed.

7. 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

8. What is formed when zinc reacts with sodium hydroxide?

- (a) Zinc hydroxide and sodium
- (b) Sodium zincate and hydrogen gas

- (c) Sodium zinc-oxide and hydrogen gas
 (d) Sodium zincate and water
9. Brine is an
 (a) aqueous solution of sodium hydroxide
 (b) aqueous solution of sodium carbonate
 (c) aqueous solution of sodium chloride
 (d) aqueous solution of sodium bicarbonate
10. Sodium carbonate is a basic salt because it is a salt of a
 (a) strong acid and strong base
 (b) weak acid and weak base
 (c) strong acid and weak base
 (d) weak acid and strong base
11. Tooth enamel is made up of
 (a) Calcium phosphate
 (b) Calcium carbonate
 (c) Calcium oxide
 (d) Potassium
12. Which of the following phenomena occur, when a small amount of acid is added to water?
 (i) Ionisation
 (ii) Neutralisation
 (iii) Dilution
 (iv) Salt formation
 a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (ii) and (iv)
13. Chemical formula of washing soda is
 (a) $\text{Na}_2\text{CO}_3 \cdot 7\text{H}_2\text{O}$
 (b) $\text{Na}_2\text{CO}_3 \cdot 5\text{H}_2\text{O}$
 (c) $\text{Na}_2\text{CO}_3 \cdot 2\text{H}_2\text{O}$
 (d) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

Assertion and Reason Questions

Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are 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
14. Assertion (A) : The process of dissolving an acid or a base in water is a highly exothermic.
 Reason (R) : Mixing an acid or base with water results in decrease in concentration of ions ($\text{H}_3\text{O}^+ / \text{H}^+$)
15. Assertion (A) : During electrolysis of concentrated aqueous solution of sodium chloride, hydrogen is produced at anode and chlorine gas is produced at cathode.
 Reason (R) : Ions get attracted to oppositely charged electrodes.
16. Assertion (A): Plaster of Paris is stored in a moisture proof container.
 Reason (R) : Plaster of Paris sets into a hard mass on wetting with water to form anhydrous calcium sulphate.

17. Assertion : HCl is a stronger acid than acetic acid.
Reason: On dissociation, HCl yields lesser hydrogen ions for the same concentration as compared to acetic acid.
18. Assertion : pH of ammonium nitrate solution is acidic.
Reason: Solution of a salt of weak base and strong acid is acidic.

Case study based questions

Read the following and answer any four questions:

Taj Mahal, the seventh wonder of the world, is made of white stone. This white stone contains the same substance 'A' that is present in chalk powder and lime-stone. It is turning yellow due to polluted air. If it is cleaned by an acidic cleaner, a gas 'B' is released, which when passed through a solution 'C', forms the same substance which is present in the white stone that was used to make Taj mahal.



19. The substance A is-
- Ca_3CO_2
 - CaCO_3
 - $\text{Ca}(\text{OH})_2$
 - CaSO_4
20. Gas B is-
- Hydrogen
 - Nitrogen
 - Chlorine
 - Carbon dioxide
21. Solution C is-
- CaCl_2
 - CaCO_3
 - $\text{Ca}(\text{OH})_2$
 - CaSO_4
22. What is the nature of the substance A?
- Acidic
 - Basic
 - Neutral

d) None

23. Sodium carbonate is a basic compound because it is a salt of a

- (a) Strong acid and strong base (b) weak acid and weak base
(c) Strong acid and weak base (d) weak acid and strong base

ONE MARK QUESTIONS

24. Name the gas evolved when dilute HCl reacts with sodium hydrogen carbonate.
25. What is the name of the indicator which can be used for testing the pH of a solution?
26. Two solutions X and Y have pH=4 and pH=8 respectively. Which solution will give alkaline reaction and which one acidic?

THREE MARK QUESTIONS

27. (a) Define olfactory indicators. Name two substances which can be used as olfactory indicators.
(b) Choose strong acids from the following:-
 CH_3COOH , H_2SO_4 , H_2CO_3 , HNO_3
28. You have four solutions A, B, C and D. The pH of solution A is 6, B is 9, C is 12 and D is 7.
(i) Identify the most acidic and most basic solutions.
(ii) Arrange the above four solutions in the increasing order of H^+ ion concentration.
(iii) State the change in colour of pH paper on dipping in solution C and D.
29. Equal length of magnesium ribbon are taken in two test tubes A and B. H_2SO_4 is added to test tube A and H_2CO_3 in the test tube B in equal amounts.
(a) Identify the test tube having vigorous reaction.
(b) Give reason to support your answer.
(c) Name the gas liberated in both the test tubes. How will you prove its liberation?
(d) Write chemical equations for both the reactions.

PREVIOUS YEAR BOARD QUESTIONS

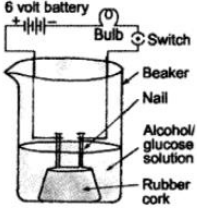
30. A chemical compound X is used in the soap and glass industry. It is prepared from brine.
(a) Write the chemical name, common name and chemical formula of X.
(b) Write the equation involved in its preparation.
(c) What happens when it is treated with water containing Ca or Mg salts?
(CBSE 2012/CBSE 2018)
31. Why do acids not show acidic behaviour in the absence of water? (CBSE 2018)
32. In one of the industrial processes used for manufacture of sodium hydroxide, a gas X is formed as by product. The gas X reacts with lime water to give a compound Y which is used as a bleaching agent in chemical industry. Identify X and Y giving the chemical equations of the reactions involved.
33. Identify the acid and base which form sodium hydrogen carbonate. Write chemical equation in support of your answer. State whether its compound is acidic, basic or neutral. Also write its pH value.
34. Why should curd and sour substances not be kept in brass and copper vessels? (CBSE 2015)

35. Compounds such as alcohol and glucose also contain hydrogen but are not categorised as acids. Describe an activity to prove it. (CBSE 2017)
36. A compound X which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water:
 (a) Identify the compound X
 (b) Write the chemical equation for its preparation
 (c) For what purpose is it used in hospitals? (CBSE 2022-23)
37. Write the common name of CaOCl_2 . How is it prepared? Write the chemical equation of the reaction involved in the process. Give any two uses of it.

ANSWERS

Q.no	Answers
1	c. (ii) only
2	(d) (I), (II) and (IV)
3	(b) calcium oxychloride
4	(b) HCl
5	(b) NH_4Cl
6	(b) Hydrogen gas will evolve with greater speed
7	(a) Water < Acetic acid < Hydrochloric acid
8	(b) Sodium zincate and hydrogen gas
9	(c) aqueous solution of sodium chloride
10	(d) weak acid and strong base
11	(a) calcium phosphate
12	(b) (i) and (iii)
13	(d) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
	<u>Assertion and Reason Questions</u>
14	(b) Both A and R are true but R is not the correct explanation of A.
15	(d) A is false but R is true
16	(c) A is true but R is false.
17	(c) A is true but R is false.
18	(a) Both A and R are true and R is the correct explanation of A.
	<u>Case study based questions</u>
19	b.) CaCO_3
20	d) Carbon dioxide
21	c) $\text{Ca}(\text{OH})_2$
22	b) Basic
23	(d) weak acid and strong base
	<u>ONE MARK QUESTIONS</u>
24	Carbon dioxide gas
25	Universal indicator.
26	X=acidic Y= Basic

THREE MARK QUESTIONS	
27	(a) Those substances whose smell changes in acidic or basic solution. Eg:- Onion and vanilla (b) H_2SO_4 , HNO_3
28	(i) A is most acidic and C is most basic. (ii) $\text{C} < \text{B} < \text{D} < \text{A}$ pH paper will become blue in C and green in D.
29	(a) A will show vigorous reaction. (b) It is because H_2SO_4 is a strong acid. (c) Hydrogen gas will be formed. Bring a burning splinter near the gas. It will burn with pop sound. It shows gas liberated is hydrogen. (d) $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2$ $\text{Mg} + \text{H}_2\text{CO}_3 \rightarrow \text{MgCO}_3 + \text{H}_2$
30	(a) Sodium carbonate, washing soda, $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (b) The equation involved in its preparation are: $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_4\text{Cl} + \text{NaHCO}_3$ $\text{Na}_2\text{CO}_3 + \text{H}_2\text{O} \rightarrow \text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (c) Washing Soda helps in removing permanent hardness from water. It forms insoluble Ca or Mg salts in the form of scum when it is treated with water containing Ca or Mg salts.
31	It is because acids do not dissociate into ions in absence of water. But when an acid is dissolved in water, it forms hydrogen ions and hence shows acidic behaviour.
32	In chlor-alkali process, chlorine and hydrogen gases are formed as by-products along with sodium hydroxide. $2\text{NaCl}(\text{aq}) + 2\text{H}_2\text{O}(\text{l}) \rightarrow 2\text{NaOH}(\text{aq}) + \text{Cl}_2(\text{g}) + \text{H}_2(\text{g})$ Chlorine gas produces bleaching power when it reacts with lime water ($\text{Ca}(\text{OH})_2$). Bleaching powder is used as a bleaching agent in chemical industries. $\text{Ca}(\text{OH})_2(\text{s}) + \text{Cl}_2(\text{g}) \rightarrow \text{CaOCl}_2(\text{s}) + \text{H}_2\text{O}(\text{l})$ Therefore, X is chlorine gas, and Y is bleaching powder.
33	It is because acids do not dissociate into ions in absence of water. But when an acid is dissolved in water, it forms hydrogen ions and hence shows acidic behaviour.
34	Hint: Curd and sour substances are acidic. Acids react with brass and metals – product of these reactions make the food unfit for consumption.
35	Though compounds like alcohol and glucose contain hydrogen but they do not ionise in the solution to produce H^+ ions on passing current through them. (i) Take solutions of alcohols and glucose. (ii) Fix two nails on a cork, and place the cork in 100 mL beaker.

	<p>(iii) Connect the nails to the two terminals of a 6 volt battery through a bulb and a switch, as shown in the given Figure.</p>  <p>(iv) Now pour alcohol in the beaker and switch on the current. (v) The bulb does not glow. (vi) Repeat the experiment with glucose. The bulb does not glow in this case also. (vii) This means no ions or H⁺ ions are present in the solution. This shows that alcohols and glucose are not acids.</p>
36	<p>(a) Plaster of Paris. (b) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O} \xrightarrow{373\text{K}} \text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O} + \frac{3}{2}\text{H}_2\text{O}$ (c) It is used in hospitals for fixing fractures, supporting the bones in the right position.</p>
37	<p>The common name of CaOCl₂ is Bleaching power. By passing chlorine into dry slaked lime $\text{Ca}(\text{OH})_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2$. Two uses : i. Used for bleaching cotton and linen in the textile industry. ii. wood pulp in paper industry etc. iii. It is used for disinfecting drinking water.</p>

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