

2. Acids, Bases and Salts

Answer the following: (VSA)

1. Out of the two - hydrochloric acid and acetic acid, which one is considered a strong acid and why? Write the name / molecular formula of one more strong acid.

Ans: * Hydrochloric acid is a strong acid because it has more number of hydronium (H_3O^+) ions whereas acetic acid contains less number of hydronium ions (H_3O^+). So it is a weak acid.

* Sulphuric acid (H_2SO_4) is also a strong acid.

Short Answers:

2. State reason for the following statements:

(a) Tap water conducts electricity whereas distilled water does not.

(b) Dry hydrogen chloride gas does not turn blue litmus to red whereas dilute hydrochloric acid does.

(c) For a dilution of acid, acid is added into water and not water into acid.

(a) Ans: Tap water contains ions which conduct electricity, distilled water does not contain ions.

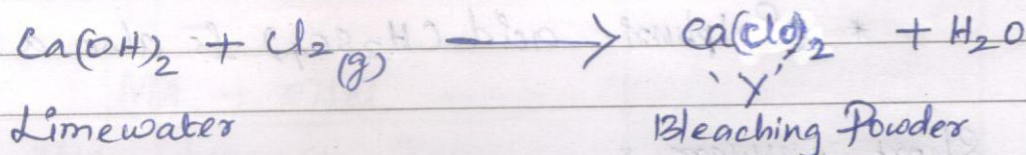
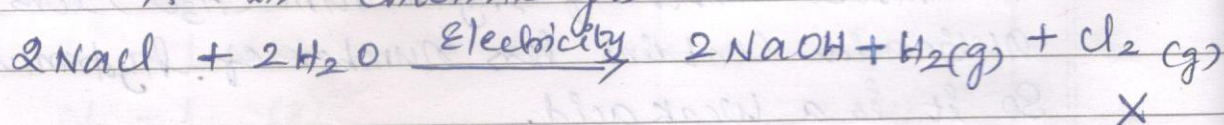
(b) Ans: Dry HCl gas does not form ions but HCl gives H^+ and Cl^- ions.

(c) Ans: Adding water to acid is highly exothermic, therefore, water is added to acid very slowly with cooling.

3. 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 limewater to give a compound Y which is used as a bleaching agent in chemical industry. Identify X and Y giving the chemical equation of the reactions involved.

Ans:

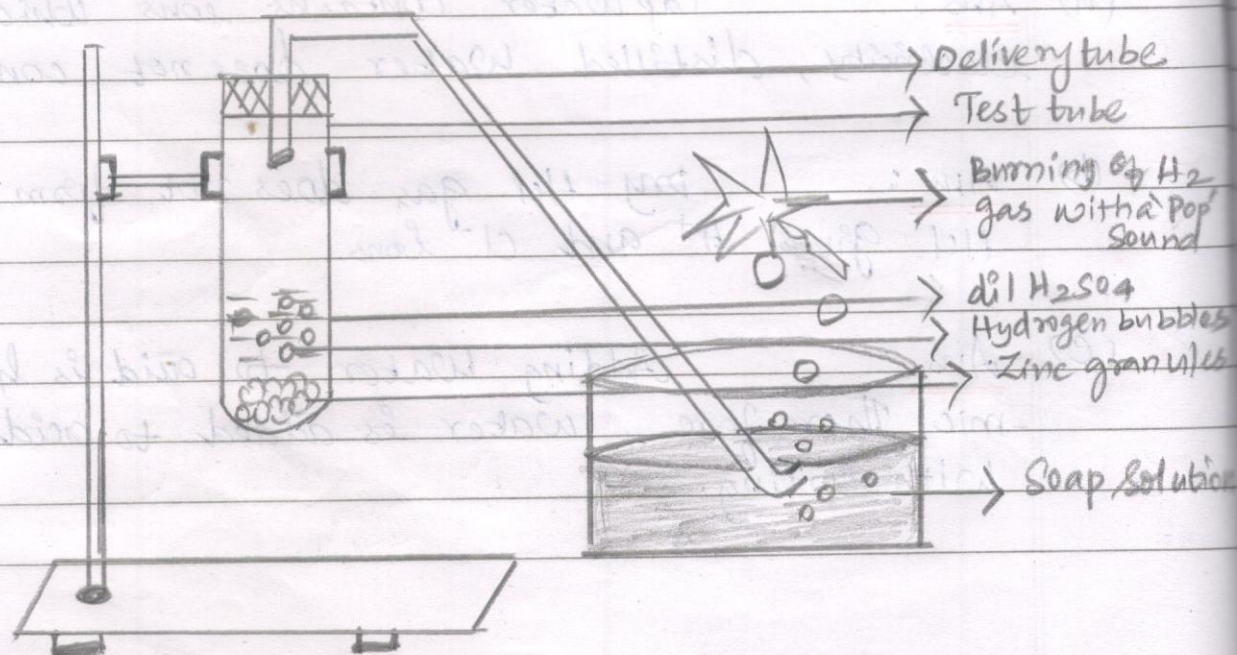
'X' is chlorine gas



'X' is Cl_2 gas, 'Y' is CaOCl_2 .

Long Answer:

- (4) In the following schematic diagram for the preparation of hydrogen gas as shown in the given figure, what would happen if following changes are made?



- (a) In place of Zinc granules, same amount of Zinc dust is taken in the test tube.
- (b) Instead of dilute Sulphuric acid, dilute hydrochloric acid is taken.
- (c) In place of Zinc, copper turnings are taken.
- (d) Sodium hydroxide is taken in place of dilute Sulphuric acid and the tube is heated.

Answers:

- (a) The reaction will become faster because Zinc dust has more surface area.
- (b) Nearly same amount of hydrogen gas will be evolved.
- (c) No reaction will take place as copper is less reactive than hydrogen.
- (d) The reaction will take place and hydrogen gas will be evolved.

