7th Acids bases and Salt Living science solution

P. 71 Oral Questions For Formative Assessment

1. acetic acid and citric acid

2. Acids are corrosive in nature. Strong acids can corrode even metals like iron and aluminium. Hence, acids are not stored in metal containers.

3. litmus paper and methyl orange; acid-base indicators

4. neutralization reaction, salt

5. Organic acids are naturally occurring acids that are present in animal and plant products. They are normally weak acids. Hydrochloric acid, sulphuric acid and nitric acid are known as mineral acids. They are normally strong acids.

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1. Bases which are soluble in water are called alkalis. But some bases are not soluble in water, so they are not alkalis. That is why all alkalis are bases but all bases are not alkalis.

2. I will not recommend that quicklime or slaked lime be added to the soil to neutralize the acid present in it.

3. sodium hydroxide (NaOH)

4. hydrochloric acid (HCI), magnesium hydroxide is used as an an acid to neutralize the excess add in the stomach

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1. If we replace hydrogen of an acid with a metal, a salt is formed.

2. a salt and water

3. a. nitric acid

b. carbonic acid

c. hydrochloric acid

d. sulphuric acid

4. a salt; sodium bicarbonate (NaHCO3)

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A. 1. d 2.a 3.c 4. d 5. c 6. a 7. d 8. d 9. b

B. 1. sodium chloride 2. an acid 3. red 4. false 5. nitric acid

6. lactic 7. carbon dioxide 8. neutralization 9. sulphuric add 10. alkali 11. ammonium hydroxide

12. a base 13. pale yellow 14. caustic soda 15. magnesium hydroxide

16. true 17. blue

C. 1. The substance which can be used to test if a given substance is acidic or basic in nature is known as an acid-base indicatdr, for example, methyl orange.

2. lemon, antacid, common salt 3. When dilute sulphuric acid is added to zinc, hydrogen gas is produced along with zinc sulphate.

4. Dilute acids react with carbonates such as calcium carbonate (CaCO3) to form salt and carbon dioxide gas.

5. Examples of strong acids: (I) Nitric acid (ii) Sulphuric acid

Examples of weak acids: (i) Lactic acid (ii) Acetic acid

6. Ant bite injects formic acid inside the skin, and thus skin irritates for some time. To get relief, a base (baking soda) is applied to neutralize the acid. The irritation ends with forming salt and water and provides relief.

D. 1. a. • Uses of sulphuric acid:

(i) To manufacture fertilizers such as ammonium sulphate and superphosphate.

(ii) In automobile batteries. b. Uses of hydrochloric acid: (i) In the oil industry to dissolve oil-bearing rocks.

(ii) To purify salts. c. Uses of nitric acid:

(i) To manufacture fertilizers such as ammonium nitrate.

(ii) To manufacture explosives such as TNT (trinitrotoluene) and nitroglycerine.

2. The reaction of an acid with a base to form a salt and water is known as neutralization reaction. The reaction gets its name because the acid and the base cancel out each other's properties to produce a solution, which is neutral, i.e. it is neither acidic nor basic.

The reaction of making common salt is: NaOH + HCI --> NaCI + H_2O

3. Some acids are dangerous, others are not. Concentrated mineral acids like sulphuric acid (H2SO4), nitric acid (HNO3) and hydrochloric acid (HCI) are strong acids. They can cause serious skin burns, thus they are considered dangerous acids. Organic acids like citric acid, lactic acid, acetic acid, tartaric acid and amino acids are not at all dangerous.

4. Bases are hydroxides of metals (or of ammonium). Their physical properties are:

(i) They have a bitter taste. (ii) They turn red litmus blue.

(iii) They have a soapy feel. (iv) Bases react with acids to form salt and water.

5. a. Uses of calcium hydroxide (or slaked lime):

(i) As a substitute for cement in low cost construction.

(ii) To manufacture bleaching powder.

b. Uses of ammonium hydroxide:

(i) To manufacture fertilizers such as ammonium nitrate. (ii) To manufacture nylons, plastics, dyes and so on.

c. (i) To manufacture soap. (ii) To manufacture paper, rayon, textiles, medicines and so on.

6. The two methods by which salts can be prepared are:

a. Reaction between an acid and a base: For example, common salt can be prepared by the reaction of sodium hydroxide with hydrochloric acid. NaOH + HCI --> NaCI + H2O

b. Reaction between an acid and a metal: A metal displaces hydrogen from an acid to form a salt.

Zn + H2SO4 ----> ZnSO4 + H2

7. Soaps are actually sodium salts of some acids. Soap can be prepared in the laboratory by boiling vegetable oil or animal fat with caustic soda (NaOH).

Uses of sodium hydroxide (or caustic soda):

Take 20 mL of castor oil in a beaker. Other oils such as coconut oil can also be used Prepare sodium hydroxide solution by dissolving half a teaspoonful of caustic soda in about 20 mL water.

Mix the oil and the sodium hydroxide solution. Heat the mixture and let it boil for 5-10 minutes.
Stir continuously.
The, reaction that occurs is: oil + sodium hydroxide soap + glycerine
To separate the soap from the mixture add a teaspoonful of salt to the beaker and stir.
On cooling, solid soap separates out as a crust on the top of the solution.
8. The name of a salt is derived from the name of the metal contributed by the base and the radical contributed by the acid.
Examples: (i) Sulphates are obtained from sulphuric acid (H2SO4), for example, sodium sulphate
(ii) Carbonates are obtained from carbonic acid (H2CO3), for example, calcium carbonate
(iii) Chlorides are obtained from hydrochloric acid (NCI), for example, sodium chloride
(iv) Acetates are obtained from acetic acid (CH3COOH), for example, sodium acetate

HOTS Questions

1. Turmeric stain becomes red when we try to wash it off with soap. This is because turmeric, the indicator, turns red with base, i.e. caustic soda present in soap. It is difficult to remove haldi stains.
Some methods that work to some extent are: (i) Apply baking soda and water and leave it for some time.
(ii) Dab with hydrogen peroxide. (iii) Apply bleach and water.
2. 'Weak acid' refers to the nature of the acid, for example, acids present in foodstuffs such as acetic acid and tartaric acid are weak acids. `Dilute acid' refers to amount of water added to the acid — the greater the amount of water added, the more dilute it is.
3. It is considered necessary to neutralize the acid in factory wastes before allowing them to flow into water bodies because otherwise it will make the water acidic. This will be harmful for aquatic life.