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Solution 46

(a) Copper (II)
chloride, CuCl_2



(c) Copper oxide is basic in nature

Solution 47

(a) Turmeric.

(b) The yellow stain of curry turns reddish-brown when soap is scrubbed on it because of the fact that soap solution is basic in nature which changes the colour of turmeric in the curry stain to red-brown. This stain turns yellow again when the cloth is rinsed with water because then the basic soap gets removed with water.

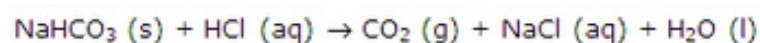
(c) Basic.

Solution 48

Acidic solution will turn blue litmus red; This red litmus will turn blue in basic solution; Distilled water will have no effect on any type of litmus paper.

Solution 49

Substance X is sodium hydrogen carbonate; Gas Y is carbon dioxide.



Solution 50

Neutralisation of a carbonate with an acid produces carbon dioxide gas but not with an oxide or hydroxide.

Solution 51

(a) H^+ ions of acid combine with OH^- ions of alkali to form water, H_2O .

(b) Temperature of the solution rises.

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Solution 1

(a) Hydrogen

(b) Hydrogen

Solution 2

Alkalis

Solution 3

They all produce hydroxide ions when dissolved in water.

Solution 4

Tooth decay start when the pH of mouth is lower than 5.5 because the acid becomes strong enough to attack the enamel of the teeth and corrode it.

Solution 5

7

Solution 6

Solution of $\text{pH} = 2$ is more acidic.

Solution 7

Solution of $\text{pH} = 11$

Solution 8

Sorenson

Solution 9

Universal indicator

Solution 10

Soil B. Soil B is acidic in nature so its treated with powdered chalk to reduce its acidity.

Solution 11

Universal indicator

Solution 12

(a) Dark Purple

(b) Orange Yellow

(c) Red

Solution 13

pH = 1 will turn the scale red; strong acid.

Solution 14

Solution Y is a stronger acid.

Solution 15

Solution A (pH = 3.0) will turn litmus from solution blue to red

Solution B (pH = 9.5) will turn phenolphthalein from colourless to pink.

Solution 16

Drink Q has a pH value of 9.

Solution 17

Alkaline reaction: Solution Y (pH = 8)

Acidic reaction: Solution X (pH = 4)

Solution 18

(a) Lower.

(b) Higher.

(c) 7.

(d) Lower.

(e) Higher.

Solution 19

pH value will decrease when milk changes to curd. Curd contains lactic acid hence the pH decreases.

Solution 20

(a) Universal indicator is a mixture of many different indicators which gives different colours at different pH values of the entire pH scale. It is used to obtain an idea of how acidic or basic a substance is.

(b) When an acid or base solution is added to the universal indicator, it produces a new colour which is used to find the pH value of the acid or the base solution by matching the colour with the colours on pH colour chart.

(c) Green colour.

Solution 21

(a) Methanoic acid.

(b) Methanoic acid. The effect of methanoic acid can be neutralised by rubbing a mild base like baking soda solution on the stung area of the skin.

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Solution 22

(a) Tooth decay starts when the pH of the acid formed in the mouth falls below 5.5 because the acid becomes strong enough to attack the enamel of the teeth and corrode it.

(b) The pH of lake water becomes lower because of too much acid rain. The high acidity of lake water can kill the aquatic animals like fish since they can survive within a narrow range of pH change. Calcium carbonate is added to acidic lake water to neutralise the acid and this prevents the fish from being killed.

Solution 23

(a) When a bee stings a person, it injects an acidic liquid into the skin which causes immense pain and irritation. Its remedy is to rub a mild base like baking soda solution on the stung are of the skin.

(b) When a wasp stings, it injects an alkaline liquid into the skin. Rubbing a mild acid like vinegar on the stung area of the skin gives relief.

Solution 24

(a) Since vinegar is acetic acid so it can't be used to treat bee sting because bee injects acid into the skin.

(b) Since baking soda is basic in nature so it can't be used to treat wasp sting because wasp injects alkaline liquid into the skin.

Solution 25

(a) pH of a solution signifies the concentration of hydrogen ions in it. Solution B is highly acidic since it has the lowest pH (pH = 4).

(b) Slaked lime or Chalk can be used to treat acidic soil.

Solution 26

(a) (i) Acids; A, C and D.

(ii) Alkalis; B, E and F.

(b) (i) Sulphuric acid.

(ii) Sulphuric acid.

(iii) Sodium hydroxide.

(iv) Nitric acid.

Solution 27

(a) The cold drink turns blue litmus red because of its acidic nature. It will have no action on red litmus.

(b) $A < C < B$. B will have maximum acid strength because pH is inversely proportional to concentration of hydrogen ions in a solution.

Solution 28

When the soil is too acidic, it is treated with bases like quicklime or slaked lime or chalk.

Solution 29

Our stomach produces hydrochloric acid. If there is excess of hydrochloric acid in the stomach, it causes indigestion which produces pain and irritation. Its effect can be cured by taking antacids.

Solution 30

If the soil is too acidic, then it can be treated with materials like quicklime or slaked lime as these materials are bases and hence react with the excess acids present in the soil to reduce its acidity.

Solution 31

Strong base: A base which completely ionises in water and produces a large amount of hydroxide ions.

Weak base: A base which is partially ionised in water and produces a small amount of hydroxide ions.

Strong bases: NaOH, KOH

Weak bases: NH_4OH , $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$

Solution 32

(i) H^+ , Cl^-

(ii) H^+ , NO_3^{2-}

(iii) H^+ , SO_4^{2-}

(iv) Na^+ , OH^-

(v) K^+ , OH^-

(vi) Mg^{2+} , OH^-

Solution 33

(a) pH of pure water = 7

(b) Aqueous solution of sugar will turn the color of universal indicator green because sugar solution is neutral in nature.

(c) pH of the sample of rain water will be between 5 and 6. It is a weak acid.

Solution 34

(a) The pH in the stomach of a person suffering from indigestion will be less than 7 since indigestion is caused due to formation of excess acid in the stomach.

(b) Antacids are a group of mild bases so they have pH more than 7.

(c) Antacids react with excess acid in the stomach and neutralise it.

(d) Antacids: Magnesium hydroxide and Sodium hydrogencarbonate.

Solution 35

Substances having pH values above 7: Solution of washing soda and toothpaste; They will turn red litmus paper blue due to their basic nature.

Substances having pH values less than 7: Lemon juice, vinegar and stomach juices; They will turn blue litmus paper red due to their acidic nature.

Solution 36

(a) Yes, all basic solutions have H^+ ions. They are basic because the concentration of hydrogen ions is much less than that of hydroxide ions.

(b) When a solution becomes more acidic, pH gets lower.

Solution 37

(a) Acids are those chemical substances which have a sour taste.

Example: Acetic acid and citric acid.

Base is a chemical substance which has a bitter taste. Example:

Caustic soda and washing soda.

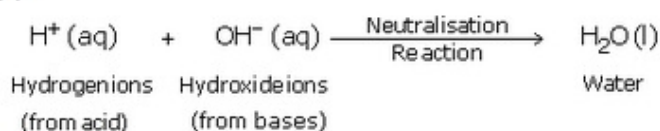
(b) Strong bases - Sodium hydroxide, NaOH, potassium hydroxide (KOH).

Weak bases - Calcium hydroxide, $Ca(OH)_2$, ammonium hydroxide, NH_4OH .

(c) (i) Hydrogen ions.

(ii) Hydroxide ions.

(d)



(e) Uses of bases:

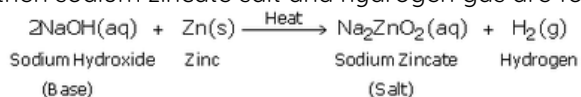
(i) Sodium hydroxide is used in the manufacture of soap, paper and rayon.

(ii) Calcium hydroxide is used in the manufacture of bleaching powder.

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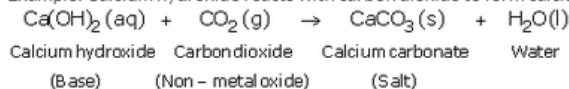
Solution 38

(a) When zinc granules are heated with sodium hydroxide solution, then sodium zincate salt and hydrogen gas are formed.



(b) When bases react with non-metal oxides, then salt and water are formed.

Example: Calcium hydroxide reacts with carbon dioxide to form calcium carbonate and water.



Solution 39

(a) As the concentration of hydrogen ions increases, the solution becomes more acidic.

(b) As the concentration of hydroxide ions increases, the solution becomes more basic.

(c) Vinegar is acidic in nature.

(d) Soap is basic in nature.

(e) (i) pH = 9 : Alkaline.

(ii) pH = 4 : Acidic.

(iii) pH = 7 : Neutral.

(iv) pH = 1 : Acidic.

(v) pH = 10 : Alkaline.

(vi) pH = 3 : Acidic.

***** END *****