Class 9 Science Chapter 5 - Acids, Bases And Salts

Page No 73:

Question 1:

Identify the odd one out and justify.

(a) Chloride, nitrate, hydride, ammonium
(b) Hydrogen chloride, sodium hydroxide, calcium oxide, ammonia
(c) Acetic acid, carbonic acid, hydrochloric acid, nitric acid
(d) Ammonium chloride, sodium chloride, potassium nitrate, sodium sulphate
(e) Sodium nitrate, sodium carbonate, sodium sulphate, sodium chloride
(f) Calcium oxide, magnesium oxide, zinc oxide, sodium oxide.
(g) Crystalline blue vitriol, crystalline common salt, crystalline ferrous sulphate, crystalline sodium carbonate.
(h) Sodium chloride, potassium hydroxide, acetic acid, sodium acetate.

ANSWER:

ans
a.Ammonium = NH_4^+
Nitrate = NO_3^-
Hydride = H^-
Chloride = Cl^-
Ammonium is odd because Ammonium is cation and rest are anions.

b.Hydrogen chloride is odd because Hydrogen chloride is acid and rest are base.

c.Acetic acid = CH_3COOH
Carbonic acid = H_2CO_3
Hydrochloric acid = HCl
Nitric acid = - HNO_3
HCl is the only Diatomic Hetro-Nuclear compound and remaining are Poly Atomic compound.

d.Ammonium chloride is odd because it is acidic salt and rest all are neutral salts.

e.Sodium carbonate is odd because the solutions of sodium nitrate, sodium sulphate and sodium chloride are neutral. But the solution of sodium carbonate is **BASIC**.

f.Calcium oxide = CaO
Magnesium oxide = MgO
Zinc oxide = ZnO
sodium oxide = Na_2O
ZnO is odd because it is amphoteric in nature and other ions are basic in nature

g.Common salt is odd because on heating, there is no change in color of compound. But in rest of the compounds, there is change is colour.

h. Potassium hydroxide is odd because in a reaction, when Sodium chloride reacts with acetic acid, then Sodium acetate is formed. There is no role of Potassium hydroxide in the reaction given below.

$$\mathbf{NaCl\ + CH_3\ COOH \rightarrow CH_3\ COONa\ + HCl}$$

Question 2:

Write down the changes that will be seen in each instance and explain the reason behind it.

(a) 50ml water is added to 50ml solution of copper sulphate.
(b) Two drops of the indicator phenlphthalein were added to 10ml solution of sodium hydroxide.
(c) Two or three filings of copper were added to 10ml dilute nitric acid and stirred.
(d) A litmus paper was dropped into 2ml dilute HCl. Then 2ml concentrated NaOH was added to it and stirred.
(e) Magnesium oxide was added to dilute HCl and magnesium oxide was a added to dilute NaOH.
(f) Zinc oxide was added to dilute HCl and zinc oxide was added to dilute NaOH.
(g) Dilute HCl was added to limestone.
(h) Pieces of blue vitriol were heated in a test tube. On cooling, water was added to it.
(i) Dilute H 2 SO 4 was taken in an electrolytic cell and electric current was passed through it.

ANSWER:

ans
a. When 5o mL water is added to 50 mL solution of copper sulphate, then reversible reaction occurs and the colour change from pale blue to white and then change back to blue when water is added again.

$$CuSO_4 + H_2O \leftrightarrow CuSO_4.5H_2O\ (BLUE\ VITRIOL).$$

b. Phenolphthalein is an indicator used for determining the quantity of base. When two drops of Phenolphthalein indicator are added to 10 mL solution of Sodium hydroxide, then the solution turns pink in colour because the acidic part of phenophthalein reacts with the base, it forms sodium salt of phenolphthalein which has pink color.
For example : In acid base titration phenolphthalein is used to detect end point of base.

c. Copper is an unreactive metal and doesn't react in normal circumstances with dilute acids.

There are actually two equations for the reaction of copper with nitric acid take place. It depends on whether the nitric acid is concentrated or not. If it is concentrated, then the ratio is 1:4 for copper to nitric acid. If it is dilute then the ratio is 3:8.

$$Cu + 4HNO_3\ (dil.) \rightarrow Cu(NO_3)_2 + 2NO_2 + 2H_2O$$
$$3Cu + 8HNO_3\ (conc.) \rightarrow 3Cu(NO_3)_2 + 2NO + 4H_2O$$

Concentrated Nitric acid is act as strong oxidising agent so it makes sense that a higher oxidation state of nitrogen (IV) oxide is formed .

d. When litmus paper is dipped into 2 mL of dilute HCl solution , then blue litmus paper is turned into red colour and there is no effect on red litmus paper. Again, if the same litmus paper is dipped into 2 mL of concentrated NaOH solution, then red litmus paper turns into blue colour but there is no effect on blue litmus paper.This is due to the respective properties of blue and red litmus paper with acid and base.

e. Magnesium oxide is a base. when base reacts with an acid, it forms salt and water.This reaction is known as neutralisation reaction.

$$MgO(s) + 2HCl(l) = MgCl_2\ (aq) + H_2O(l)$$

MgO doesnot react with NaOH.As NaOH is a base and bases react only with oxides of non-metal to form salt and water because oxides of non-metals are said to be acidic in nature so neutralization reaction take place. But MgO is a oxide of metal so, reaction is not possible.

f. Zinc oxide is added to dilute HCl, then neutralization reaction takes place to form salt and water.
The reaction is as follows:

$$ZnO(aq) + 2HCl(aq) \rightarrow ZnCl_2(aq) + H_2O(l)$$

Zinc oxide reacts with sodium hydroxide to produce zincate sodium and water. This reaction takes place at a temperature of 500-600°C.it is exothermic reaction.

$$\mathbf{ZnO\ + 2NaOH \rightarrow Na_2\ ZnO_2\ + H_2O}$$

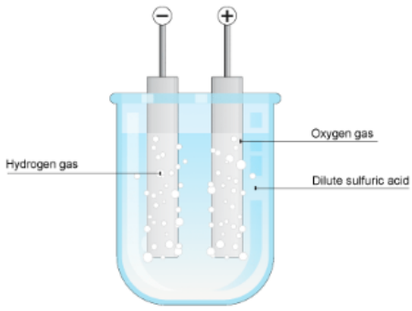
g. Limestone is calcium carbonate. When limestone is added to a 10% solution of dilute HCl, then brisk effervescence of CO_2 is released due to the reaction of acid with carbonate of metals.

$$2HCl + CaCO_3 \rightarrow CaCl_2 + CO_2 + H_20$$

h. When pieces of blue vitriol are heated in a test tube, then crystal structure of blue vitriol broke down to forn a colourless powder and water come out. This water is called water of crystallization. when water is added to the same test tube, then white powder turned into blue colour again.This is due to reversible reaction take place from anhydrous salt to hydrous salt and vice-versa.

$$CUSO_4.5H_2O \leftrightarrow CUSO_4 + 5H_2O$$

i. When a dilute solution of sulfuric acid is electrolysed, gases are produced at both the anode and the cathode electrode.



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The gas produced at the **cathode** burns with a 'pop' sound, when a sample is lit with a lighted splint. This shows that the gas is **hydrogen**.

The gas produced at the **anode** relights a glowing splint dipped into a sample of the gas. This shows that the gas is **oxygen**.

The gases are produced when ions move towards the electrodes.

At the cathode:

$2H^+ + 2e^- \rightarrow H_2$

At the anode:

$4OH^- - 4e^- \rightarrow 2H_2O + O_2$

Question 3:

Classify the following oxides into three types and name the types.

CaO, MgO, CO_2 , SO_3 , Na_2O, ZnO, Al_2O_3 , Fe_2O_3

ANSWER:

Oxides are of three types :

1) Acidic Oxides: CO_2 (Carbon dioxide), SO_3 (Sulfur trioxide)

2) Basic Oxides: CaO (Calcium oxide), MgO (Magnesium oxide), Na_2O (Sodium oxide)

3) Amphoteric Oxides: ZnO (Zinc oxide), Al_2O_3 (Aluminium oxide), Fe_2O_3 (Ferric oxide)

Page No 73:

Question 4:

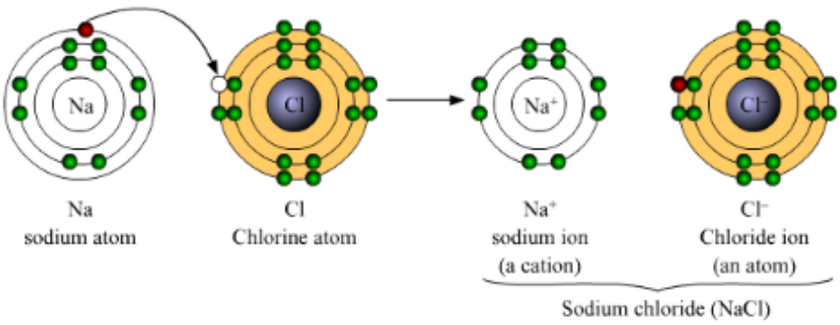
Explain by drawing a figure of the electronic configuration.

a. Formation of sodium chloride from sodium and chlorine.
b. Formation of a magnesium chloride from magnesium and chlorine.

ANSWER:

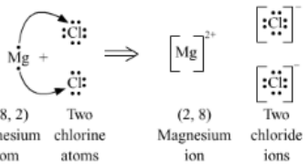
a. Atomic number of Sodium(Na) atom is 11.
Electronic configuration is :
Na = 2, 8, 1
So it contains 1 valence electron. In order to achieve the nearest noble gas configuration, it loses one electron to form Sodium ion.
Na^+ = 2,8

Atomic number of Chlorine(Cl) atom is 17.
Electronic configuration is :
Cl = 2, 8, 7
So it contains 7 valence electron. In order to achieve the nearest noble gas configuration, it gains one electron to form Chloride ion.
Cl^- = 2,8
An Ionic bond is formed between sodium ion and chloride ion by complete transfer of electron from sodium to chlorine.



b. Atomic number of Magnesium(12) atom is 12.
Electronic configuration is :
Mg = 2, 8, 2
So it contains 2 valence electron. In order to achieve the nearest noble gas configuration, it loses two electrons to form Magnesium ion.
Mg^{2+} = 2,8

Atomic number of Chlorine(Cl) atom is 17.
Electronic configuration is :
Cl = 2, 8, 7
So it contains 7 valence electron. In order to achieve the nearest noble gas configuration, it gains one electron to form Chloride ion.
Cl^- = 2,8
An Ionic bond is formed between Magnesium ion and two Chloride ion by complete transfer of one electron to each Chlorine ion.



Page No 74:

Question 5:

Show the dissociation of the following compounds on dissolving in water, with the help of chemical equation and write whether the proportion of dissociation is small or large .

Hydrochloric acid, Sodium chloride, Potassium hydroxide, Ammonia, Acetic acid, Magnesium chloride, Copper sulphate

ANSWER:

a.$HCl(aq) + H_2O(l) \rightarrow H_3O^+(aq) + Cl^-(aq)$
Explanation:
Hydrochloric acid(HCl) is a strong acid, so HCl is ionize completely in aqueous solution.In other words, every molecule of hydrochloric acid that is added to water will donate its proton H^+ to water molecule to form a hydronium cation, and $H_3O^+$and chloride ions Cl^- is formed.

b.Reaction:
$NaCl(s) + H_2O(aq) \rightarrow Na^+(aqueous) + Cl^-(aqueous) + H_2O(l)$
Explanation:
When sodium chloride reacts with water the Na^+ part of NaCl is attracted to the oxygen side of the water molecules, while the Cl^- side is attracted toward the hydrogen's side of the water molecule.

This causes the sodium chloride(salt) to split in water and the NaCl ionises into Na^+ and Cl^- ions completely.

c)$KOH(s) + H_2O(l) \leftrightarrow K^+(aq) + OH^-(aq) + H_2O(l)$
Explanation:
KOH is base, so mixing it in water makes a basic solution that is in equilibrium. the KOH is just dissolving in the water.

d)NH_3(base) + H_2O(acid)<--> NH_4^+(conjugate acid) + OH^-(conjugate base)
Explanation:
when ammonia dissolves in water. In an aqueous solution, ammonia acts as a base, acquiring hydrogen ions from H_2O to yield ammonium cation and hydroxide ions.

e)$CH_3COOH(l) + H_2O(l) \rightarrow CH_3COO^- + H_3O^+$
Explanation:
When acetic acid is added to water, due to electronegativity differences of oxygen and hydrogen in OH group of acetic acid and there is a dipole interaction with water molecule. Hence, the acetic acid is ionise into acetate ion and H^+ ion combines with water to form hydronium ion. —

f)$MgCl_2(s) + H_2O(l) \rightarrow Mg^{2+}(aqueous) + Cl^-(aqueous) + H_2O(l)$
Explanation:
On addition to water the Mg^{2+} part of $MgCl_2$ is attracted to the oxygen side of the water molecules, while the Cl- side is attracted to the hydrogen's side of the water molecule . This causes magnesium chloride(salt) to split in water and the $MgCl_2$ is ionise into Mg^{2+} and Cl^- ions completely.

g)$CuSO_4(s) + H_2O(l) \rightarrow Cu^{+2}(aq) + SO_4^{-2}(aq) + H_2O(l)$
Explanation:
when a compound dissolves in water, it dissociates to form ions.The reaction between anhydrous copper(II) sulphate(white) and water turns blue in the presence of water.

Question 6:

Write down the concentration of each of the following solutions in g/L and mol/L.

a. 7.3g HCl in 100ml solution
b. 2g NaOH in 50ml solution
c. 3g CH_3COOH in 100ml solution
d. 4.9g H_2SO_4 in 200ml solution

ANSWER:

a)7.3 g HCl in 100 mL solution:

$$\text{Concentration of HCl in g L}^{-1} = \frac{\textit{Mass of solute in gram}}{\text{Volume of HCl in } \textit{litre}}$$

$$= \frac{7.3 \times 1000}{100} = 73 \text{ g L}^{-1}$$

In terms of gram per litre:
7.3 g of HCl in 100 mL has concentration = 73 g L^{-1}

Molecular mass of HCl = $1 + 35.5 = 36.5$

$$\text{Molarity} = \frac{\text{Mass of solute in } \textit{moles}}{\text{Volume of HCl in L}}$$

$$= \frac{7.3 \times 1000}{36.5 \times 100} = 2 \text{ mol L}^{-1}$$

In terms of moles per litre:
7.3 g of HCl in 100 mL has concentration = 2 mol L^{-1}

b)2g NaOH in 50 mL solution

$$\textit{Concentration of NaOH in g } L^{-1} = \frac{\textit{Mass of NaOH in g}}{\textit{Volume of NaOH in L}}$$

$$= \frac{2 \times 1000}{50} = 40 \text{ g L}^{-1}$$

In terms of gram per litre:
2 g of NaOH in 50 mL has concentration = 40 g L^{-1}

Molecular mass of NaOH = $23 + 16 + 1 = 40$

$$\text{Molarity} = \frac{\text{Mass of solute in } \textit{moles}}{\text{Volume of } \textit{NaOH} \text{ in L}}$$

$$= \frac{2 \times 1000}{40 \times 50} = 1 \text{ mol L}^{-1}$$

In terms of moles per litre:
2 g of NaOH in 50 mL has concentration = 1 mol L^{-1}

c)3 g CH_3COOH in 50 mL solution

$$Concentration\ of\ CH_3COOH\ in\ g\ L^{-1} = \frac{Mass\ of CH_3COOH\ in\ g}{Volume\ of\ CH_3COOH\ in\ L}$$

$$= \frac{3 \times 1000}{100} = 30 \text{ g L}^{-1}$$

In terms of gram per litre:

3 g of CH_3COOH in 100 mL has concentration = 30 g L^{-1}

Molecular mass of $CH_3COOH = 2 \times 12 + 2 \times 16 + 4 \times 1 = 60$

$$Molarity = \frac{Mass\ of\ solute\ in\ moles}{Volume\ of\ solution\ in\ L}$$

$$= \frac{3 \times 1000}{60 \times 100} = 0.5 \text{ mol L}^{-1}$$

In terms of moles per litre:

3 g of CH_3COOH in 100 mL has concentration = 0.5 mol L^{-1}

d)4.9 g H_2SO_4 in 200 mL solution

$$Concentration\ of\ H_2SO_4\ in\ g\ L^{-1} = \frac{Mass\ of\ H_2SO_4\ in\ g}{Volume\ of\ H_2SO_4\ in\ L}$$

$$= \frac{4.9 \times 1000}{200} = 24.5 \text{ g L}^{-1}$$

In terms of gram per litre:

4.9 g of H_2SO_4 in 200 mL has concentration = 24.5 g L^{-1}

Molecular mass of $H_2SO_4 = 2 \times 12 + 2 \times 16 + 4 \times 1 = 60$

$$Molarity = \frac{Mass\ of\ solute\ in\ moles}{Volume\ of\ solution\ in\ L}$$

$$= \frac{4.9 \times 1000}{98 \times 200} = 1 \text{ mol L}^{-1}$$

In terms of moles per litre:

4.9 g of H_2SO_4 in 200 mL has concentration = 1 mol L^{-1}

Question 7:

Obtain a sample of rainwater. Add to it a few drops of universal indicator. Measure its pH. Describe the nature of the sample of rainwater and explain the effect if it has on the living world.

ANSWER:

Ans7.This is an activity based question in which you are supposed to collect rainwater from different places and compare there results on the basis of following parameters :
a) pH of water
b)Action of water on blue litmus paper
c)Action of water on red litmus paper
d)Effect of indicator like phenolphthalein and methyl orange
Conclusion :
If we take samples of rain water from different places, we observe the following results :

- pH of water is in between 1-6
- Blue litmus paper turns red
- No change in colour of red litmus paper
- No change in colour of rain water on adding phenolphthalein
- rain water turns red in colour on adding methyl orange

The above observations show that rainwater is acidic in nature. For further assurance, we cancompare blue litmus paper dipped in different samples of rainwater with pH scale.
If rain water is acidic, then its pH must be in the range of 0-6.
The strength of ac acid depends on its pH value i.e. lower the value of pH, higher will be the strength of an acid and vice-versa.

Question 8:

Answer the following questions.

a. Classify the acids according to their basicity and give one examplen of each type.
b. What is meant by neutralization? Give two examples from everyday life of the neutralization reaction.
c. Explain what is meant by electrolysis of water. Write the electrode reactions and explain them.

ANSWER:

Ans 8.

a. The number of ionizable hydrogen (H+) ions present in one molecule af an acid is called its **basicity.**

For example :
HCl ---------> $H^+ + Cl^-$
Basicity of HCl is 1.

H_2SO_4 ------> $2H^+ + SO_4^{2-}$
Basicity of H_2SO_4 is 2.

Based on Basicity acids were classified into different types :
1. Mono-basic acids
2. Di-basic acids
3. Tri-basic acids

1. Mono-basic acids :

Acids, which on ionisation produce one hydronium ion on reaction with water.
Acids, which on ionisation produce one hydrogen ion.
For example : HCl, HNO_3 etc.

2. Di-basic acids :

Acids, which on ionisation produce two hydronium ion on reaction with water
Acids, which on ionisation produce two hydrogen ion

For example : H_2SO_4, H_2CO_3 etc.

3. Tri-basic acids :

Acids, which on ionisation produce three hydronium ion on reaction with water
Acids, which on ionisation produce three hydrogen ion

For example : H_3PO_4, H_3PO_3 etc.

b. **Neutralization reaction :**

A neutralization reaction is a reaction in which an acid and a base reacts to form water and a salt. It involves the combination of H^+ ions and OH^- ions to generate water.
The neutralization of a strong acid and strong base has a pH equal to 7.
The neutralization of a strong acid and weak base will have a pH of less than 7.
The neutralization of a strong base neutralizes a weak acid will be greater than 7.

HX	+	**BOH**	→	**BX**	+	**H_2O**
Acid		Base		Salt		Water

When a solution is neutralized, it means that salts are formed from equal weights of acid and base.

Neutralization reaction has application in daily life:

1)Self defence by animals and plants through chemical warfare :

Bee stings are **acidic** in nature, household remedy for a bee sting is baking soda or sodium bicarbonate, which is a **basic** substance.
A wasp stings are mildly basic, household remedy for this will be vinegar, also known as acetic acid.
These simple treatments ease these painful stings by a process called neutralization.

2)pH in our digestive system :
An acidic stomach due to eating too much spicy food, can be relieved by taking an antacid. The antacid is alkaline/basic in nature and helps to neutralize the stomach's acidity or you may take magnesium hydroxide(Milk of magnesia) and sodium hydrogen carbonate(Baking soda).

3) pH change as the cause of tooth decay :
When we eat food containing sugar, then bacteria present in our mouth break down the sugar to form acids(such as lactic acid). Thus acid is formed in the mouth after digestion. This will lead to the cause of tooth decay. The best way to prevent tooth decay is to clean the mouth after eation food with toothpaste, which is basic in nature. This will result in neutralization of acid by base.

4)soil pH and plant growth :
Most of the plants grow best when the pH of the soil is close to 7 that's neural. If the soil is too acidic or too basic(alkaline), the plants grow badly.
The acidic soil is neautralize by treatment with materials like quicklime(calcium oxide) or slaked lime(calcium hydroxide) or chalk(calcium carbonate).
If the soil is too basic, then alkalinity can be reduced by adding decaying organic matter(manure or composite)which contains acidic materials.

c.**Electrolysis of water :**

Electrolysis of water is the decompositon into oxygen and hydrogen gas due to an electric current passed through the water.

The following equation represents the electrolysis of water :

In pure water, at the negatively charged cathode, a reduction reaction takes place, with electrons (e^-) from the cathode being given to hydrogen cations to form hydrogen gas.

Reduction at cathode: $2\ H^+ + 2e^- \rightarrow H_2$

On positively charged anode, an oxidation reaction occurs, generating oxygen gas by giving electrons to the anode :

Oxidation at anode: $2\ H_2O \rightarrow O_2(g) + 4\ H^+(aq) + 4e^-$

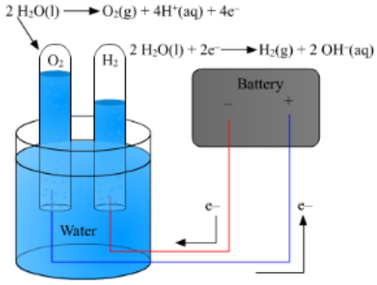
The same half reactions can also be balanced with base as listed below. To add half reactions they must be balanced with either acid or base.

Cathode (reduction): $2\ H_2O(l) + 2e^- \rightarrow H_2(g) + 2\ OH^-(aq)$
Anode (oxidation): $4\ OH^-(aq) \rightarrow O_2(g) + 2\ H_2O(l) + 4\ e^-$

Combining either half reaction pair yields the same overall decomposition of water into oxygen and hydrogen:

Overall reaction: $2\ H_2O(l) \rightarrow 2\ H_2(g) + O_2(g)$

The number of hydrogen molecules produced is thus twice the number of oxygen molecules. The produced hydrogen gas has therefore twice the volume of the produced oxygen gas. The number of electrons pushed through the water is twice the number of generated hydrogen molecules and four times the number of generated oxygen molecules.



Question 9:

Give reason for the following.

a. Hydronium ions are always in the form H_3O^+

b. Buttermilk spoils if kept in a copper or brass container.

ANSWER:

a)When an acids dissolve in water. The H^+ ion from acid always goes to the nearest water molecule to form hydronium ion.

$HCl(aq) + H_2O(aq) \rightarrow H_3O^+(aq) + Cl^-(aq)$

For example : When Hydrochloric acid(HCl) is a strong acid. When it is dissolved in water, HCl is ionized completely in aqueous solution. Hydrochloric acid will donates its proton H^+ to water molecule to form a hydronium cation $H_3O^+$and chloride anions Cl^- .

b)Buttermilk spoils if kept in a copper or brass container because buttermilk is actually lactic acid. Lactic acid reacts with the container material and produces poisonous complex. It is actually the reaction between acid and metal . This reaction is called as electro chemical reaction.

Page No 74:

Question 10:

Write the chemical equations for the following activities.

(a) NaOH solution was added to HCl solution.

(b) Zinc dust was added to dilute H_2SO_4 .

(c) Dilute nitric acid was added to calcium oxide.

(e) Carbon dioxide gas was passed through KOH solution.

(f) Dilute HCl was poured on baking soda.

ANSWER:

a. $HCl(l) + NaOH(l) \rightarrow NaCl(s) + H_2O(l) + Energy$

b. $Zn(s) + H_2SO_4(l) \rightarrow ZnSO_4(s) + H_2(g)$

c. $CaO(s) + 2HNO_3(l) \rightarrow Ca(NO_3)_2(s) + H_2O(l)$

d. $KOH(l) + CO_2(g) \rightarrow KHCO_3$

e. $NaHCO_3(s) + 2HCl(l) \rightarrow NaCl(s) + H_2O(l) + CO_2$

Question 11:

State the differences.

a. Acids and bases

b. Cation and anion

c. Negative electrode and positive electrode.

ANSWER:

Ans. a.

Parameter	Acid	Base
Arrhenius Definition	substance which when dissolved in water gives hydrogen ion	substance which when dissolved in water can accept hydrogen ions
Bronstead Lowry Definition	substance which donates a proton	substance which accepts a proton
Strength	depends on the concentration of the hydronium ions	depends on the concentration of the hydroxide ions
Characteristics (Physical)	• depends upon the temperature as it can be solid, liquid or in the form of gas • have a sour taste	• can be solid in nature except ammonia which is gaseous • have a bitter taste • can be slippery in touch
Dissociation	releases hydrogen ions (H^+) when mixed with water	releases hydroxide ions(OH^-) when mixed with water
pH value	less than 7.0	greater than 7.0
Litmus paper	blue litmus paper turns red	red litmus paper turns blue
Chemical Formula	has a chemical formula with H at the beginning of it. For example, HCl (Hydrochloric Acid). There is one exception to this rule, CH_3COOH = Acetic Acid (vinegar)	has a chemical formula with OH at the end of it. For example, NaOH (Sodium Hydroxide)

b.

Cations	Anions
positively charged particles	negatively charged particles
formed by loss of electrons from metals	formed by gain of electrons from non-metals
during electrolysis, it moves towards cathode	during electrolysis, it moves towards anode
size of cation is smaller than its parent atom	size of anion is same or larger than its parent atom
for examples : Na^+, Mg^{2+},Ca^{2+} etc.	for examples :Cl^-, Br^-,S^{2-} etc.

c.

Negative Electrode	Positive Electrode
refers to a piece of electrochemical cell that is the negative pole	refers to a piece of electrochemical cell that is the positive pole
connects to negative terminal of a battery by means of wire	connects to positive terminal of a battery by means of wire
also called as cathode	also called as anode
positive charged cations moves toward it	negative charged anions moves toward it
accepts electrons to deposite	donates electron

Question 12:

Classify aqueous solutions of the following substances according to their pH into three groups : 7, more than 7, less than 7.

Common salt, sodium acetate, hydrochloric acid, carbon dioxide, potassium bromide, calcium hydoxide, ammonium chloride, vinegar, sodium carbonate, ammonia, sulphur dioxide.

ANSWER:

Ans7.

SUBSTANCES	pH Value
Solution of Common salt	equal to 7
Solution of Sodium acetate	greater than 7
Solution of Hydrochloric acid	less than 7
Solution of Carbon dioxide	less than 7
Solution of Potassium bromide	equal to 7
Solution of Calcium hydroxide	greater than 7
Solution of Ammonium chloride	less than 7
Solution of Vinegar	less than 7
Solution of Sodium carbonate	greater than 7
Solution of Ammonia	greater than 7
Solution of Sulphur dioxide	less than 7