Date / /

Mineral acids:-

= Acids which are prepared from the minerals present in the earth are called minerals acids

* Hydrochloric acid (HCl)
* Sulphuric acid (H_2SO_4)
* nitric acid (HNO_3)
* sulphurous acids (H_2SO_3)
* Phosphoric acids (H_2PO_4)

Organic acids:-

= Acids which are naturally occuring and found in plants and animals are called organic acids

~~acetic acid (CH_3COOH)~~

(i) Vinegar: Acetic acids (CH_3COOH)
(ii) red ant: formic acid
(iii) lemon: citric acid

Dilute acids :-

= Acids having a low concentration are called dilute acid.

Their concentration can be decreased by adding water to them.

Bases

= Substances which react with acid to form water and salt. Bases are bitter in taste and have a soapy feel

Alkalies :-

= Such bases are soluble in water are called alkalies

example :-
NaOH – sodium hydroxide
KOH → potasium hydroxide

Indicators :-

= Acids and bases can be identified not only through their taste but also with the help of substance called indicators. An indicator is a substance which shows different colour in an acidic and basic medium

Note :- Sulphuric acid is know as king of chemical

Indicators

Indicators

Indicators	Acidic solution	Basic solution
1) Red litmus	red	Blue
2) blue litmus	red	Blue
3) Turmeric	Yellow	red
4) Juice of china rose	magenta	green
5) Phenolphthalein	colour less	Pink

Date ___/___/___

Activity-1

= Take some lemon juice in a petridish and dip a strip of blue litmus paper in it. The colour of the litmus paper changes to red due to the presence of an acid in the lemon juice.

Activity-2

= Take some soap solution in a petridish and dip a strip of red litmus paper in it. The colour of litmus changes to blue. This happens due to the presence of a base in soap solution.

Neutrilisation Reaction

= A reaction between an acid and base resulting in the formation of salt and water. Such reaction is called neutrilisation reaction.

$NaOH + HCl \rightarrow NaCl + H_2O$

Sodium hydroxide (base) + Hydrochloric acid (Acid) → Sodium chloride (Salt) + (water)

$2KOH + H_2SO_4 \rightarrow K_2SO_4 + 2H_2O$

Potassium hydroxide (base) + Sulphuric acid (Acid) → Potassium sulphate (Salt) + (Water)

$Mg(OH)_2 + 2HNO_3 \rightarrow Mg(NO)_2 + 2H_2O$

Magnesium hydroxide (Base) + Nitric acid (Acid) → Magnesium nitrate (Salt) + (Water)

Page No.

Naming of Salts

Acid name	Salt name with example:-
• Sulphuric acid (H_2SO_4)	Sulphates ex:-1) K_2SO_4 2) Na_2SO_4 3) $Al_2(SO_4)_3$ 4) $CaSO_4$
• ~~hydrate~~	
• hydrochloric acid (HCl)	Chlorides ex:-1) KCl 2) NaCl 3) $MgCl_2$ 4) $AlCl_3$
• nitric acid (HNO_3)	nitrates ex: 1) KNO_3 2) $NaNO_3$ 3) $Mg(NO_3)_2$
• Sulphurous acid (H_2SO_3)	Sulphites ex:- 1) Na_2SO_3 2) K_2SO_3
• carbonic acid (H_2CO_3)	carbonates ex:-1) $CaCO_3$ 2) K_2CO_3
• acetic acid (CH_3COOH)	acetates ex:-1) CH_3COONa 2) CH_3COOK 3) $(CH_3COO)_2Ca$

Page No.

Date __/__/____

Salts made from formic acid are called formates ($HCOOH$)

ex:

$HCOOK$

$HCOONa$

$(HCOO)_2Ca$

$(HCOO)_2Mg$

Date __/__/____

Properties of Salts

1) Salts are formed through reaction between acids and bases.

2) Most of the salts are readily soluble in water

3) Salts do not conduct electricity in their solid state. However, molten salts and solution of salts in water conduct electricity

Types of Salts

Acidic salts	Basic salts	Neutral ~~acids~~ salts
1) Salts formed by the reaction of a strong acids and a week base	Salts formed by the reaction of a week acid and strong base are Basic salts	Salts formed by strong acid and strong base are called neutral acids.
2) Solution of an acidic salt in water is acidic	Solution of a base salts in water is basic	Solution of neutral Salt in water is neutral
3) It change the colour of blue litmus paper to red	It changes the colour of red litmus paper to blue	It does not change the colour of the litmus paper
4) ex = $AlCl_3$, NH_4NO_3, $ZnSO_4$, $CuCl_2$	ex = CH_3COOK, $HCOONa$, Na_2CO_3, CH_3COONa	ex = $NaCl$, KCl, KNO_3, Na_2SO_4

ACTIVITY = 5

= Take a solution of sodium chloride in water in a petridish. Dip a strip of blue litmus paper in the solution. What do you observe? The colour of litmus paper does not change. Next, dip a strip of red litmus paper in this solution. The colour of litmus paper again does not change. This shows that the solution is neither acidic nor basic, that is, it is neutral

~~ACTIVITY = 6~~

= ~~Take a solution of sodium acetate in water in a petridish.~~

ACTIVITY = 6

= Take a solution of alluminium chloride in water in a petridish. Dip a strip of blue litmus paper in solution. The colour of litmus paper changes to red. This shows that the solution of this salt is acidic in nature.

ACTIVITY = 7

= Take a solution of sodium acetate in water in a petridis. Dip a strip of red litmus paper in the solution. The colour of litmus paper changes to blue. This shows that the solution of this salt is basic in nature.

SOME THING TO KNOW

A Fill in the blanks.

1) Acids which are present in plants and animals are called Organic acids

2) Bases taste bitter and have a soapy feel.

3) Acids turns the colour of blue litmus paper to red

4) The product of neutrilisation reaction are salt and water

5) Salts of nitric acids ($CHNO_3$) are named as nitrates

6) Sodium acetate (CH_3COONa) is a basic salt formed by the reaction of acetic acid and ~~sodium d~~ ~~sod hydroxid~~ Sodium hydroxide

Date / /

B) Match the following:-

1. Lemon juice — Citric acid
2. Tamarind — Tartaric acid
3. Vinegar — Acetic acid
4. Red ant — Formic acid
5. Sour milk — Lactic acid
6. Guava — Oxalic acid

C Tick (✓) the correct option.

1) Bases have a-
= bitter taste and a soapy feel.

2) An example of ~~neu~~ natural indicator is-
= litmus

3) An acid, that contributes to the sour taste of some ~~fair~~ ~~fruits~~ fruits, is -
= citric acid.

4) Which of the following is a strong acid?
= nitric acids

5) Substance ~~provide~~ produced through a chemical reaction acids and bases are known as-

= Salts.

6) An indicator, that turns red in a basic medium is-

= turmuric

7) The genral taste of acids and bases, is ~~respen~~ respectively-

= sour and bitter.

Date __/__/__

D Answer the following question in brief.

1. What are mineral acids?

= Acids which are formed from the minerals present in the earth.

2. Give two example each of mineral acids and organic acids.

= Example of mineral acids are:-

1) (HCl) Hydrochloric acid

2) ~~Sulp~~ (H_2SO_4) Sulphuric acid etc

= Example of organic acid are:-

1) (CH_3COOH) acetic acids

2) ($HCOOH$) formic acids

3. Name any two substance that can be used as indicators.

= Two substance that can be used as indicator are:-

1) litmus paper

2) Phenolphthalin

4) Write the meaning of ~~the~~ term 'neutrilisation reaction'

= Neutrilisation reaction means reaction between acids and bases ~~res~~ in result get we get salt and water.

example:-

1) $NaOH$ + HCl → $NaCl$ + H_2O

NaOH	HCl	NaCl	H_2O
Sodium hydroxide	Hydrochloric	Sodium chloride	(Water)
(Base)	(acid)	(Salt)	

2) $2KOH$ + H_2SO_4 → K_2SO_4 + $2H_2O$

2KOH	H_2SO_4	K_2SO_4	$2H_2O$
Potassium hydroxide	Sulphuric	Pottasium Sulphate	(Water)
(Base)	(acid)	(Salt)	

etc

5) Give any two properties of salts:

= Two properties of salts are:-

1) Salts are formed through reaction between acids and bases.

2) Most of the salts are readily soluble in water.

6) Classify the following salts as neutral, acidic or basic, Also, write their names.

(a) Na_3PO_4
= Sodium phosphate
= It is nutral salt

(b) K_2CO_3
= Potassium Carbonate
= It is basic salt

(c) NH_4NO_3
= Ammonium Nitrates
= It is a acidic salt.

E) Answer the following question:-

1) All alkalies are bases but all bases are not alkalies, justify this statement.

= All alkalies are bases because bases which are called soluble in water are called alkalies. Since, all bases are not soluble in water, we can say that. "All alkalies are bases but all bases are not alkalies.

2) Suggest an activity that can help one to decide whether a given solution is acidic or basic in nature

= Activity 1 To test that a given solution is acidic in nature

= Take some lemon juice in a petridish and dip a strip of blue litmus paper change to red due to the presence of an acid in the lemon juice

Page No.

= Activity=2 (To test that a given solution is basic in nature)

= Take some soap solution in a petridish and dip a strip of red litmus paper in it The colour of litmus changes to blue. This happens due to the presence of a base in the soap solution

Page No.

14/10/2022

3) Write chemical equation for the following reactions:

(a) Calcium hydroxide react with nitric acid

= $Ca(OH)_2 + HNO_3 \rightarrow Ca(NO_3)_2 + 2H_2O$

(b) Acetic acid react with nitric acid

= $2CH_3COOH + Ca(OH)_2 \rightarrow (CH_3COO)_2Ca + 2H_2O$

(c) Hydrochloric acid react with Sodium hydroxide.

= $HCl + NaOH \rightarrow NaCl + H_2O$

(d) Ammonium hydroxide react with Sulphuric acid

= $2NH_4OH + H_2SO_4 \rightarrow (NH_4)_2SO_4 + 2H_2O$

4) State the difference between neutral, acidic and salt salt. Give one example of each

= ACIDIC
- i- Salts formed by the reaction of strong acid and weak base.
- ii- Solution of an acidic salt in water is acidic
- iii- It changes the colour of blue litmus paper to red.
- (iv)- example
  - $AlCl_3$
  - NH_4NO_3
  - $ZnSO_4$
  - $CUCl_2$ etc

BASIC

i- Salts, formed by the reaction of a week acid and strong base are Basic salt

ii- Solution of a base salt in water is basic

iii- It changes the colour of red litmus paper to blue

iv- example
- CH_3COOK,
- $HCOONa$,
- Na_2CO_3
- CH_3COONa

NEUTRAL

i- Salts, formed by strong acid and strong base are Basic salt

ii- Solution of nutral salt in water is neutral

iii- It does not change the colour of the litmus paper

iv example
- i) $NaCl$,
- ii) KCl,
- iii) KNO_3,
- iv) Na_2SO_4

5) Describe an activity to show that solution of salts in water can conduct electricity.

Activity = 4 (To show solution of salt in water can conduct electricity)

Take a beaker ~~salt~~ and fill it half with water. Dissolve some common salt (sodium chloride) in this water. Connect two graphite rods with the two terminals of a battery, with a zero watt led bulb in between as shown in this figure. Now dip these graphite rods in the ~~solut~~ solution of sodium chloride. The bulb starts glowing indicating the flow of electric current. This show that a ~~solu~~ ~~sodium~~ solution of sodium chloride can conduct electricity

Date __/__/____