

## 1. Lead Nitrate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	Decipitation occurs with evolution of reddish brown gas.	May be Nitrate.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	Reddish brown turning moist ferrous sulphate paper brown evolves	. Presence of nitrate
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	Reddish brown gas turning acidified ferrous sulphate paper green evolves	Presence of nitrate
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	Reddish brown gas moist ferrous sulphate paper brown evolves	Presence of nitrate
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No red orange vapours evolved.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is appeared.	Absence of chloride , bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is appeared.	Absence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate.	Absence of Sulphate
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	Brown ring is formed at the junction of the two layers.	Nitrate is confirmed.

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water .

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared	Absence of Ammonium.
2	I – group: Original solution + 2 ml of dil Hcl.	White precipitate soluble when boiled with water is obtained.	Presence of lead.

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	I – group: Original solution + 2 ml of Potassium Iodide.	Yellow precipitate soluble in hot water which reappears as golden yellow spangles on cooling.	Lead is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Lead 2. Acid Radical : Nitrate  
The given simple salt is : Lead Nitrate.

## 2.Copper Sulphate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Blue/ Green	May be copper Sulphate
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change	Absence of Zinc, ammonium and Nitrate
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	Bluish Green flame.	Presence of Copper
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change.	Absence of Sulphide , nitrate and Carbonate.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No Reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

### III. TESTS WITH SODIUM CARBONATE EXTRACT PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is appeared.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	A white precipitate soluble in excess ammonium acetate is formed.	Presence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	A white precipitate insoluble in dilute H <sub>2</sub> SO <sub>4</sub> is formed.	Sulphate is confirmed
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	No Brown ring is formed	Absence of Nitrate is confirmed.

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

## IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water .

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared	Absence of Ammonium.
2	I – group: Original solution + 2 ml of dil Hcl.	No White precipitate is obtained.	Absence of lead.
3	II – group: To the above solution, $\text{H}_2\text{S}$ gas is passed	A black precipitate is obtained	Presence of Copper.

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	II – group: Original solution + 2 ml of Ammonium Hydroxide	No precipitate is obtained but the solution is blue	Copper is confirmed.

## RESULT

The given simple salt contains 1. Basic Radical : Copper 2. Acid Radical : Sulphate  
The given simple salt is : Copper Sulphate

## 3. Copper Carbonate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Green	May be copper carbonate
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change.	Absence of zinc, ammonium, nitrate
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	Bluish Green flame.	Presence of Copper
4	ACTION OF DIL HCl Salt + dilute HCl	Colourless, Odourless gas turning lime water milky is evolved.	Carbonate is confirmed
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No Reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

### III. TESTS WITH SODIUM CARBONATE EXTRACT PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is appeared.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is formed.	Absence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is formed.	Absence of sulphate
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	No Brown ring is formed	Absence of Nitrate

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil. ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

## IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in dilute HCl.

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil Hcl.	No White precipitate is obtained.	Absence of lead.
3	II - group: To the above solution $\text{H}_2\text{S}$ gas is passed	A black precipitate is obtained	Presence of Copper.

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	II - group: Original solution + 2 ml of Ammonium Hydroxide	No precipitate is obtained but the solution is blue	Copper is confirmed.

## RESULT

The given simple salt contains 1. Basic Radical : Copper 2. Acid Radical : Carbonate  
The given simple salt is : Copper Carbonate

## 4.Ferric Chloride

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Brown	May be Ferric chloride
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change	Absence of nitrate, zinc and ammonium
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic flame.	Absence of Copper, Calcium, Barium
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change	Absence of nitrate, carbonate and sulphide
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	A colourless gas evolves. It gives a dense white fumes when a glass rod dipped in liquid ammonia is brought close to its mouth..	Presence of chloride.
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride.
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No Reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	Red orange vapours evolves and gives yellow precipitate with lead acetate solution.	Presence of chloride.

III. TESTS WITH SODIUM CARBONATE EXTRACT PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	Curdy white precipitate soluble in ammonium hydroxide is evolved.	Chloride is confirmed.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is formed.	Absence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is formed.	Absence of sulphate
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	No Brown ring is formed	Absence of Nitrate

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil. ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

## IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water .

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil Hcl.	No White precipitate is obtained.	Absence of lead.
3	II - group: To the above solution $\text{H}_2\text{S}$ gas is passed	No black precipitate is obtained	Absence of Copper.
4	III - group: Original solution + 2 ml of dil $\text{NH}_4\text{Cl}$ + 1 ml $\text{NH}_4\text{OH}$	A brown precipitate is obtained	Presence of Iron

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	III - group: Original solution + 1 ml of dilute HCl and boil it + 1 ml potassium ferro cyanide	A Blue precipitate is obtained	Iron (Ferric) is confirmed.

## RESULT

The given simple salt contains 1. Basic Radical : Ferric 2. Acid Radical : Chloride  
The given simple salt is : Ferric Chloride



## 5. Aluminium Sulphate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change	Absence of nitrate, ammonium, and zinc.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change.	Absence of nitrate, Sulphide and Carbonate.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is appeared.	Absence of chloride , bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	A white precipitate soluble in ammonium acetate is formed	Presence of sulphate.
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	A white precipitate insoluble in dil H <sub>2</sub> SO <sub>4</sub>	Sulphate is confirmed.

13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	No brown ring is appeared.	Absence of Nitrate.
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow ppt is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water .

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil Hcl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution 1 ml + $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$	Gelatianous white precipitate is appeared.	Presence of Aluminium.

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	III - group: Original solution + Ammonium Hydroxide + Aluminon reagent.	A bright red lake is appeared.	Aluminium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Aluminium 2. Acid Radical : Sulphate

The given simple salt is : Aluminium Sulphate.

## 6. Aluminium Nitrate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	Decipitation occurs with evolution of reddish brown gas.	May be Nitrate.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	Reddish brown gas turning moist ferrous sulphate paper brown evolves	. Presence of nitrate
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	Reddish brown gas turning acidified ferrous sulphate paper green evolves	Presence of nitrate

## II. IDENTIFICATION OF ACID RADICALS

6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	Reddish brown gas turning moist ferrous sulphate paper brown evolves	Presence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is appeared.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained.	Absence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is appeared.	Absence of Sulphate

13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	Brown ring is formed at the junction of the two layers.	Nitrate is confirmed.
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow ppt is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water .

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil Hcl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution 1 ml + $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$	Gelatinous white precipitate is obtained.	Presence of Aluminium.

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	III - group: Original solution + Ammonium Hydroxide + Aluminon reagent.	A bright red lake is obtained.	Aluminium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Aluminium 2. Acid Radical : Nitrate

The given simple salt is : Aluminium Nitrate.

## 8.Zinc Sulphide

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	The white salt turns yellow on heating.	May be Zinc.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	Colorless rotten egg smelling gas turning Lead acetate paper black.	Presence of Sulphide
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	A black precipitate is obtained.	Presence of Sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained	. Absence of Sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained.	Absence of Sulphate
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	No brown ring is obtained.	Absence of Nitrate.

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil. ammonia. + few drops of sodium nitro bruside.	A purple or violet colouration appears	Sulphide is confirmed.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of dilute HCl

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil HCl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium.
5	IV - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	Dirty white precipitate is obtained.	Presence of Zinc.

#### V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
18	IV - group: Original solution + Potassium Ferro cyanide.	White precipitate soluble in excess of Sodium hydroxide and insoluble in dilute acid.	Zinc is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Zinc 2. Acid Radical : Sulphide

The given simple salt is : Zinc Sulphide.

## 7.Zinc Sulphate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	The white salt turns yellow on heating.	May be Zinc.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change is obtained.	Absence of nitrate, Sulphide and Carbonate.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	A white precipitate soluble in ammonium acetate is formed	Presence of sulphate.
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	A white precipitate, insoluble in dil. H <sub>2</sub> SO <sub>4</sub>	Sulphate is confirmed.

13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	No brown ring is obtained.	Absence of Nitrate.
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil. ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil Hcl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	Dirty white precipitate is obtained.	Presence of Zinc.

V. CONFIRMATORY TESTS FOR BASIC RADICALS			
	EXPERIMENT	OBSERVATION	INFERENCE
	IV - group: Original solution + Potassium Ferro cyanide.	White precipitate soluble in excess of Sodium hydroxide and insoluble in dilute acid.	Zinc is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Zinc 2. Acid Radical : Sulphate

The given simple salt is : Zinc Sulphate.



## 9. Calcium Carbonate.

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change	Absence of zinc, ammonium and nitrate.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	Brick red coloured flame.	Presence of Calcium
4	ACTION OF DIL HCl Salt + dilute HCl	Brisk effervescence of colourless, odourless gas turning Lime water milky.	Carbonate is confirmed.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours evolved.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is obtained.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained.	Absence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained.	Absence of Sulphate

13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	No brown ring is obtained.	Absence of Nitrate.
14	<b>Ammonium molybdate test:</b> 1ml of the extract + dil $\text{HNO}_3$ + about 1ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1mL of the sodium carbonate extract + 1mL of dil ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

## IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of dil HCl

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil Hcl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V- group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	White precipitate is obtained.	Presence of Calcium or Barium.

## V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	V- group: Original solution + Ammonium Hydroxide + Ammonium Oxalate.	White precipitate insoluble in Acetic acid.	Calcium is confirmed.

## RESULT

The given simple salt contains 1. Basic Radical : Calcium 2. Acid Radical : Carbonate

The given simple salt is : Calcium Carbonate.

## 10. Barium Chloride.

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change.	Absence of Nitrate, Ammonium and Zinc.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	Grassy green flame.	Presence of Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change.	Absence of nitrate, Sulphide and Carbonate.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	A colourless gas evolves. It gives a dense white fumes when a glass rod dipped in liquid ammonia is brought close to its mouth..	Presence of chloride.

## II. IDENTIFICATION OF ACID RADICALS

6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride.
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	Red orange vapours evolved are passed through water to get a yellow solution, which on adding Lead acetate forms a yellow precipitate.	Presence of chloride

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	A curdy white precipitate, soluble in excess of Ammonium hydroxide.	Chloride is confirmed.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained.	Absence of sulphate.
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained.	Absence of Sulphate

13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	No brown ring is obtained.	Absence of Nitrate.
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil. ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

**PREPARATION OF ORIGINAL SOLUTION:** The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water.

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I - group: Original solution + 2 ml of dil HCl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	White precipitate is obtained.	Presence of Calcium or Barium.

#### V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	V - group: Original solution + Potassium Chromate is added.	Yellow precipitate, soluble in acid.	Barium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Barium 2. Acid Radical : Chloride

The given simple salt is : Barium Chloride.

## 13. Magnesium Carbonate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change	Absence of zinc, ammonium and nitrate.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	Brisk effervescence of colourless, odourless gas turning Lime water milky.	Carbonate is confirmed.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is obtained.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained.	Absence of sulphate.
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained.	Absence of Sulphate
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	No brown ring is obtained.	Absence of Nitrate.

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of dil. HCl

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I – group: Original solution + 2 ml of dil HCl.	No white precipitate is appeared.	Absence of Lead.
3	II – group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	No white precipitate is appeared.	Absence of Calcium or Barium.
7	VI – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml Di Sodium Hydrogen Phosphate.	White precipitate is obtained.	Presence of Magnesium.

#### V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	VI – group: Original solution + Magneson reagent	Blue precipitate is obtained.	Magnesium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Magnesium 2. Acid Radical : Carbonate

The given simple salt is : Magnesium Carbonate.

## 11. Magnesium Sulphate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change.	Absence of Nitrate, Ammonium and Zinc.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change.	Absence of nitrate, Sulphide and Carbonate.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is obtained.	Absence of chloride , bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	A white precipitate soluble in ammonium acetate is obtained	Presence of sulphate.
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	A white precipitate, insoluble in dil H <sub>2</sub> SO <sub>4</sub> is obtained.	Sulphate is confirmed.
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared FeSO <sub>4</sub> + conc Sulphuric acid is	No brown ring is obtained.	Absence of Nitrate.

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 mL each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water.

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I – group: Original solution + 2 ml of dil Hcl.	No white precipitate is appeared.	Absence of Lead.
3	II – group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	No white precipitate is appeared.	Absence of Calcium or Barium.
7	VI – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml Di Sodium Hydrogen Phosphate.	White precipitate is obtained.	Presence of Magnesium.

#### V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	VI – group: Original solution + Magneson reagent	Blue precipitate is obtained.	Magnesium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Magnesium 2. Acid Radical : Sulphate

The given simple salt is : Magnesium Sulphate.



## 12. Magnesium Phosphate

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	No characteristic change.	Absence of Nitrate, Ammonium and Zinc.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change.	Absence of nitrate, Sulphide and Carbonate.
5	ACTION WITH Con $H_2SO_4$ Salt + Con $H_2SO_4$ + heat	No characteristic gas evolved	Absence of nitrate, chloride and bromide

## II. IDENTIFICATION OF ACID RADICALS

6	ACTION WITH $MnO_2$ Salt + $MnO_2$ + Con $H_2SO_4$ + heat	No characteristic change.	Absence of chloride and bromide
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	No pungent smelling gas evolved.	Absence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours.	Absence of chloride.

### III. TESTS WITH SODIUM CARBONATE EXTRACT PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	No characteristic precipitate is obtained.	Absence of chloride, bromide and sulphide.
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained	Absence of sulphate
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained	Absence of Sulphate.
13	BROWN RING TEST: Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $FeSO_4$ + conc Sulphuric acid is	No brown ring is obtained.	Absence of Nitrate.

	added drop by drop.		
14	<b>Ammonium molybdate test:</b> 1 ml of the extract + dil $\text{HNO}_3$ + about 1 mL each of ammonium molybdate and Conc. $\text{HNO}_3$	A canary yellow precipitate is formed.	Phosphate is confirmed
15	<b>Test with sodium nitrobruside:</b> 1 mL of the sodium carbonate extract + 1 mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

## IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water.

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	No Reddish brown precipitate is appeared.	Absence of Ammonium.
2	I – group: Original solution + 2 ml of dil Hcl.	No white precipitate is appeared.	Absence of Lead.
3	II – group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	No white precipitate is appeared.	Absence of Calcium or Barium.
7	VI – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml Di Sodium Hydrogen Phosphate.	White precipitate is obtained.	Presence of Magnesium.

## V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	VI – group: Original solution + Magneson reagent	Blue precipitate is obtained.	Magnesium is confirmed.

## RESULT

The given simple salt contains 1. Basic Radical : Magnesium 2. Acid Radical : Phosphate

The given simple salt is : Magnesium Phosphate.

## 14. Ammonium Chloride

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube.	Salt sublimes with evolution of pungent smelling gas giving dense white fumes with a glass rod dipped in conc HCl and also turns red litmus paper blue	May be Ammonium.
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame.	No characteristic coloured flame.	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change.	Absence of nitrate, Sulphide and Carbonate.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	A colourless gas evolves. It gives a dense white fumes when a glass rod dipped in liquid ammonia is brought close to its mouth..	Presence of chloride.
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride.
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	Pungent smelling gas forming dense white fumes with a glass rod dipped in conc. HCl and also turns red Litmus paper blue.	Presence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	Red orange vapours evolved are passed through water to get a yellow solution, which on adding Lead acetate forms a yellow precipitate.	Presence of Chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	A curdy white precipitate, soluble in excess of Ammonium hydroxide.	. Chloride is confirmed
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained.	Absence of sulphate.
12	BARIUM CHLORIDE TEST: Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained.	Absence of Sulphate

13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	No brown ring is obtained.	Absence of Nitrate.
14	<b>Ammonium molybdate test:</b> 1ml of the extract + dil $\text{HNO}_3$ + about 1ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow precipitate is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1mL of the sodium carbonate extract + 1mL of dil .ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water.

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	Reddish brown precipitate is obtained.	Ammonium is confirmed.
2	I - group: Original solution + 2 ml of dil HCl.	No white precipitate is appeared.	Absence of Lead.
3	II - group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	No white precipitate is appeared.	Absence of Calcium or Barium.
7	VI - group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml Di Sodium Hydrogen Phosphate.	No white precipitate is appeared.	Absence of Magnesium.

#### V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	0 - group: Original solution + Sodium Hydroxide + Nessler's reagent	Reddish brown precipitate is obtained.	Ammonium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Ammonium 2. Acid Radical : Chloride

The given simple salt is : Ammonium Chloride.

## 15. Ammonium Bromide

I. PRELIMINARY TESTS			
	EXPERIMENT	OBSERVATION	INFERENCE
1	COLOUR Colour of the salt is noted	Colourless	Absence of copper and iron salts
2	ACTION OF HEAT A small amount of the salt is heated gently in a dry test tube	Salt sublimes with evolution of pungent smelling gas giving dense white fumes with a glass rod dipped in conc HCl . and also turns red litmus paper blue	May be Ammonium
3	FLAME TEST: Salt + conc. HCl is made into a paste and introduced into the Bunsen flame No characteristic coloured flame	No characteristic coloured flame	Absence of Copper, Calcium and Barium.
4	ACTION OF DIL HCl Salt + dilute HCl	No characteristic change	Absence of nitrate, carbonate and sulphide.
5	ACTION WITH Con H <sub>2</sub> SO <sub>4</sub> Salt+ Con H <sub>2</sub> SO <sub>4</sub> + heat	A reddish brown gas turning moist fluorescein paper green evolves.	Presence of bromide.
II. IDENTIFICATION OF ACID RADICALS			
6	ACTION WITH MnO <sub>2</sub> Salt + MnO <sub>2</sub> + Con H <sub>2</sub> SO <sub>4</sub> + heat	A reddish brown gas turning moist fluorescein paper green evolves.	Presence of bromide.
7	COPPER TURNINGS TEST: Salt + Copper Turnings + conc. Sulphuric acid + heated.	No reddish brown gas is evolved.	Absence of Nitrate.
8	ACTION OF NaOH: Salt + NaOH + heated.	Pungent smelling gas forming dense white fumes with a glass rod dipped in conc. HCl and also turns red Litmus paper blue.	Presence of Ammonium.
9	CHROMYL CHLORIDE TEST: Salt + a pinch of Potassium Dichromate + conc. Sulphuric acid + heated .	No Red orange vapours.	Absence of chloride.

## III. TESTS WITH SODIUM CARBONATE EXTRACT

## PREPARATION OF SODIUM CARBONATE EXTRACT:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20 ml of distilled water is added, boiled for 10 minutes, cooled and filtered. The filtrate is called "Sodium carbonate extract".

	EXPERIMENT	OBSERVATION	INFERENCE
10	SILVER NITRATE TEST: Extract + dilute Nitric Acid added until the effervescence ceases + 2 ml of Silver Nitrate	A pale yellow precipitate sparingly soluble in ammonia is formed	Bromide is confirmed
11	LEAD ACETATE TEST: Extract + dilute acetic Acid added until the effervescence ceases + 2 ml of lead acetate	No white precipitate is obtained.	Absence of sulphate.

12	<b>BARIUM CHLORIDE TEST:</b> Extract + dilute Hydrochloric Acid added until the effervescence ceases + Barium chloride solution	No white precipitate is obtained.	Absence of Sulphate
13	<b>BROWN RING TEST:</b> Extract + dilute Sulphuric acid is added until the effervescence ceases + freshly prepared $\text{FeSO}_4$ + conc Sulphuric acid is added drop by drop.	No brown ring is obtained.	Absence of Nitrate.
14	<b>Ammonium molybdate test:</b> 1ml of the extract + dil $\text{HNO}_3$ + about 1ml each of ammonium molybdate and Conc. $\text{HNO}_3$	No canary yellow ppt is formed.	Absence of phosphate
15	<b>Test with sodium nitrobruside:</b> 1mL of the sodium carbonate extract + 1mL of dil . ammonia. + few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide.

#### IV. IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION: The original solution is prepared by dissolving the salt in 10 to 15 ml of distilled water.

GROUP IDENTIFICATION			
	EXPERIMENT	OBSERVATION	INFERENCE
1	0 - group: Original solution + Nessler's reagent + excess of Sodium Hydroxide.	Reddish brown precipitate is obtained.	Ammonium is confirmed.
2	I – group: Original solution + 2 ml of dil HCl.	No white precipitate is appeared.	Absence of Lead.
3	II – group: Original solution + 2 ml of dil HCl + $\text{H}_2\text{S}$ gas.	No black precipitate is appeared.	Absence of Copper.
4	III – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2ml $\text{NH}_4\text{OH}$	No gelatinous white precipitate is appeared.	Absence of Aluminium
5	IV – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + $\text{H}_2\text{S}$ gas.	No dirty white precipitate is appeared.	Absence of Zinc.
6	V – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml $(\text{NH}_4)_2\text{CO}_3$ solutions	No white precipitate is appeared.	Absence of Calcium or Barium.
7	VI – group: Original solution + 1 ml $\text{NH}_4\text{Cl}$ + 2 ml $\text{NH}_4\text{OH}$ + 2 ml Di Sodium Hydrogen Phosphate.	No white precipitate is appeared.	Absence of Magnesium.

#### V. CONFIRMATORY TESTS FOR BASIC RADICALS

	EXPERIMENT	OBSERVATION	INFERENCE
	0 – group: Original solution + Sodium Hydroxide + Nessler's reagent	Reddish brown precipitate is obtained.	Ammonium is confirmed.

#### RESULT

The given simple salt contains 1. Basic Radical : Ammonium 2. Acid Radical : Bromide  
The given simple salt is : Ammonium Bromide