1.Lead Nitrate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	**Reddish brown gas.**	**May be nitrate**
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**Reddish brown gas with the fishy odour turning a moist $FeSO_4$ paper brown**	**Presence of Nitrate**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	**Reddish brown gas turning Acidified $FeSO_4$ paper green evolves.**	**Presence of nitrate**
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	**Reddish brown gas**	**Presence of Nitrate**
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	**Brown ring is formed**	**Presence of Nitrate**

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	**White precipitate is obtained.**	**Presence of I group Lead**
Confirmatory test for basic radical			
1.	**Lead (Group I)** Orginial solution + KI solution	**Yellow precipitate soluble in hot water and reappears as golden yellow spangles on cooling.**	**Presence of Lead is confirmed.**

Result : The given simple salt contains,

Acid radical - **Nitrate**

Basic radical - **Lead**

The given simple salt is - **Lead Nitrate**

2.Copper Sulphate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	**Blue**	**May be Copper salt**
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	**Bluish green flame**	**Presence of copper**
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride and Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	**white precipitate insoluble in dil.H_2SO_4**	**Presence of Sulphate.**
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	**white precipitate soluble in ammonium acetate.**	**Presence of Sulphate.**
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	**Black precipitate**	**Presence of II group Copper**
Confirmatory test for basic radical			
1.	**Copper (Group II)** Orginial solution + Aceticacid + potassium ferrocyanide	**Red brown precipitate**	**Copper is confirmed**

Result : The given simple salt contains,

Acid radical - **Sulphate**

Basic radical - **Copper**

The given simple salt is - **Copper Sulphate**

3.Copper Carbonate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	**Green**	**May be Copper salt**
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	**Bluish green flame**	**Presence of copper**
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**Colourless, Odourless gas withbrisk effervescence turning lime water milky**	**Presence of Carbonate is Confirmed**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride and Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in dil.HNO_3 to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	**Black precipitate**	**Presence of II group Copper**
Confirmatory test for basic radical			
1.	**Copper (Group II)** Orginial solution + Aceticacid + potassium ferrocyanide	**Red brown precipitate**	**Copper is confirmed**

Result : The given simple salt contains,

Acid radical - **Carbonate**

Basic radical - **Copper**

The given simple salt is - **Copper Carbonate**

4.Ferric Chloride

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	**Brown**	**May be Iron (ferric) salt**
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper, Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	**A colourless gas evolves. it gives a dense white fumes when glass rod dipped in liquid ammonia is brought close to its mouth**	**Presence of chloride**
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	**A greenish yellow gas turning starch iodide paper blue evolves.**	**Presence of chloride**
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	**Red orange vapours evolved is passed through NaOH in a test tube. Yellow solution is obtained on adding dil acetic acid and lead acetate solution yellow precipitate is formed**	**Presence of chloride**

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	**Curdy white precipitate**	**Presence of Chloride**
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.

12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate
14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	**White precipitate**	**Presence of III group Aluminium or ferric iron**
Confirmatory test for basic radical			
1.	**Ferric (Group III)** Orginial solution +Na_2O_2+ dil HCl + potassium ferro cyanide	**Blue precipitate**	**Presence of ferric iron is confirmed.**

Result : The given simple salt contains,

Acid radical - **Chloride**

Basic radical - **Ferric**

The given simple salt is - **Ferric Chloride**

5.Aluminium Sulphate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	**white precipitate insoluble in dil.H_2SO_4**	**Presence of Sulphate.**
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	**white precipitate soluble in ammonium acetate.**	**Presence of Sulphate.**
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	**White precipitate**	**Presence of III group Aluminium or ferric iron**
Confirmatory test for basic radical			
1.	**Aluminium (Group III)** Orginial solution + sodium peroxide + dil HCl	**Gelatinous white precipitate**	**Presence of Aluminium is confirmed.**

Result : The given simple salt contains,

Acid radical - **Sulphate**

Basic radical - **Aluminium**

The given simple salt is - **Aluminium Sulphate**

6.Aluminium Nitrate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	**Reddish brown gas.**	**May be nitrate**
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**Reddish brown gas with the fishy odour turning a moist $FeSO_4$ paper brown**	**Presence of Nitrate**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	**Reddish brown gas turning Acidified $FeSO_4$ paper green evolves.**	**Presence of nitrate**
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	**Reddish brown gas**	**Presence of Nitrate**
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	**Brown ring is formed**	**Presence of Nitrate**

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	**White precipitate**	**Presence of III group Aluminium or ferric iron**
Confirmatory test for basic radical			
1.	**Aluminium (Group III)** Orginial solution + sodium peroxide + dil HCl	**Gelatinous white precipitate**	**Presence of Aluminium is confirmed.**

Result : The given simple salt contains,

Acid radical - **Nitrate**

Basic radical - **Aluminium**

The given simple salt is - **Aluminium Nitrate**

7.Zinc Sulphate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper salt and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	**Yellow when hot, white when cooled**	**May be Zinc**
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	**white precipitate insoluble in dil.H_2SO_4**	**Presence of Sulphate.**
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	**white precipitate soluble in ammonium acetate.**	**Presence of Sulphate.**
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	**Dirty white precipitate**	**Presence of IV group Zinc**
Confirmatory test for basic radical			
1.	**Zinc (Group IV)** Orginial solution + potassium ferro cyanide	**White precipitate**	**Presence of Zinc is confirmed.**

Result : The given simple salt contains,

Acid radical - **Sulphate**

Basic radical - **Zinc**

The given simple salt is - **Zinc Sulphate**

8.Zinc Sulphide

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	**Yellow when hot, white when cooled**	**May be Zinc**
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**Rotten egg smelling gas turning lead acetate paper block**	**Presence of Sulphide confirmed**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	**Black precipitate**	**Presence of Sulphide.**
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	**purple or violet colouration appears**	**Presence of sulphide**

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in dil.HNO_3 to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	**Dirty white precipitate**	**Presence of IV group Zinc**
Confirmatory test for basic radical			
1.	**Zinc (Group IV)** Orginial solution + potassium ferro cyanide	**White precipitate**	**Presence of Zinc is confirmed.**

Result : The given simple salt contains,

Acid radical - **Sulphide**

Basic radical - **Zinc**

The given simple salt is - **Zinc Sulphide**

9.Calcium Carbonate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	**Brick red flame**	**Presence of Calcium**
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**Colourless, Odourless gas withbrisk effervescence turning lime water milky**	**Presence of Carbonate is Confirmed**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in dil.HNO_3 to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	**White precipitate**	**presence of V group Ca or Ba**
Confirmatory test for basic radical			
1.	**Calcium (Group V)** Orginial solution + NH_4OH +Ammonium oxalate	**white precipitate**	**presence of Calcium is confirmed**

Result : The given simple salt contains,

Acid radical - **Carbonate**

Basic radical - **Calcium**

The given simple salt is - **Calcium Carbonate**

10.Barium Chloride

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	Apple green flame	presence of Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	**A colourless gas evolves. it gives a dense white fumes when glass rod dipped in liquid ammonia is brought close to its mouth**	**Presence of chloride**
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	**A greenish yellow gas turning starch iodide paper blue evolves.**	**Presence of chloride**
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	**Red orange vapours evolved is passed through NaOH in a test tube. Yellow solution is obtained on adding dil acetic acid and lead acetate solution yellow precipitate is formed**	**Presence of chloride**

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	**Curdy white precipitate**	**Presence of Chloride**
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.

12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate
14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	**White precipitate**	**presence of V group Ca or Ba**
Confirmatory test for basic radical			
1.	**Barium (Group V)** Orginial solution + potassium chromate	**Yellow precipitate**	**Presence of Barium is confirmed.**

Result : The given simple salt contains,

Acid radical - **Chloride**

Basic radical - **Barium**

The given simple salt is - **Barium Chloride**

11.Magnisium Sulphate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	**white precipitate insoluble in dil.H_2SO_4**	**Presence of Sulphate**
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	**white precipitate soluble in ammonium acetate.**	**Presence of Sulphate**
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	No White precipitate	Absence of V group Ca or Ba
7.	Original Solution + NH_4Cl + NH_4OH + disodium hydrogen phosphate	**White precipitate**	**presence of VI group Mg**
Confirmatory test for basic radical			
1.	**Magnesium (Group VI)** Orginial solution + NaOH + Magneson reagent	**Blue precipitate**	**Presence of Magnesium is confirmed.**

Result : The given simple salt contains,

Acid radical - **Sulphate**

Basic radical - **Magnesium**

The given simple salt is - **Magnesium Sulphate**

12. Magnesium Carbonate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**Colourless, Odourless gas withbrisk effervescence turning lime water milky**	**Presence of Carbonate is Confirmed**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in dil.HNO_3 to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	No White precipitate	Absence of V group Ca or Ba
7.	Original Solution + NH_4Cl + NH_4OH + disodium hydrogen phosphate	**White precipitate**	**presence of VI group Mg**
Confirmatory test for basic radical			
1.	**Magnesium (Group VI)** Orginial solution + NaOH + Magneson reagent	**Blue precipitate**	**Presence of Magnesium is confirmed.**

Result : The given simple salt contains,

Acid radical - **Carbonate**

Basic radical - **Magnesium**

The given simple salt is - **Magnesium Carbonate**

13. Magnesium Phosphate

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	No characteristic change	Absence of Nitrate, Ammonium and Zinc
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	No characteristic change.	Absence of Chloride, Bromide and Nitrate
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No characteristic change.	Absence of Chloride, Bromide
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	No characteristic gas is evolved.	Absence of ammonium salt
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	No characteristic precipitate.	Absence of Chloride, Bromide and Sulphide.
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate

14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	**A Canary yellow precipitate is formed**	**Presence of phosphate**
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in dil.HNO_3 to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	No reddish brown precipitate.	Absence of ammonium.
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	No White precipitate	Absence of V group Ca or Ba
7.	Original Solution + NH_4Cl + NH_4OH + disodium hydrogen phosphate	**White precipitate**	**presence of VI group Mg**
Confirmatory test for basic radical			
1.	**Magnesium (Group VI)** Orginial solution + NaOH + Magneson reagent	**Blue precipitate**	**Presence of Magnesium is confirmed.**

Result : The given simple salt contains,

Acid radical - **phosphate**

Basic radical - **Magnesium**

The given simple salt is - **Magnesium phosphate**

14. Ammonium Bromide

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	**Pungent smelling gas giving dense white fumes with glass rod dipped in con.HCI**	**May be Ammonium**
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	No characteristic change	Absence of Nitrate, Carbonate and Sulphide
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	**A reddish brown gas turning moist fluorescein paper green evolves**	**Presence of Bromide**
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	**A reddish brown gas turning moist fluorescein paper red evolves**	**Presence of Bromide**
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	**A colourless gas with the Pungent smelling gas with the smell of ammonia gives dense white fumes with glass rod dipped in con.HCI**	**Presence of ammonium**
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	No red orange vapours evolved	Absence of Chloride.

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	**A pale yellow precipitate.**	**Presence of Bromide**
11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.

13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate
14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	**Reddish brown precipitate.**	**Presence of ammonium.**
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	No White precipitate	Absence of V group Ca or Ba
7.	Original Solution + NH_4Cl + NH_4OH + disodium hydrogen phosphate	No White precipitate	Absence of VI group Mg
Confirmatory test for basic radical			
1.	**Ammonium (Zero Group)** Orginial solution + Nessler's reagent + NaOH	**Reddish brown precipitate.**	**Presence of ammonium**

Result : The given simple salt contains,

Acid radical - **Bromide**

Basic radical - **Ammonium**

The given simple salt is - **Ammonium Bromide**

15.Ammonium Chloride

S. No.	Experiment	Observation	Inference
1.	**Colour of the salt**	Colourless	Absence of copper and Iron salt
2.	**Action of heat :** A small amount of the substance is taken in a dry test tube and heated strongly.	**Pungent smelling gas giving dense white fumes with glass rod dipped in con.HCI**	**May be Ammonium**
3.	**Flame test :** A small amount of the substance is made into a paste with conc. HCl in a watch glass and introduced into the non-luminous part of the Bunsen flame.	No characteristic flame is appeared.	Absence of copper Calcium and Barium
4.	**Action of dil. HCI :** Salt + dil.HCl and heated.	**A colourless gas evolves. it gives a dense white fumes when glass rod dipped in liquid ammonia is brought close to its mouth**	**Presence of chloride**
5.	**Action of Con.H_2SO_4:** Salt +Conc. H_2SO_4 +heated.	**A greenish yellow gas turning starch iodide paper blue evolves.**	**Presence of chloride**
6.	**Action of MnO_2 and Con.H_2SO_4:** Salt + MnO_2 + Conc. H_2SO_4 and heated.	No Reddish brown gas	Absence of Nitrate
7.	**Action of Con.H_2SO_4 and Cu turning test :** Salt + **Cu** turning + Conc. H_2SO_4 and heated.	No characteristic gas is evolved.	Absence of ammonium salt
8.	**Action of dil NaOH :** Salt + dil NaOH and heated.	**Red orange vapours evolved is passed through NaOH in a test tube. Yellow solution is obtained on adding dil acetic acid and lead acetate solution yellow precipitate is formed**	**Presence of chloride**
9.	**Chromyl Chloride test :** Salt + $K_2Cr_2O_7$ + Conc. H_2SO_4 and heated.	**A colourless gas evolves. it gives a dense white fumes when glass rod dipped in liquid ammonia is brought close to its mouth**	**Presence of chloride**

Preparation of Sodium Carbonate Extract

A small amount of the substance is mixed with twice the amount of Na_2CO_3 in a beaker. 20 ml of distilled water is added and the solution is boiled for 10 minutes, cooled and filtered. The clear filtrate is called **"Sodium carbonate extract".**

S. No.	Experiment	Observation	Inference
10.	**Test for halides:** Na_2CO_3 extract + dil. HNO_3 + $AgNO_3$	**Curdy white precipitate.**	**Presence of Chloride**

11.	**$BaCl_2$ test:** Na_2CO_3 extract + dil. HCl + $BaCl_2$	No white precipitate	Absence of Sulphate.
12.	**Lead acetate Test :** Na_2CO_3 extract + CH_3COOH + Lead acetate	No white precipitate	Absence of Sulphate.
13.	**Brown ring test :** Na_2CO_3 extract + dil H_2SO_4 + freshly prepared $FeSO_4$ and Conc. H_2SO_4 is added along the side of the test tube	No Brown ring is formed	Absence of Nitrate
14.	**Ammonium molybdate test:** Na_2CO_3 extract + dil HNO_3 + ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate	Absence of phosphate
15.	**Test with sodium nitro bruside:** Na_2CO_3 extract + dil. ammonia + sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

Analysis of Basic Radical

Preparation of Original Solution :

A pinch of the salt is dissolved in water to obtain the original solution.

Group Separation

S. No.	Experiment	Observation	Inference
1.	Orginial solution + Nessler's reagent + NaOH	**Reddish brown precipitate.**	**Presence of ammonium.**
2.	Orginial solution + dil.HCI	No White precipitate	Absence of I group Lead
3.	Original Solution + dil. HCl+ H_2S gas	No Black precipitate	Absence of II group Copper
4.	Original Solution + NH_4Cl + NH_4OH	No White precipitate	Absence of III group Aluminium or ferric iron
5.	Original Solution + NH_4Cl + NH_4OH + H_2S gas	No Dirty white precipitate	Absence of IV group Zinc
6.	Original Solution + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	No White precipitate	Absence of V group Ca or Ba
7.	Original Solution + NH_4Cl + NH_4OH + disodium hydrogen phosphate	No White precipitate	Absence of VI group Mg
Confirmatory test for basic radical			
1.	**Ammonium (Zero Group)** Orginial solution + Nessler's reagent + NaOH	**Reddish brown precipitate.**	**Presence of ammonium.**

Result : The given simple salt contains,

Acid radical - **Chloride**

Basic radical - **Ammonium**

The given simple salt is - **Ammonium Chloride**