SYSTEMATIC ANALYSIS OF A SIMPLE SALT -I

Salt NO:
Date:

s.no	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water	Soluble	May be sulphate nitrate chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	A reddish brown gas with a fishy odour evolves.	Presence of a nitrate salt
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No Characteristic coloured flame.	Absence of copper, calcium and barium.
5.	Action of dil. Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	A reddish brown gas with the fishy odour turning a moist ferrous sulphate paper brown evolves.	Presence of nitrate
6.	Action of Conc. Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5mL of Conc. Sulphuric acid and gently heat it in the Bunsen flame.	Reddish brown gas turning acidified ferrous sulphate paper green evolves	Presence of nitrate
7	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4. Gently heat it.	A reddish brown gas with fishy odour turning a moist ferrous sulphate paper brown evolves	Presence of nitrate
9.	Action of dilute Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salts
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid and gently heat it.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
11.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1mL of Silver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
12.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves-cence ceases, then add 1ml of barium chloride solution and shake it.	No White precipitate is obtained	Absence of sulphate

13	Test with lead acetate: To about 1ml of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate.	No white precipitate is obtained	Absence of sulphate
14.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dil. H_2SO_4 in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	**A brown ring** is formed	**Nitrate** is confirmed
15.	Ammonium molybdate test: To one portion of the extract , add dilute Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
16.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammmonia then add about few drops of sodium nitro bruside	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

ZERO GROUP			
To a few drops of the original solution sodium hydroxide and Nessler's reagent and excess of sodium hydroxide solution are added.		No reddish brown precipitate	Absence of ammonium.
GROUP SEPERATION			
1.	To a few drops of the origin al solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Presence of first group.(Lead)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Lead: To a few drops of original solution add about 1ml of potassium Iodide is added.	Yellow precipitate soluble in hot water which reappears as golden yellow spangles on cooling is obtained.	Lead is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Brown Ring test: To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	A brown ring is formed.	Nitrate is confirmed .

RESULT

The given simple salt contains

1. Acid Radical : Nitrate
2. Basic Radical : Lead

The given simple salt is Lead Nitrate.

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -II

Salt NO:
Date:

S.No	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Blue Crystalline	May be copper sulphate May be sulphate, nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3.	**Action of heat:** A small amount of a salt is strongly heated in a test tube	No characteristic change .	Absence of carbonate nitrate ammonium and zinc .
3.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	Bluish green flame	Presence of copper salt.
4.	**Action of dilute Hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dil. Hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic change .	Absence of sulphide and carbonate .
5.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
6	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. Sulphuric acid. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
8.	Action of dilute Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid and gently heat it.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1m of Silver nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	A white precipitate is formed insoluble in dilute sulphuric acid.	**Sulphate is confirmed**

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	A white precipitate soluble in excess of ammonium acetate is formed .	Presence of Sulphate .
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dilute Nirtric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

	ZERO GROUP		
1.	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
.1	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	Black precipitate is obtained.	Presence of second group (Copper)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Copper To the blue coloured solution add about 1 ml each acetic acid and potassium ferrocyanide .	A red brown precipitate is obtained .	Copper is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate soluble in excess of ammonium acetate is formed .	Sulphate is confirmed.

RESULT

The given simple salt contains

1. Acid Radical : Sulphate 2.Basic Radical : Copper.

The given simple salt is Copper sulphate

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -III

Salt NO:
Date:

S.O	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) **Colour** Colour of the salt is noted. b)**Appearance** Appearance of the salt is noted	Green Powdery	May be copper May be Carbonate or sulphide
2.	**Solubility:** A little of the salt is shaken with water.	Insoluble	May be Carbonate or sulphide
3.	**Action of heat:** A small amount of a salt is strongly heated in a test tube	Colourless,odourless gas turning lime water milky.	May be carbonate .
4.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	Bluish green flame	Presence of copper salt.
5.	**Action of dilute Hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dil. HCl to it. Gently heat it in the Bunsen flame.	Brisk effervescence of colourless gas turning lime water milky	**Carbonate** is confirmed .
6.	**Action of Conc.Sulphuric acid:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc.Sulphuric acid and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
7	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	**Action of dil. Sodium hydroxide solution:** To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
10.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid and gently heat it.	No Red Orange vapours	Absence of chloride

ANALYSIS WITH SODIUM CARBONATE EXTRACT

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	**Test for halides:** To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about 1ml of Silver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	**Test with barium chloride:** To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves-cence ceases, then add 1mL of barium chloride solution and shake it.	No white precipitate is formed .	Absence of Sulphate

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed .	Absence of sulphate .
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dilute Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dilute Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary Yellow precipitate is obtained	Absence of phosphate
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in Hydrochloric acid .

ZERO GROUP			
1.	To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group
3.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	Black precipitate is obtained.	Presence of second group (Copper)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Copper To the blue coloured solution add about 1 ml each acetic acid and potassium ferrocyanide .	A red brown precipitate is obtained .	Copper is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Action of dilute hydrochloride: Take a small amount of salt in a test tube and add dilute hydrochloric acid is added.	Brisk effervescence of colourless gas turning lime water milky	**Carbonate** is confirmed .

RESULT

The given simple salt contains

1. Acid Radical : Carbonate 2.Basic Radical : Copper

The given simple salt is <u>Copper Carbonate.</u>

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -IV

Salt NO:

Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Brown Crystalline	May be an iron salt May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change	Absence of ammonium, nitrate, Zinc salts
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No characteristic change	Absence of Copper, Calcium and Barium
5.	**Action of dil. Hydrochloric acid:** Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloride to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonat and sulphide and nitrate.
6.	**Action of Conc.Sulphuric acid:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	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
7	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride
8.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	**Action of dil. Sodium Hydroxide solution:** To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	No pungent smelling gas.	Absence of ammonium salt.
10.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	**Chloride is confirmed.**

ANALYSIS WITH SODIUM CARBONATE EXTRACT

Preparation of sodium carbonate extract:

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

11.	Test for halides: To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	A curdy white precipitate insoluble in about 1ml of dil. ammonia is formed	**Presence of chloride**

11.	Test with Barium chloride: To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves-cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate
12	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate
13.	Brown ring test: To about 1ml of the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtained.	Absence of Sulphide.

Preparation of the original solution :

The original solution is prepared by dissolving a small of the salt in 10 to 15 ml of Water.

	ZERO GROUP		
1.	To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group
3.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group
4.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added.	Brown coloured precipitate is obtained	Presence of Iron

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Iron: To the solution add about 1 ml of dilute hydrochloride and boil it and then add about 1ml of potassium ferocyanide .	A Blue precipitate is obtained .	Iron is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Chromyl Chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	**Red Orange vapours** evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	**Chloride** is confirmed.

RESULT

The given simple salt contains

1. Acid Radical : Chloride 2.Basic Radical : Iron (Ferric)

The given simple salt is <u>Ferric chloride</u>

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –V

Salt NO:
Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) **Colour** Colour of the salt is noted. b)**Appearance** Appearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts. May be Sulphate, nitrate or Chloride
2.	**Solubility:** A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3	**Action of heat:** A small amount of a salt is strongly heated in a test tube	The salt turns yellow when hot and white when cold	May be **Zinc** salt .
4.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No Characteristic coloured flame.	Absence of copper,calcium and barium.
5.	**Action of dilute hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic change	Absence of carbonate, sulphide and nitrate
6.	**Action of Conc.Sulphuric acid:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc.Sulphuric acid and gently heat it in the Bunsen flame.	No characteristic gas is evolves	Absence of chloride bromide nitrate.
7	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas is evolved	Absence of chloride , bromide
8.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	**Action of dilute Sodium Hydroxide solution:** To a small quantity of a salt add about 1ml of dil. NaOH solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt.
10.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid gently heat it	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	**Test for halides:** To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about 1mL of $AgNO_3$, and shake it well.	No precipitate is obtained	Absence of chloride, bromide, sulphide .
11.	**Test with barium chloride:** To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	**Sulphate is confirmed**

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate.	A white precipitate soluble in excess of ammonium acegate is formed .	Presence of **Sulphate .**
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc.Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dil.HNO_3 until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. HNO_3	No yellow precipitate is obtained	Absence of phosphate
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

ZERO GROUP			
	To a few drops of the original solution a few drops of Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No characteristic precipitate obtained .	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen sulphide gas is passed.	No Black precipitate is obtained.	Absence of second group
3	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No precipitate is obtained	Absence of Third group
4	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and and Hydrogen sulphide gas is passed.	Dirty white precipate is obtained.	Presence of Fourth group (Zinc)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Zinc To a few drops of the Originial solution 2ml of potassium ferro cyanide solution is added .	White precipitate soluble in excess of sodium hydroxide.	Zinc is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	**Sulphate** is confirmed

RESULT

The given simple salt contains

1. Acid Radical : Sulphate 2.Basic Radical : Zinc

.. The given simple salt is Zinc Sulphate

SYSTEMATIC ANALYSIS OF A SIMPLE SALT- VI

Salt NO:
Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Colourless Powdery	Absence of copper and iron salts May be carbonte or sulphide salts.
2.	Solubility: A little of the salt is shaken with water.	Insoluble	May be sulphide, Carbonate
2.	Action of heat: A small amount of a salt is strongly heated in a test tube	Salt is yellow when hot and white when cold	May be a zinc salt
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No characteristic flame	Absence of Copper, Calcium and Barium
4.	Action of dilute hydrochloridic acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloride to it. Gently heat it in the Bunsen flame	A colourless gas with a rotten egg smell turning a paper dipped in lead acetate shining black evolves	**Sulphide is confirmed**
5.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame.	No characteristic natured gas evolves	Absence of chloride, bromide, nitrate
6	Action of MnO_2 and Conc. H_2SO_4 Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic natured gas evolves	Absence of chloride, bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4. Gently heat it.	No reddish brown gas	Absence of Nitrate .
8.	Action of dilute Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	No pungent smelling gas.	Absence of ammonium salt.
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid Gently heat it.	No red orange Vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

10.	Test for halides: To about one mL of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver Nitrate , and shake it well.	A black ppt is formed	**Sulphide is confirmed**

11.	Test with barium chloride: To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate
12	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	A black precipitate soluble in hot dilute nitirc acid is obtained.	Presence of sulphide
13.	Brown ring test: To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil Nitroc acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	A purple colouration appears	Presence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of dilute hydrochloric acid .

	ZERO GROUP		
	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No characteristic precipitate obtained .	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen sulphide gas is passed.	No Black precipitate is obtained.	Absence of second group
3	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No precipitate is obtained	Absence of Third group
4	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and and Hydrogen sulphide gas is passed.	Dirty white precipate is obtained.	Presence of Fourth group (Zinc)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Zinc To a few drops of the Originial solution potassium ferro cyanide is added .	White precipitate soluble in excess of sodium hydroxide.	Zinc is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Action of dilute hyrochloric acid: A small amount of the salt is added to dilute hydrochloric acid taken in a test tube.	A Colourless rotten egg smelling gas turning lead acetate paper black on warming evolves	**Sulphide is** confirmed

RESULT

The given simple salt contains

1. Acid Radical : Sulphide 2.Basic Radical : Zinc

.. The given simple salt is Zinc sulphide

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –VII

Salt NO:
Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Colourless Crystalline	Absence of copper, iron salts May be sulphate, nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change .	Absence of carbonate nitrate ammonium and zinc .
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic flame	Absence of copper, barium, calcium salts.
5.	Action of dil. HCl: Take a small amount of salt in a test tube and add about 1ml of dil. HCl to it. Gently heat it in the Bunsen flame.	No characteristic change .	Absence of sulphide and carbonate .
6.	Action of Conc. Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
7	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	Action of dilute sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid gently heat it	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about 1mL of $AgNO_3$, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dilute sulphuric acid.	**Sulphate** is confirmed

12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	A white precipitate soluble in excess of ammonium acetate is formed .	Presence of sulphate .
13.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc.Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil. Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

ZERO GROUP			
1.	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
GROUP SEPARATION			
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	Black precipitate is obtained.	Absence of second group
3.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	Gelatinous white precipitate soluble in sodium hydroxide is obtained	Presence of Aluminium (III group)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Aluminium To a few drops of the original solution 2ml of ammonium hydroxide and few drops of "**Aluminon**" reagent are added.	A bright red lake is obtained	Aluminium is confirmed.

CONFIRMATORY TEST FOR ACID RADICAL

Test with Barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate soluble in excess of ammonium acetate is formed .	Sulphate is confirmed.

R E S U L T:

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

..The given salt is **Aluminium Sulphate.**

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –VIII

Salt NO:
Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water	Soluble	May be sulphate nitrate chloride
2.	Action of heat: A small amount of a salt is strongly heated in a test tube	A reddish brown gas with a fishy odour evolves.	Presence of a nitrate salt
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No Characteristic coloured flame.	Absence of copper, calcium and barium.
4.	Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dil. HCl to it. Gently heat it in the Bunsen flame.	A reddish brown gas with the fishy odour turning a moist ferrous sulphate paper brown evolves.	Presence of nitrate
5.	Action of Conc. Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	Reddish brown gas turning acidified ferrous sulphate paper green evolves	Presence of nitrate
6	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	A reddish brown gas with fishy odour turning a moist ferrous sulphate paper brown evolves	Presence of nitrate
8.	Action of dilute Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	No White precipitate is obtained	Absence of sulphate

12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is obtained	Absence of sulphate
13.	**Brown Ring test:** To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	**A brown ring is formed**	**Nitrate is confirmed**
14.	Ammonium molybdate test: To one portion of the extract , add dilute nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium Nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil ammonia then add about few drops of sodium nitro bruside	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

ZERO GROUP			
	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
GROUP SEPARATION			
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate.	Absence of It group.
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and hydrogen sulphide gas is passed.	No black precipitate is obtained.	Absence of II group
3.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added.	Gelatinous whie precipitate is obtained	Presence of III group

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Aluminium: Toa few drops of original solution 2ml of ammonium hydroxide and few drops of **Aluminon** reagent are added.	A bright red lake is obtained	Aluminium is confirmed.

CONFIRMATORY TEST FOR ACID RADICAL

Brown Ring test: To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	A brown ring is formed.	Nitrate is confirmed .

RESULT

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

The given simple salt is : Aluminium Nitrate

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –IX

Salt NO:
Date:

S.no	Experiment	Observation	Inference
1.	a) **Colour** Colour of the salt is noted. b)**Appearance** Appearance of the salt is noted	Colourless Powdery	Absence of copper and iron salts May be Carbonate or sulphide
2.	**Solubility:** A little of the salt is shaken with water.	Insoluble	May be Carbonate or sulphide
3.	**Action of heat:** A small amount of a salt is strongly heated in a test tube	Colourless,odourless gas turning lime water milky.	May be carbonate .
4.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	Brick red	Presence of calcium salt.
5.	**Action of dilute Hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	Brisk effervescence of colourless gas turning lime water milky	**Carbonate** is confirmed .
6.	**Action of Conc Sulphuric acid:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
7	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	**Action of dil. Sodium hydroxide solution:** To a small quantity of a salt add about 1ml of dil. Sodium hydroxide and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
10.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid. Gently heat it.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	**Test for halides:** To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about 1mL of $AgNO_3$, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	**Test with barium chloride:** To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	No white precipitate is formed .	Absence of Sulphate

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed .	Absence of sulphate .
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dil. H_2SO_4 in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dil.Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in hydrochloric acid .

	ZERO GROUP		
1.	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
3.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No characteristic precipitate is obtained.	Absence of II group
4.	To a few drops of original solution 1ml of each ammonium chloride and of ammonium hydroxide solutions are added.	No characteristic precipitate is obtainted.	Absence of III group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and Hydrogen sulphide gas is passed.	No characteristic precipate is obtained.	Absence of Fourth group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	White precipitate is obtained.	Presence of fifth group (Calcium or Barium)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Calcium To a few drops original solution 1ml of ammonium hydroxide and 2ml of ammonium oxalate solutions are added.	White precipitate is insoluble in acetic acid is obtained.	Calcium is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it.	Brisk effervescence of colourless gas turning lime water milky	**Carbonate** is confirmed .

RESULT

The given simple salt contains

1. Acid Radical : Carbonate 1.Basic Radical : Calcium

..The given simple salt is Calcium Carbonate

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -X

Salt NO:

Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Brown Crystalline	May be an iron salt May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	soluble	May be Sulphate nitrate or chloride.
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change	Absence of ammonium, nitrate, Zinc salts
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	Apple green	Presence or Barium salt
5.	Action of dil. Hydrochloridic acid: Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloride to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonate and sulphide and nitrate.
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	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
7	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4. Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	**Action of dil. Sodium Hydroxide solution:** To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	No pungent smelling gas.	Absence of ammonium salt.
10.	**Chromyl chloride test**: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

10.	Test for halides: To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	A curdy white precipitate insoluble in about 1ml of dil. ammonia is formed	Presence of chloride

11.	**Test with Barium chloride:** To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves-cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate
12	Test with lead acetate: To about 1ml of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate
13.	Brown ring test: To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtai-ned.	Absence of Sulphide.

Preparation of the original solution :

The original solution is prepared by dissolving a small of the salt in 10 to 15 ml of Water.

ZERO GROUP			
1.	To a few drops of the original solution few drops of Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.
GROUP SEPERATION			
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group
3.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No Characteristic precipitate is obtained	Absence of Third group
4.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and then hydrogen sulphide gas is passed.	No dirty white precipitate is obtained	Absence of Fourth group
5.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	White precipitate is obtained.	Presence of V group (Calcium or Barium)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Barium: To a few drops of the original solution 2 ml of potassium chromate solution is added.	Yellow precipitate is obtained .	**Barium** is confirmed .

CONFIRMATORY TEST FOR ACID RADICAL

Chromyl Chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	**Red Orange vapours** evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	**Chloride** is confirmed.

RESULT

The given simple salt contains

1. Acid Radical : Chloride 2.Basic Radical : Barium

The given simple salt is <u>Barium chloride</u>

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -XI

Salt NO:

Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Colourless Crystalline	Absence of copper ,iron salts May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be Sulphate nitrate or chloride.
3.	**Action of heat**: A small amount of a salt is strongly heated in a test tube	A colourless gas with the pungent smell turning red litmus paper into blue evolves.	Presence of an ammonium salts
4.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No characteristic coloured flame	Absence of Copper, Calcium, Barium salt
5.	Action of dil. Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloride to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonat and sulphide and nitrate.
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	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
7	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4. Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	Action of dil. Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	A colourless gas with the pungent smell giving dense white fumes with a glass rod dipped in dil hydrochloride evolves.	Presence of ammonium salt.
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

11.	Test for halides: To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	A curdy white precipitate insoluble in about 1ml of dil. ammonia is formed	Presence of chloride
12.	Test with Barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate

13	Test with lead acetate: To about 1ml of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate
14.	Brown ring test: To about 1mL o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
15.	Ammonium molybdate test: To one portion of the extract , add dil Nitric acid until the ef-fervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
16.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtai-ned.	Absence of Sulphide.

Preparation of the original solution :

The original solution is prepared by dissolving a small of the salt in 10 to 15 ml of Water.

ZERO GROUP			
1.	To a few drops of the original solution few drops of Nessler's reagent and excess of sodium hydroxide solution are added.	Reddish brown precipitate	presence of ammonium.
GROUP SEPERATION			
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group
3.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No Characteristic precipitate is obtained	Absence of Third group
4.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and then hydrogen sulphide gas is passed.	No dirty white precipitate is obtained	Absence of Fourth group
5.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of V group
6.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of di sodium hydrogen solutions are added.	No white precipitate is obtained	Absence of VI group

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Ammonium To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.	Reddish brown precipitate	**Ammonium is confirmed.**

CONFIRMATORY TEST FOR ACID RADICAL

Chromyl Chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	**Red Orange vapours** evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	**Chloride** is confirmed.

RESULT

The given simple salt contains

1. Acid Radical : Chloride 2.Basic Radical : Ammonium

The given simple salt is <u>Ammonium chloride</u>

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -XII

Salt NO:

Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance Appearance of the salt is noted	Colourless Crystalline	Absence of copper ,iron salts May be Sulphate nitrate or chloride
2.	**Solubility:** A little of the salt is shaken with water.	Soluble	May be Sulphate nitrate or chloride.
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	A colourless gas with the pungent smell turning red litmus paper into blue evolves.	Presence of an ammonium salts
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic coloured flame	Absence of Copper, Calcium, Barium salt
5.	Action of dil. Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloric acid to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonate and sulphide and nitrate.
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	A reddish brown gas turning moist fluorescein paper green evolves.	Presence of Bromide.
7	Action of MnO_2 and Conc. H_2SO_4: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A reddish brown gas turning moist fluorescein paper red evolves	Presence of Bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc.H_2SO_4.Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	Action of dil. Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	A colourless gas with the pungent smell giving dense white fumes with a glass rod dipped in dil hydrochloride evolves.	Presence of ammonium salt.
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	No Red Orange vapours	Absence of Chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

10.	Test for halides: To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	A Pale yellow precipitate sparingly soluble in ammonium is formed.	**Bromide is confirmed**
11.	Test with Barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate

12	Test with lead acetate: To about 1ml of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate
13.	Brown ring test: To about 1ml of the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtained.	Absence of Sulphide.

Preparation of the original solution :

The original solution is prepared by dissolving a small of the salt in 10 to 15 ml of Water.

	ZERO GROUP		
1.	To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.	Reddish brown precipitate	presence of ammonium.
	GROUP SEPERATION		
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group
3.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No Characteristic precipitate is obtained	Absence of Third group
4.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and then hydrogen sulphide gas is passed.	No dirty white precipitate is obtained	Absence of Fourth group
5.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of V group
6.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of di sodium hydrogen solutions are added.	No white precipitate is obtained	Absence of VI group

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Ammonium To a few drops of the original solution few drops of Nessler's reagent and excess of sodium hydroxide solution are added.	Reddish brown precipitate	**Ammonium is confirmed.**

CONFIRMATORY TEST FOR ACID RADICAL

Test for halides: To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	A Pale yellow precipitate sparingly soluble in ammonium is formed.	**Bromide is confirmed.**

RESULT

The given simple salt contains

1. Acid Radical : Bromide 2.Basic Radical : Ammonium

The given simple salt is Ammonium Bromide

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –XIII

Salt NO:
Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) **Colour** Colour of the salt is noted. b)**Appearance** Appearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts. May be Sulphate, nitrate or Chloride
2.	**Solubility:** A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3	**Action of heat:** A small amount of a salt is strongly heated in a test tube	No characteristic change	Ansence of ammonium, nitrate, **Zinc** salts .
4.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No Characteristic coloured flame.	Absence of copper,calcium and barium.
5.	**Action of dilute hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic change	Absence of carbonate, sulphide and nitrate
6.	**Action of Conc.Sulphuric acid:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc.Sulphuric acid and gently heat it in the Bunsen flame.	No characteristic gas is evolves	Absence of chloride bromide nitrate.
7	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas is evolved	Absence of chloride , bromide
8.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	**Action of dilute sodium hydroxide solution:** To a small quantity of a salt add about 1ml of dilute sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammoniumsalt.
10.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid, gently heat it	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	**Test for halides:** To about one mL of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1mL of Silver Nitrate, and shake it well.	No precipitate is obtained	Absence of chloride, bromide, sulphide .
11.	**Test with barium chloride:** To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	**Sulphate is confirmed**

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate.	A white precipitate soluble in excess of ammonium acegate is formed .	Presence of Sulphate.
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc.Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dil.HNO_3 until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate is obtained	Absence of phosphate
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

	ZERO GROUP		
	To a few drops of the original solution a few drops of Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP SEPERATION		
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No characteristic precipitate obtained .	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen sulphide gas is passed.	No Black precipitate is obtained.	Absence of second group
3	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No precipitate is obtained	Absence of Third group
4	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and and Hydrogen sulphide gas is passed.	No dirty white precipate is obtained.	Absence of Fourth group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solution and 2ml of saturated ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of fifth group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2ml of di sodium hydrogen phosphate solutions are added.	White precipitate is obtained.	Presence of VI group (Magnesium)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Magnesium To a few drops of the Originial solution 2drops of "**Magneson**" reagent is added..	Blue precipitate is obtained	Magnesium. .

CONFIRMATORY TEST FOR ACID RADICAL

Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	**Sulphate** is confirmed

RESULT

The given simple salt contains

1. Acid Radical : Sulphate 2.Basic Radical : Magnesium

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

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –(XIV)

Salt NO:
Date:

S.no	Experiment	Observation	Inference
1.	a) **Colour** Colour of the salt is noted. b)**Appearance** Appearance of the salt is noted	Colourless Powdery	Absence of copper and iron salts May be Carbonate or sulphide
2.	**Solubility:** A little of the salt is shaken with water.	Insoluble	May be Carbonate or sulphide
2.	**Action of heat:** A small amount of a salt is strongly heated in a test tube	Colourless,odourless gas turning lime water milky.	May be carbonate .
3.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic coloured flame	Absence copper, barium calcium salts.
4.	**Action of dilute hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	Brisk effervescence of colourless gas turning lime water milky	**Carbonate** is confirmed .
5.	**Action of Conc.H_2SO_4:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
6	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
8.	**Action of dil. NaOH solution:** To a small quantity of a salt add about 1ml of dil. NaOH solution and gently heat it.	No pungent smelling gas.	Absence of ammonium.
9.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	**Test for halides:** To about one mL of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml ofSilver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	**Test with barium chloride:** To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves-cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is formed .	Absence of Sulphate

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed .	Absence of sulphate .
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dil. Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid	No canary yellow precipitate is obtained	Absence of phosphate
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in dilute hydrochloric acid .

ZERO GROUP			
To a few drops of the original solution sodium hydroxide and **Nessler**'s reagent are added.		No reddish brown precipitate	Absence of ammonium.
GROUP SEPERATION			
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No characteristic precipitate is obtained.	Absence of II group
3.	To a few drops of original solution 1ml of each ammonium chloride and of ammonium hydroxide solutions are added.	No characteristic precipitate is obtainted.	Absence of III group
4.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and Hydrogen sulphide gas is passed.	No characteristic precipate is obtained.	Absence of IV group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of V^{th} group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2ml of di sodium hydrogen phosphate solutions are added.	White precipitate is obtained.	Presence of VI group (Magnesium)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Magnesium To a few drops of the Originial solution 2drops of "**Magneson**" reagent is added..	Blue precipitate is obtained	Magnesium. .

CONFIRMATORY TEST FOR ACID RADICAL

Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it.	Brisk effervescence of colourless gas turning lime water milky	**Carbonate** is confirmed .

RESULT

The given simple salt contains

1. Acid Radical : Carbonate 1.Basic Radical : Magnesium

..The given simple salt is Magnesium Carbonate

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –XV

Salt NO:
Date:

S. No	Experiment	Observation	Inference
1.	a) **Colour** Colour of the salt is noted. b)**Appearance** Appearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts May be sulphate , nitrate, chloride, phosphate
2.	**Solubility:** A little of the salt is shaken with water.	Soluble	May be sulphate , nitrate, chloride, phosphate
2.	**Action of heat:** A small amount of a salt is strongly heated in a test tube	No Characteristic change .	Absence of ammonium, nitrate, zinc salts .
3.	**Flame test:** Take a small amount of salt in a watch glass. Add a drop of Conc.hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic coloured flame	Absence copper, barium calcium salts.
4.	**Action of dilute hydrochloric acid:** Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic gas is evolved.	Absence of carbonate, nitrate, sulphide.
5.	**Action of Conc.H_2SO_4:** Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
6	**Action of MnO_2 and Conc. H_2SO_4:** Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	**Action of Conc. H_2SO_4 and copper turning:** Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. Sulphuric acid. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
8.	**Action of dil. Sodium Hydroxide solution:** To a small quantity of a salt add about 1ml of dilute sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
9.	**Chromyl chloride test:** Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

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

	EXPERIMENT	OBSERVATION	INFERENCE
10.	**Test for halides:** To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml ofSilver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	**Test with barium chloride:** To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves-cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is formed .	Absence of Sulphate

12.	**Test with lead acetate:** To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed .	Absence of sulphate .
13.	**Brown Ring test:** To about 1ml o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	**Ammonium molybdate test:** To one portion of the extract , add dil. Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid	**Canary Yellow precipitate** is obtained	**Phosphate** is confirmed
15.	**Test with sodium nitro bruside:** To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in dilute hydrochloric acid .

ZERO GROUP			
To a few drops of the original solution sodium hydroxide and **Nessler**'s reagent are added.		No reddish brown precipitate	Absence of ammonium.
GROUP SEPERATION			
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No characteristic precipitate is obtained.	Absence of II group
3.	To a few drops of original solution 1ml of each ammonium chloride and of ammonium hydroxide solutions are added.	No characteristic precipitate is obtainted.	Absence of III group
4.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and Hydrogen sulphide gas is passed.	No characteristic precipate is obtained.	Absence of IV group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of Vth group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2ml of di sodium hydrogen phosphate solutions are added.	White precipitate is obtained.	Presence of VI group (Magnesium)

CONFIRMATORY TEST FOR BASIC RADICAL

Test for Magnesium To a few drops of the Originial solution 2drops of "**Magneson**" reagent is added..	Blue precipitate is obtained	Magnesium. .

CONFIRMATORY TEST FOR ACID RADICAL

Ammonium molybdate test: To one portion of the extract , add dil. Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid	**Canary Yellow precipitate** is obtained	**Phosphate** is confirmed

RESULT

The given simple salt contains

1. Acid Radical : Phosphate 1.Basic Radical : Magnesium

..The given simple salt is : Magnesium Phosphate