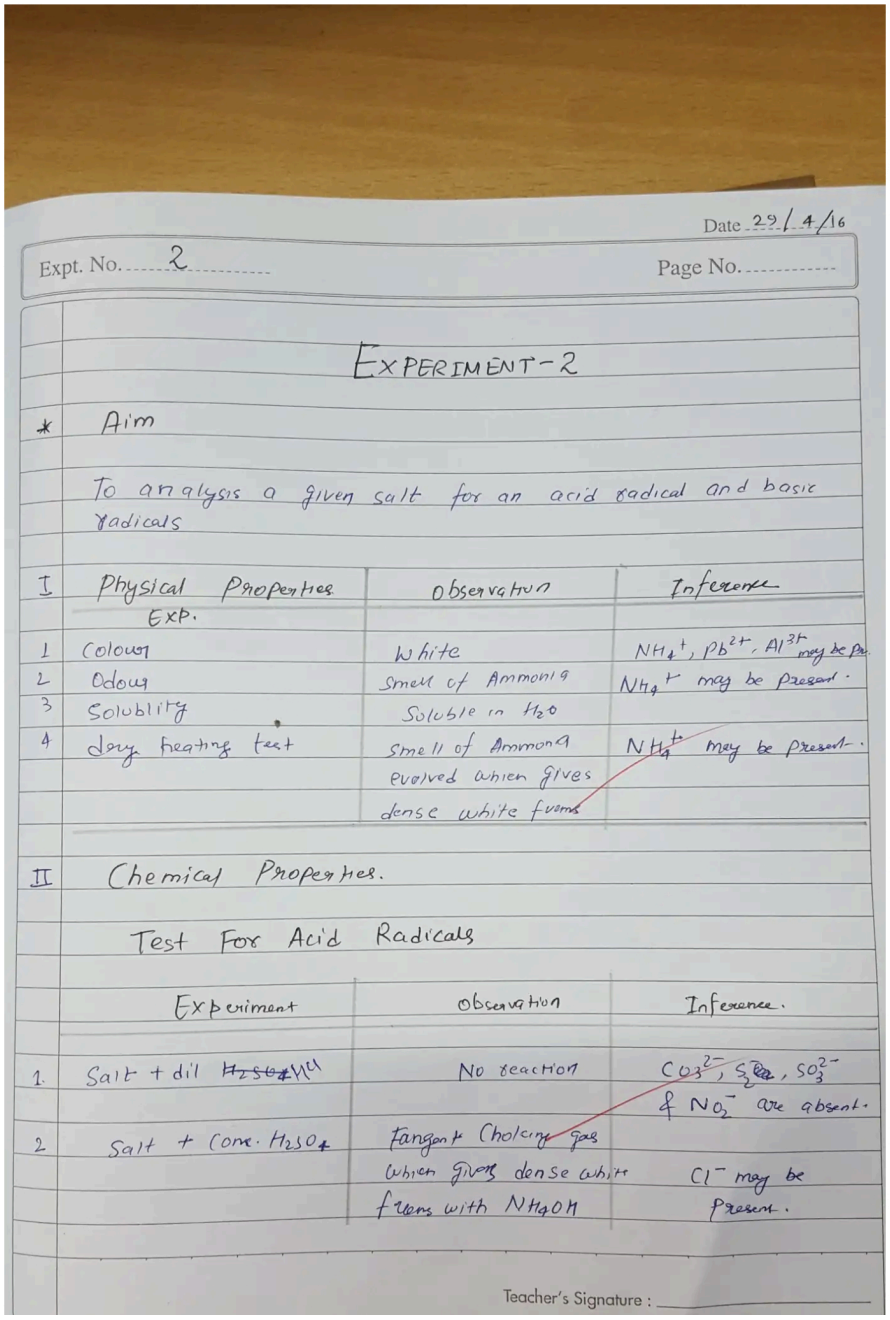
Experiment-1(NH4Cl)



Date 29/4/16

Expt. No. 2 Page No.

EXPERIMENT-2

* Aim

To analysis a given salt for an acid radical and basic radicals

I	Physical Properties Exp.	Observation	Inference
1	Colour	White	NH_4^+, Pb^{2+}, Al^{3+} may be pr.
2	Odour	Smell of Ammonia	NH_4^+ may be present.
3	Solubility	Soluble in H_2O	
4	Dry heating test	Smell of Ammonia evolved which gives dense white fumes	NH_4^+ may be present.

II Chemical Properties.

Test For Acid Radicals

	Experiment	Observation	Inference.
1.	Salt + dil ~~H_2SO_4~~ HCl	No reaction	CO_3^{2-}, S^{2-}, SO_3^{2-} & NO_2^- are absent.
2	Salt + Conc. H_2SO_4	Pungent Choking gas which gives dense white fumes with NH_4OH	Cl^- may be present.

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	Continued → Exp	Obs	Inf.
3.	Salt + water + HNO_3 + $AgNO_3$	White ppt form soluble in excess of NH_4OH	Cl^- confirmed.

III Test For Basic Radical

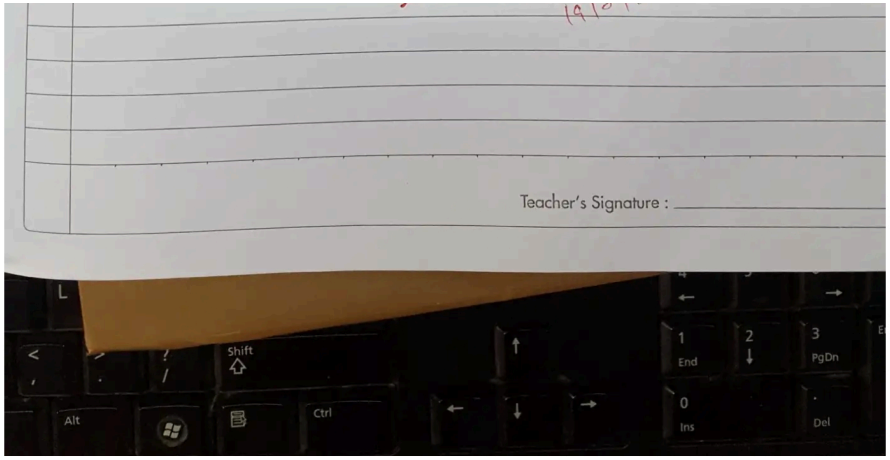
	Experiment	Observation	Inference
1	Salt + NaOH	Smell of ammonia evolved which gives dense white fuems with HCl	NH_4^+ may be present.
2	Salt + NaOH + Nesselar's Reagent	Brown ppt. formed	NH_4^+ Confirmed.

* Result

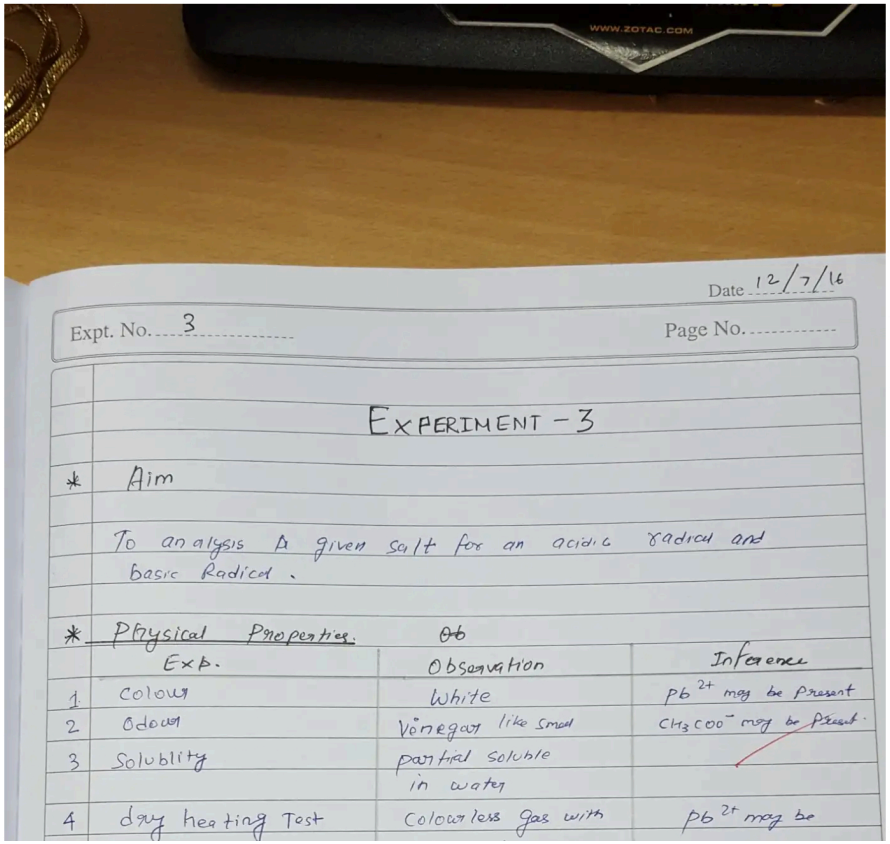
Acidic Radical Cl^-

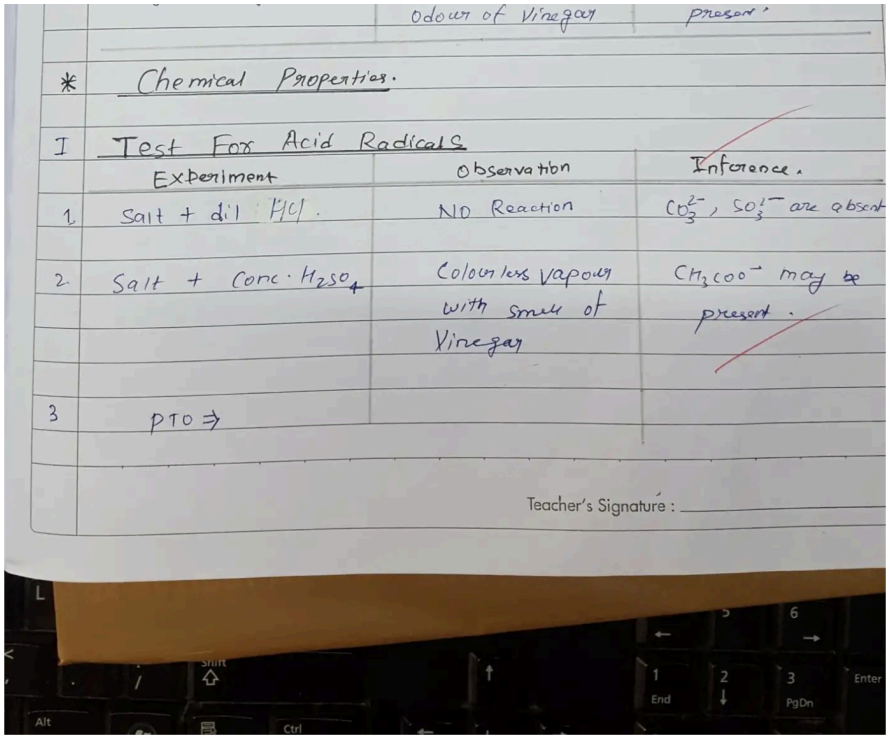
Basic Radical NH_4^+

Salt NH_4Cl



> *Experiment 2((CH3Coo)2Pb)*





odour of Vinegar present.

* Chemical Properties.

I Test For Acid Radicals

	Experiment	Observation	Inference.
1.	Salt + dil HCl.	No Reaction	CO_3^{2-}, SO_3^{2-} are absent
2.	Salt + Conc. H_2SO_4	Colourless vapours with smell of Vinegar	CH_3COO^- may be present.
3	PTO ⇒		

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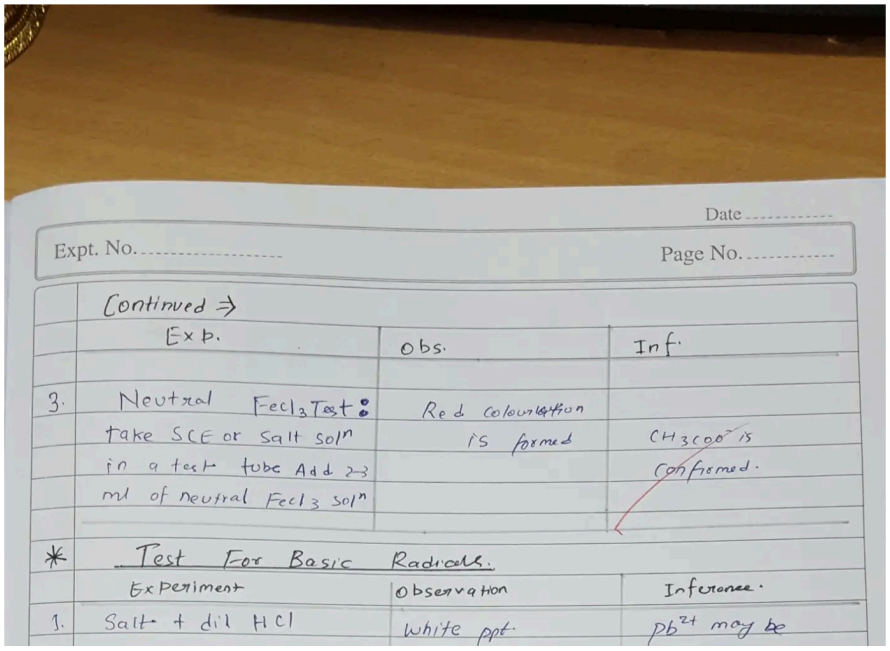

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Continued ⇒

	Exp.	Obs.	Inf.
3.	Neutral $FeCl_3$ Test: take SCE or salt soln in a test tube Add 2-3 ml of neutral $FeCl_3$ soln	Red colouration is formed	CH_3COO^- is confirmed.

* Test For Basic Radicals.

	Experiment	Observation	Inference.
1.	Salt + dil HCl	White ppt.	Pb^{2+} may be

			present.
2	Filter the ppt. and collect it in a test tube	–	–
3.	To the first testube add 2-3 ml distilled water and boil divide this colourless soln into two parts	White ppt. dissolves	
4	To the first part, add few drops of KI soln	Yellow ppt. formed	Pb^{2+} confirmed
5.	To the second part add few drops of K_2CrO_4 soln	Orange ppt. formed	Pb^{2+} confirmed

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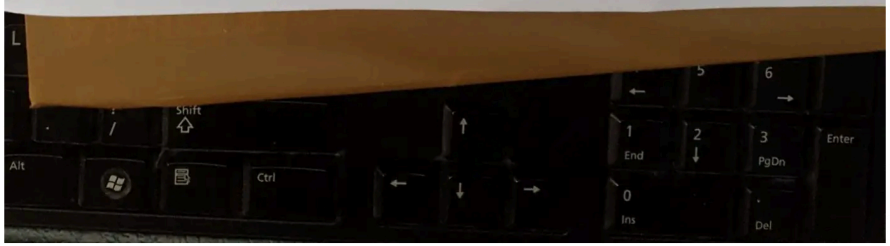

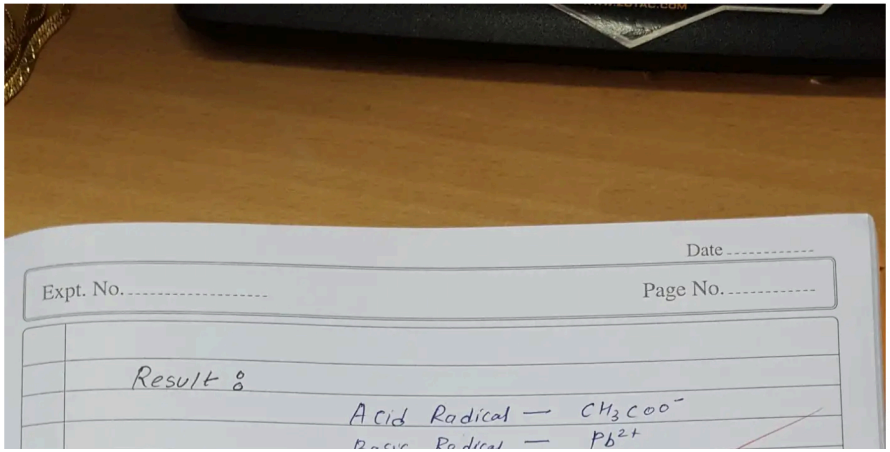

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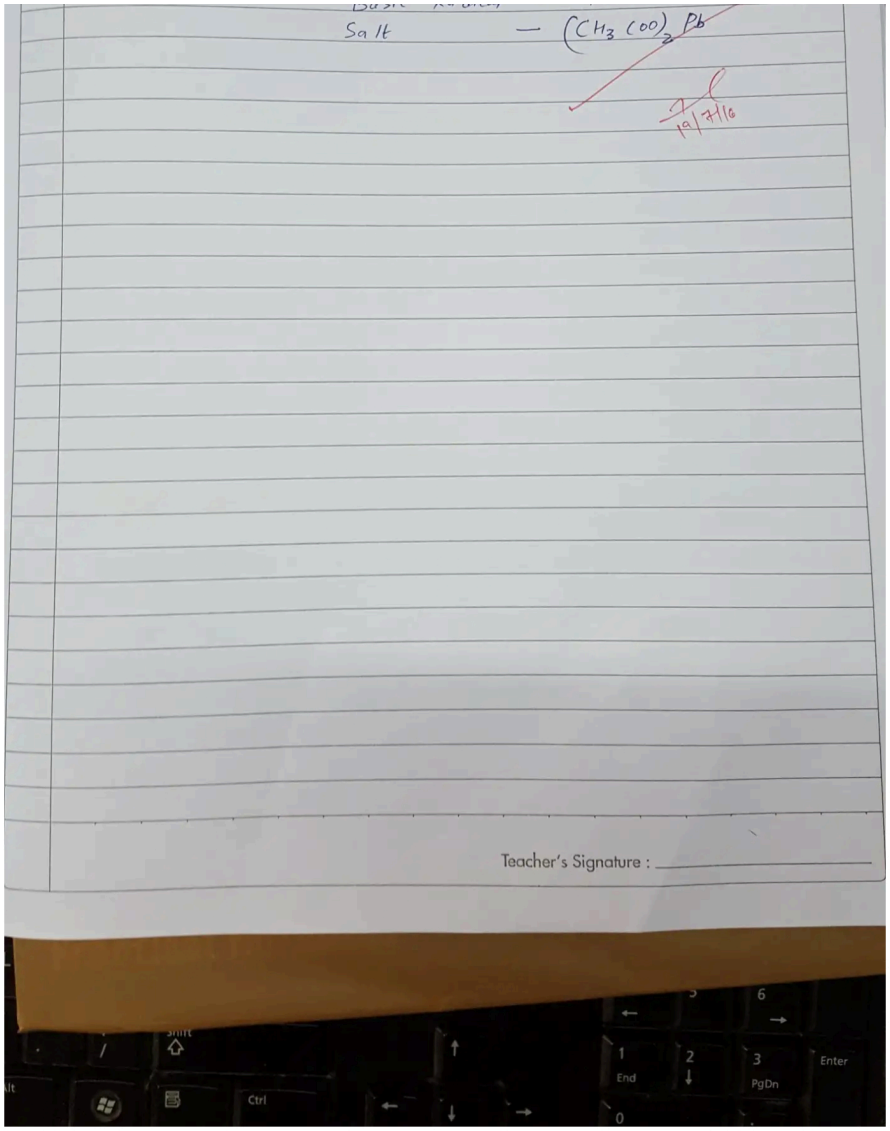
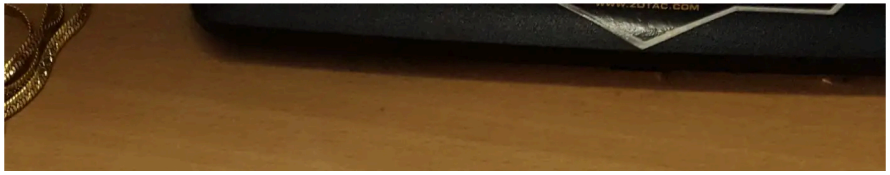
Result :

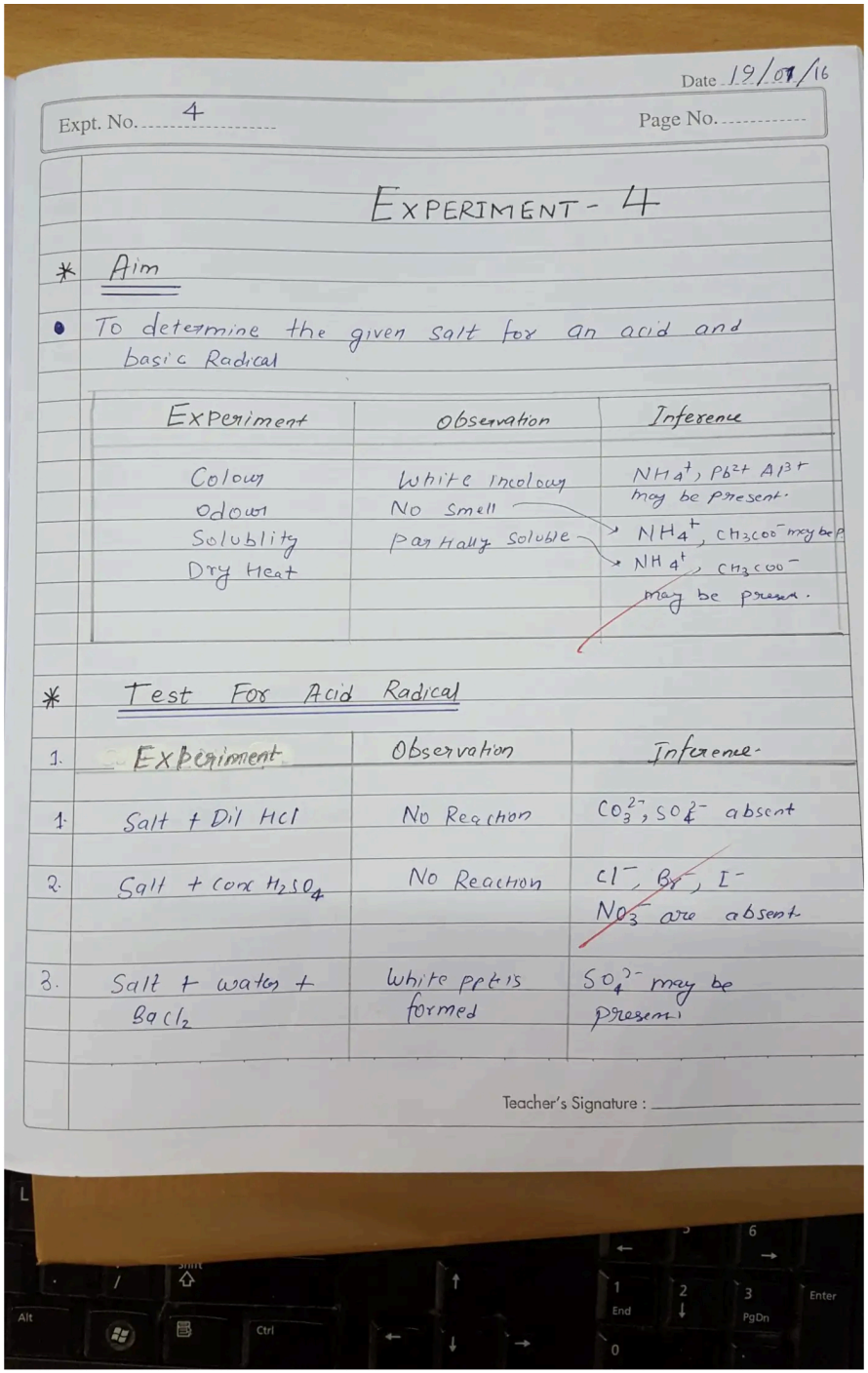
Acid Radical — CH_3COO^-

Basic Radical — Pb^{2+}



> *Experiment-3 (Al2(So4)3)*





Date 19/07/16

Expt. No. 4 Page No.

EXPERIMENT - 4

* Aim

- To determine the given salt for an acid and basic Radical

Experiment	Observation	Inference
Colour	White Incolour	NH_4^+, Pb^{2+} Al^{3+} may be present.
Odour	No Smell	NH_4^+, CH_3COO^- may be p
Solublity	Partially Soluble	NH_4^+, CH_3COO^- may be present.
Dry Heat		

* Test For Acid Radical

	Experiment	Observation	Inference
1.	Salt + Dil HCl	No Reaction	CO_3^{2-}, SO_4^{2-} absent
2.	Salt + conc H_2SO_4	No Reaction	Cl^-, Br^-, I^- NO_3^- are absent.
3.	Salt + water + $BaCl_2$	White ppt is formed	SO_4^{2-} may be present.

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	Exp.	Obs.	Inf.
4.	Salt + water + $\frac{1}{2}$ acidic acid + $\frac{1}{2}$ Lead acetate	White ppt is formed	SO_4^{2-} confirmed.

* **Test For Basic Radical :**

	Experiment	Observation	Inference.
1.	Salt + NaOH	No Reaction	NH_4^+ absent
2.	Salt + Water + Dil HCl & add H_2S	No ppt formed	Pb^{2+} absent.
3.	Salt + NH_4Cl + NH_4OH Dissolve the ppt in HCl and divide it into two parts.	White gelections ppt formed	Al^{3+} may be present.
*	ii) Part (II) + 3-4 drops blue litmus + NH_4OH	Blue ppt floats	Al^{3+} present
	i) Part I + NH_4OH in excess	Gleletions white ppt formed	Al^{3+} present.

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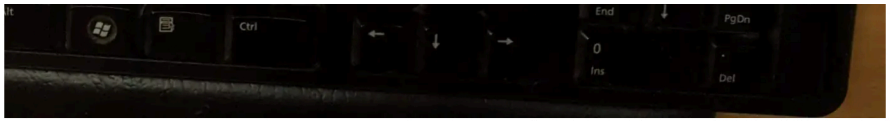

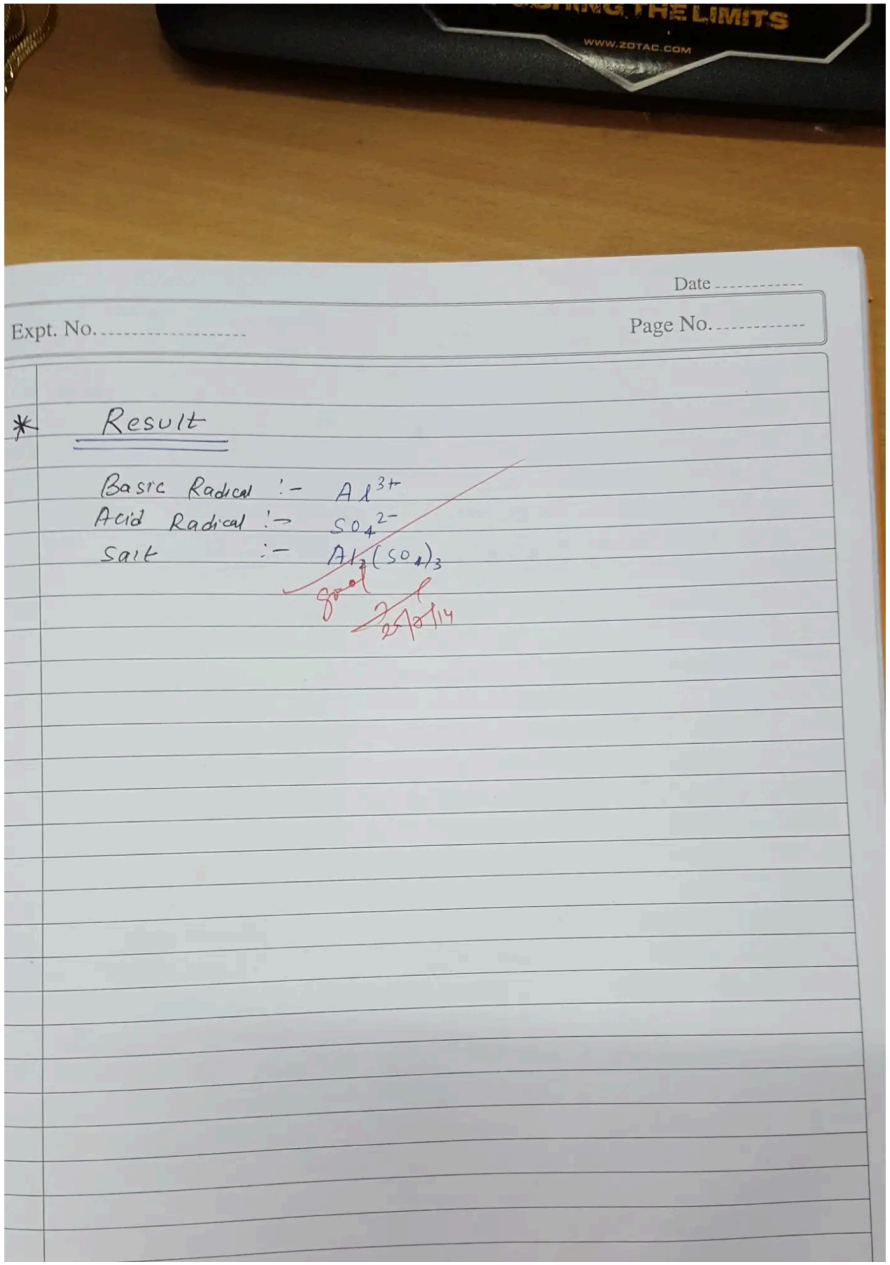
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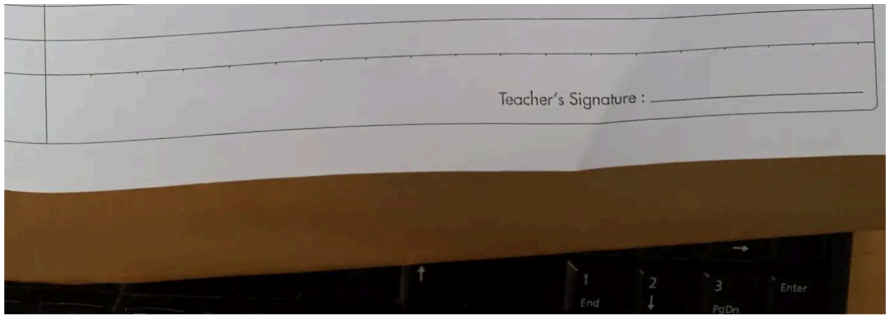
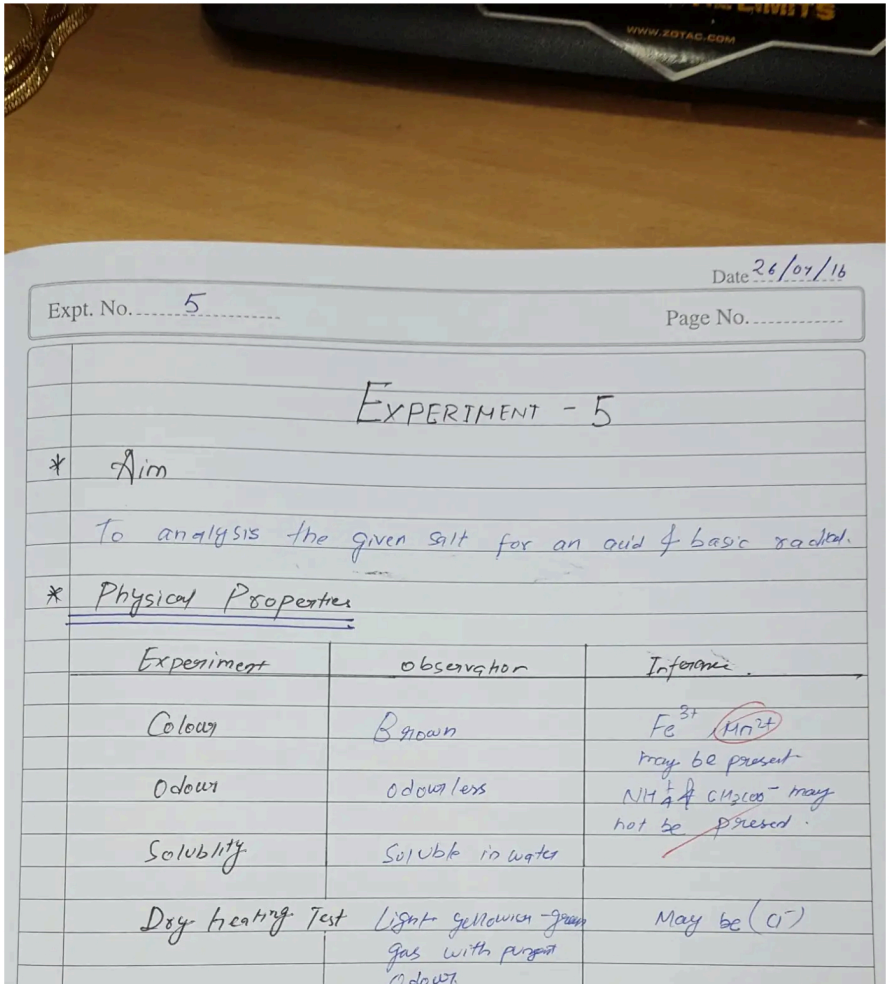
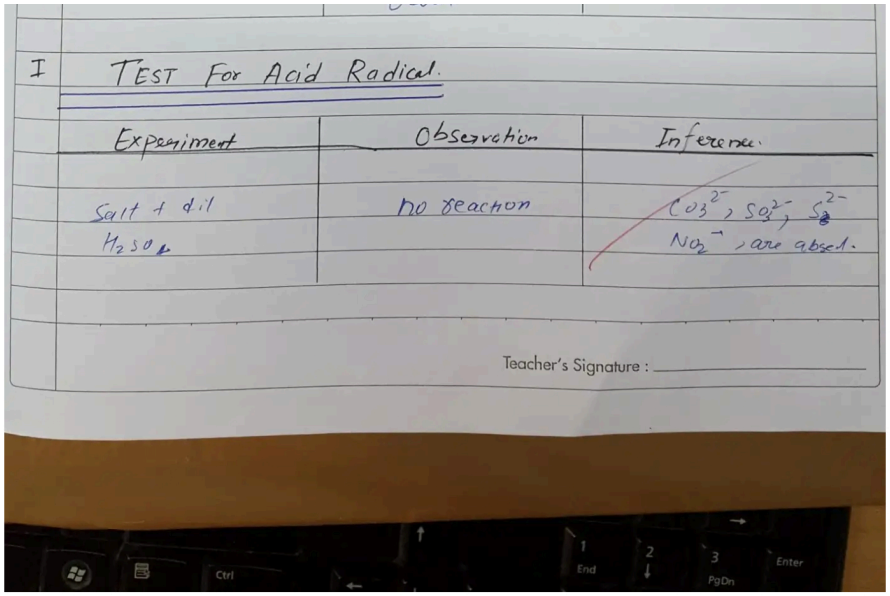
* Result
Basic Radical :- Al^{3+}
Acid Radical :- SO_4^{2-}
Salt :- $Al_2(SO_4)_3$
good
25/8/14



Experiment-4 (FeCl3)

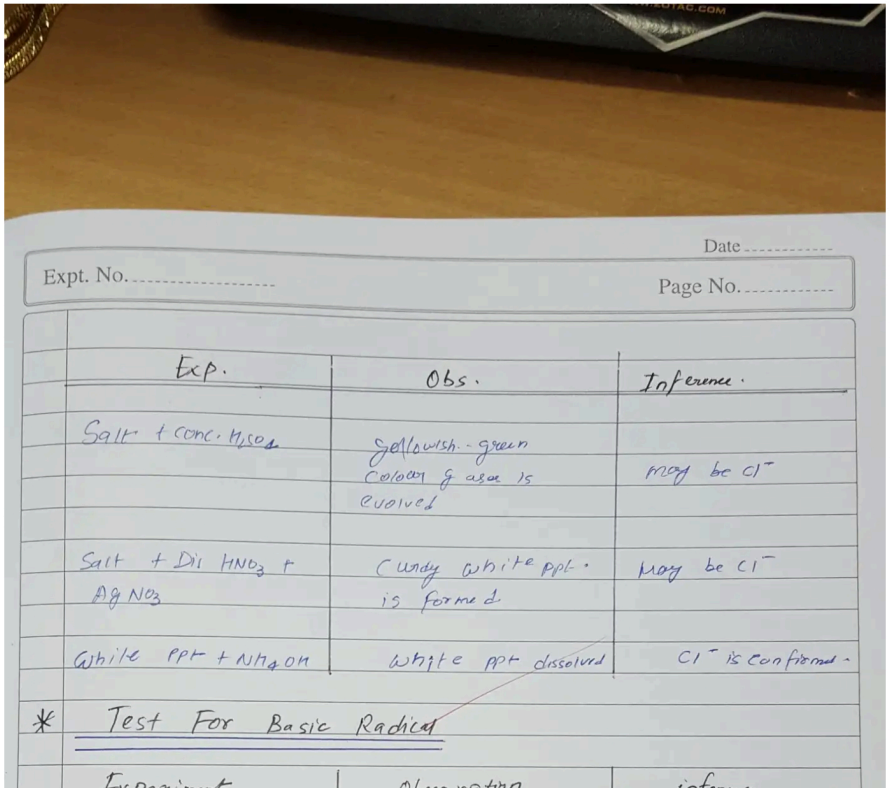




I TEST For Acid Radical.

Experiment	Observation	Inference.
Salt + dil H_2SO_4	No reaction	CO_3^{2-}, SO_3^{2-}, S^{2-} NO_2^-, are absent.

Teacher's Signature : _____



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Exp.	Obs.	Inference.
Salt + conc. H_2SO_4	Yellowish - green colour gas is evolved	may be Cl^-
Salt + Dil HNO_3 + $AgNO_3$	Curdy white ppt. is formed.	may be Cl^-
White ppt + NH_4OH	White ppt dissolved	Cl^- is confirmed.

* Test For Basic Radical

Experiment	Observation	Inference
Salt + NaOH	no reaction	zero group absent
Salt + Dil. HCl	no reaction	1st group absent
Salt + Dil HCl + H_2S	No reaction	2nd group absent
Salt + NH_4Cl + NH_4OH	$Fe(OH)_3$ ↓ Brown	Fe^{3+} absent.
Filter the ppt and dissolve in Dil HCl & divide in 2 parts.		

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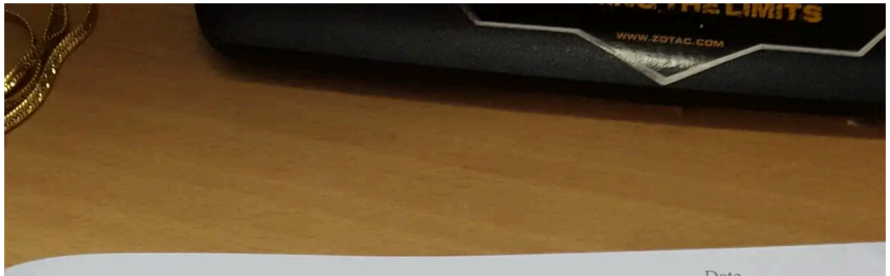

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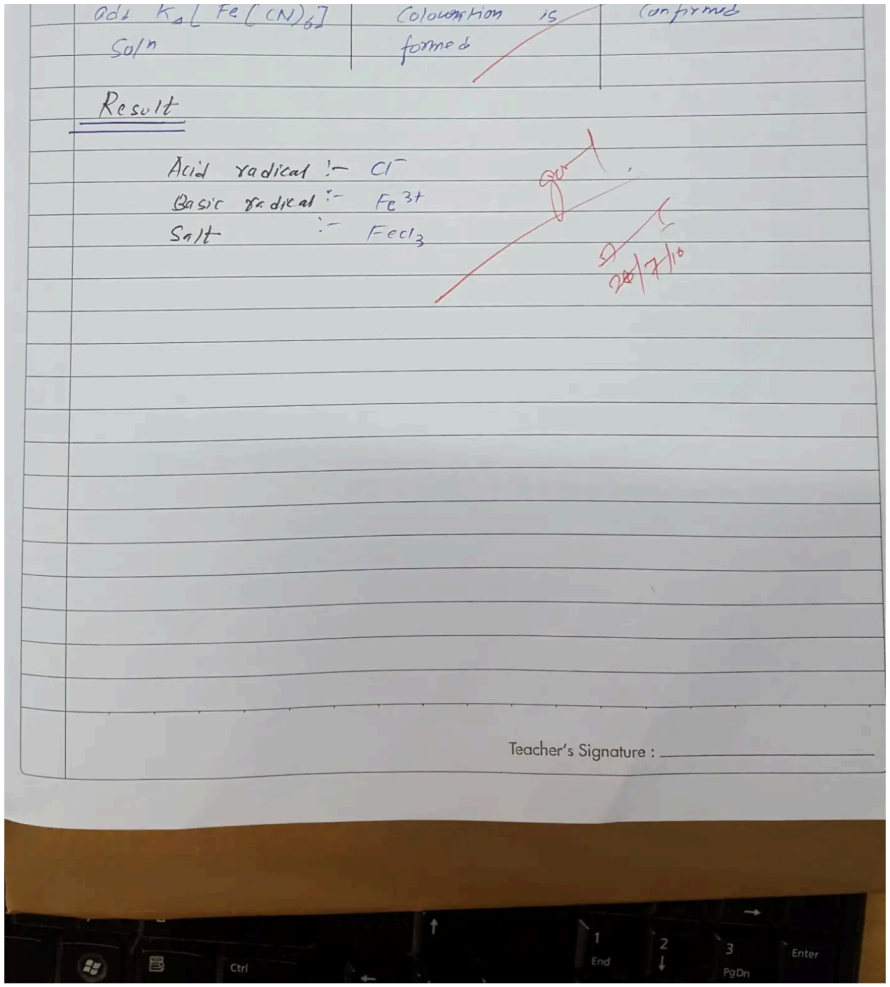
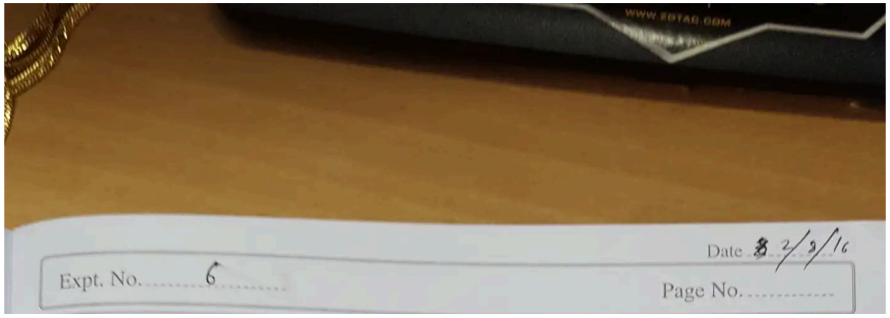
Exp.	Obs.	Inf.
To the first part add potassium sulphocyanide	Blood-red colouration	Fe^{3+} is confirmed.
To the 2nd part	Prussian blue	Fe^{3+} is



Experiment-5 (ZnSo4)



Experiment – 6

* Aim

To analysis the given salt for acid and basic Radical's

* Physical properties.

Experiment	Observation	Inference.
Colour	white	NH_4^+, Pb^{2+}, Al^{3+}, Zn^{2+} may be A
Odour	Odourless	NH_4^+, S^{2-}, CH_3COO^- may be A
Solubility	partially soluable	
Dry Heating Test	NO evolution of colourless gas with NO ammonia Odour	CH_3COO^- not present NH_4^+ not present.

I Test For Acid Radical

Experiment	Observation	Inference.
Salt + dil ~~H_2SO_4~~ HCl	No Reaction	CO_3^{2-}, SO_3^{2-}, S^{2-} are absent
Salt + Conc. H_2SO_4	No Reaction	Cl^-, Br^-, I^-, NO_3^-, CH_3COO^-, $C_2O_4^{2-}$ are absent.
Salt + H_2O + dil HCl + $BaCl_2$	white ppt. is formed.	may be SO_4^{2-}

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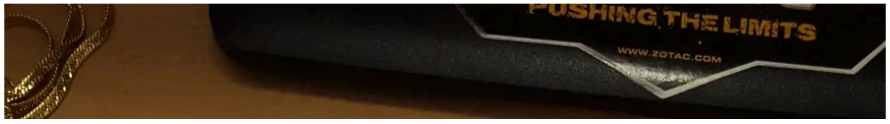

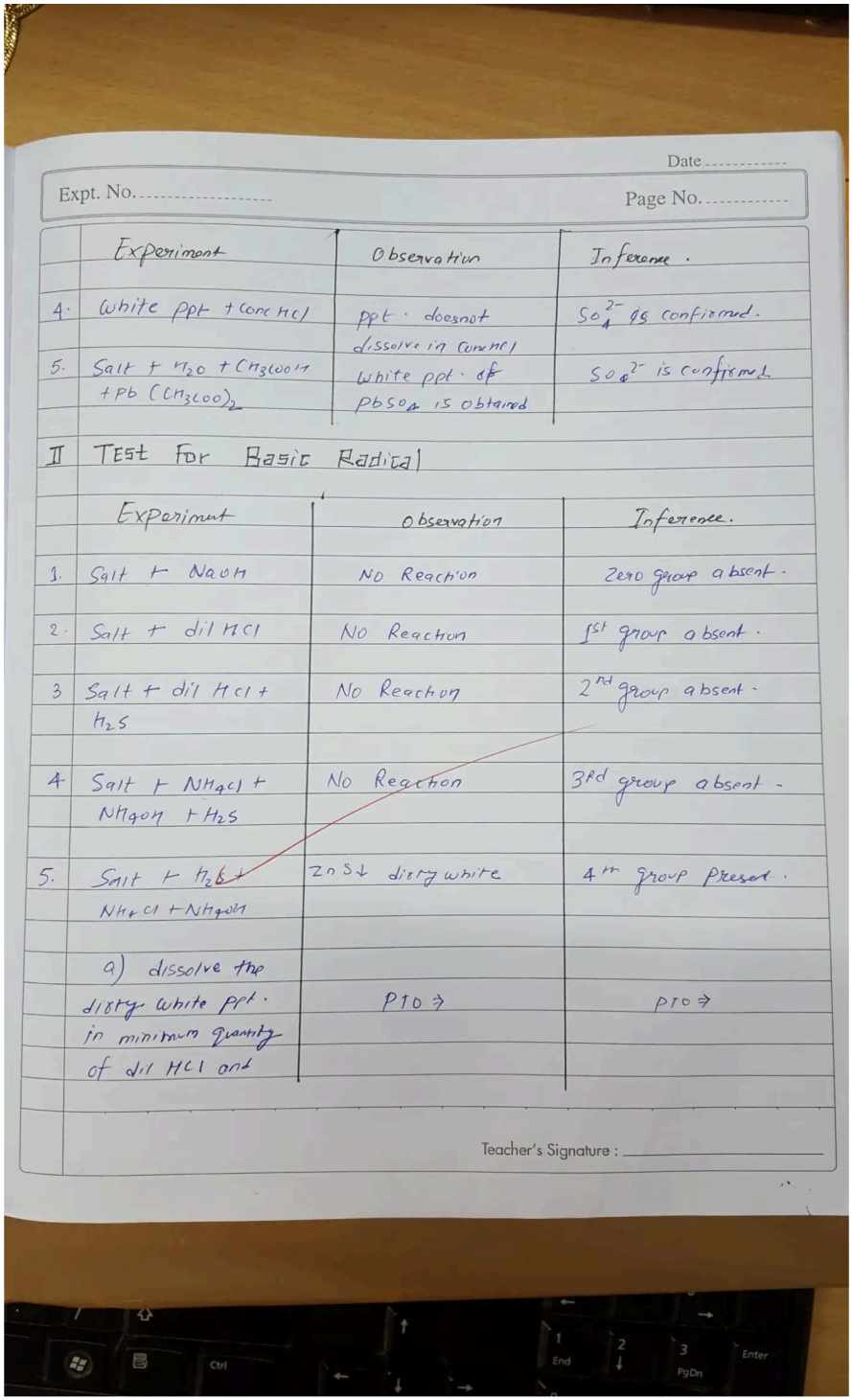

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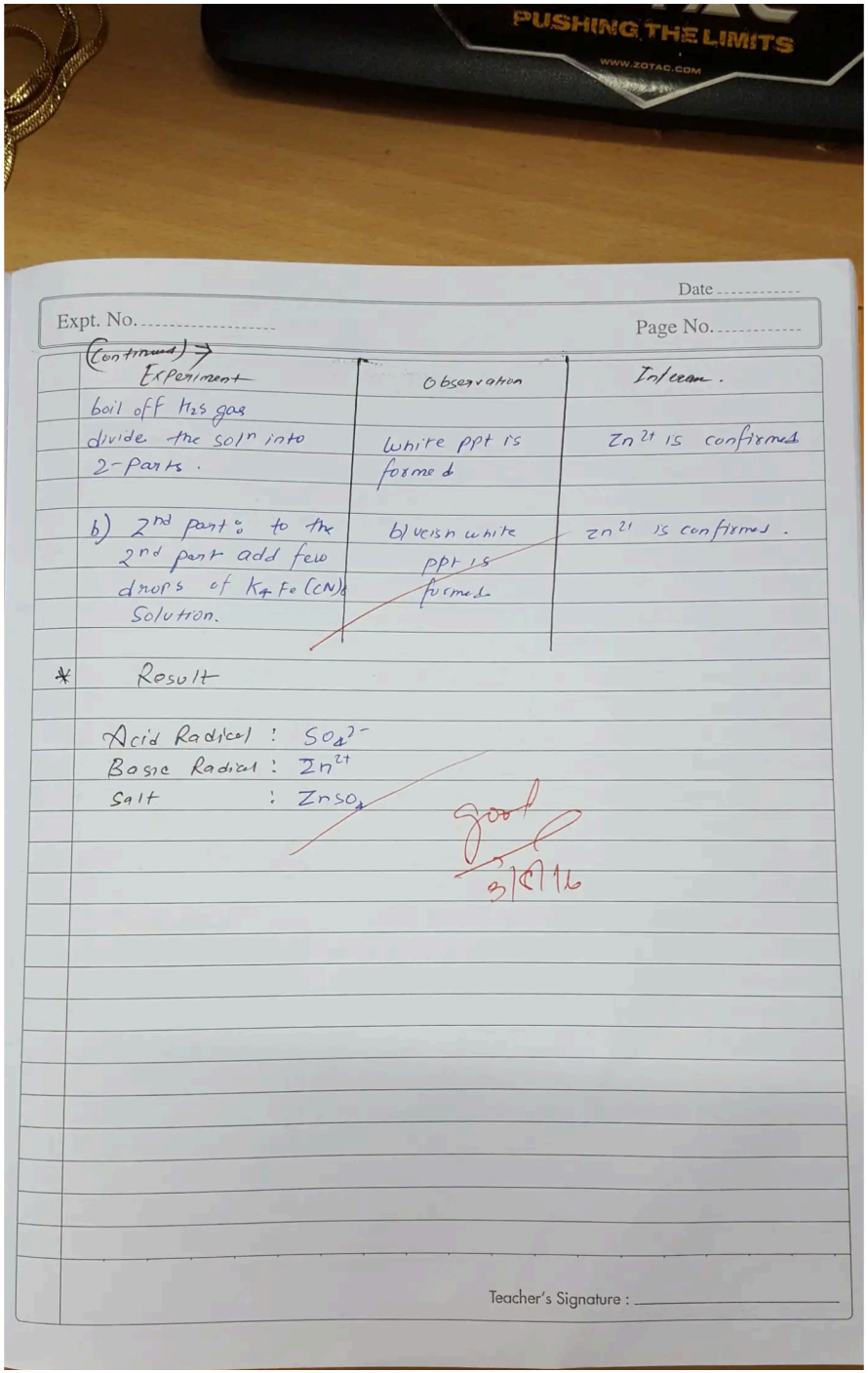
	Experiment	Observation	Inference.
4.	White ppt + conc HCl	ppt. doesnot dissolve in conc HCl	SO_4^{2-} is confirmed.
5.	Salt + H_2O + CH_3COOH + $Pb(CH_3COO)_2$	White ppt. of $PbSO_4$ is obtained	SO_4^{2-} is confirmed.

II Test For Basic Radical

	Experiment	Observation	Inference.
1.	Salt + NaOH	No Reaction	Zero group absent.
2.	Salt + dil HCl	No Reaction	1st group absent.
3	Salt + dil HCl + H_2S	No Reaction	2nd group absent.
4.	Salt + NH_4Cl + NH_4OH + H_2S	No Reaction	3Rd group absent.
5.	Salt + H_2S + NH_4Cl + NH_4OH	ZnS↓ dirty white	4th group Present.
	a) dissolve the dirty white ppt. in minimum quantity of dil HCl and	PTO →	PTO →

Teacher's Signature : _____



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(Continued) → Experiment	Observation	Inference.
boil off H_2S gas divide the soln into 2-parts.	White ppt is formed	Zn^{2+} is confirmed
b) 2nd part to the 2nd part add few drops of $K_4Fe(CN)_6$ Solution.	b) Yellow white ppt is formed.	Zn^{2+} is confirmed.

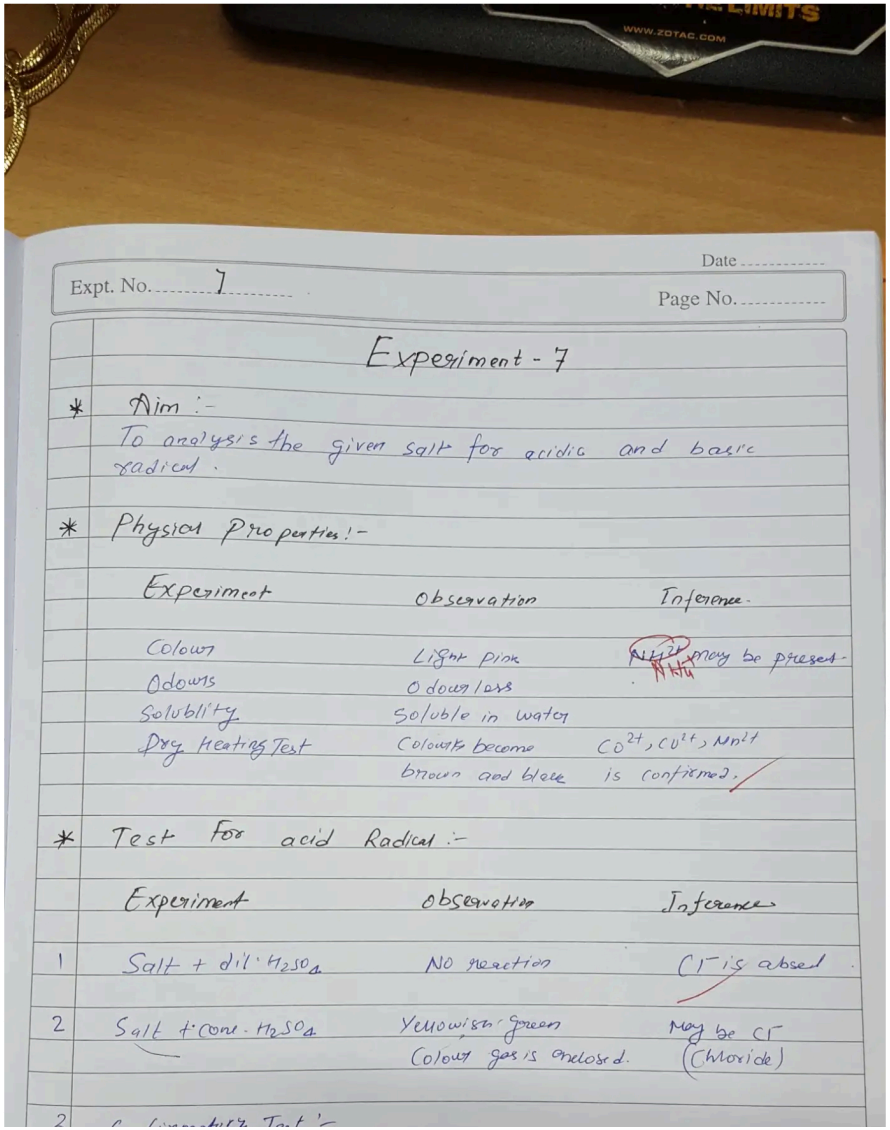
* Result

Acid Radical : SO_4^{2-}
Basic Radical : Zn^{2+}
Salt : $ZnSO_4$

Good
3/8/16

Teacher's Signature :

> *Experiment-6 (MnCl2)*



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Experiment - 7

* Aim :-

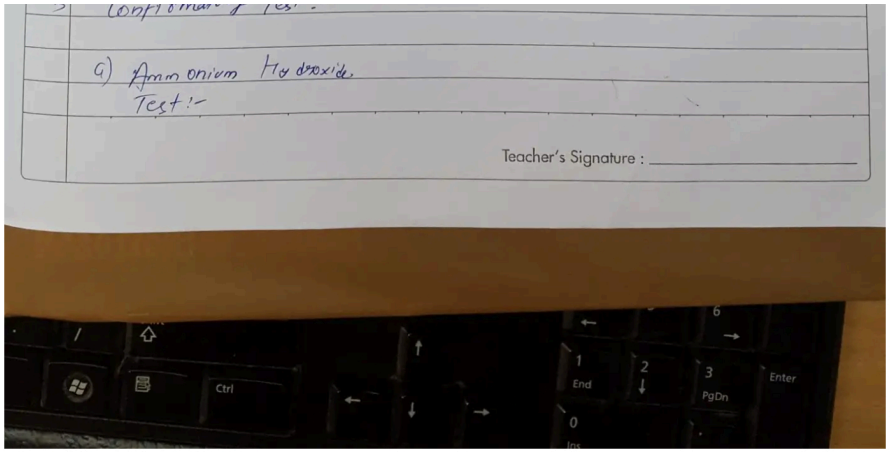
To analysis the given salt for acidic and basic radical.

* Physical Properties :-

Experiment	Observation	Inference
Colour	Light pink	NH_4^+ may be present.
Odours	Odourless	
Solublity	Soluble in water	
Dry Heating Test	Colour become brown and blue	Co^{2+}, Cu^{2+}, Mn^{2+} is confirmed.

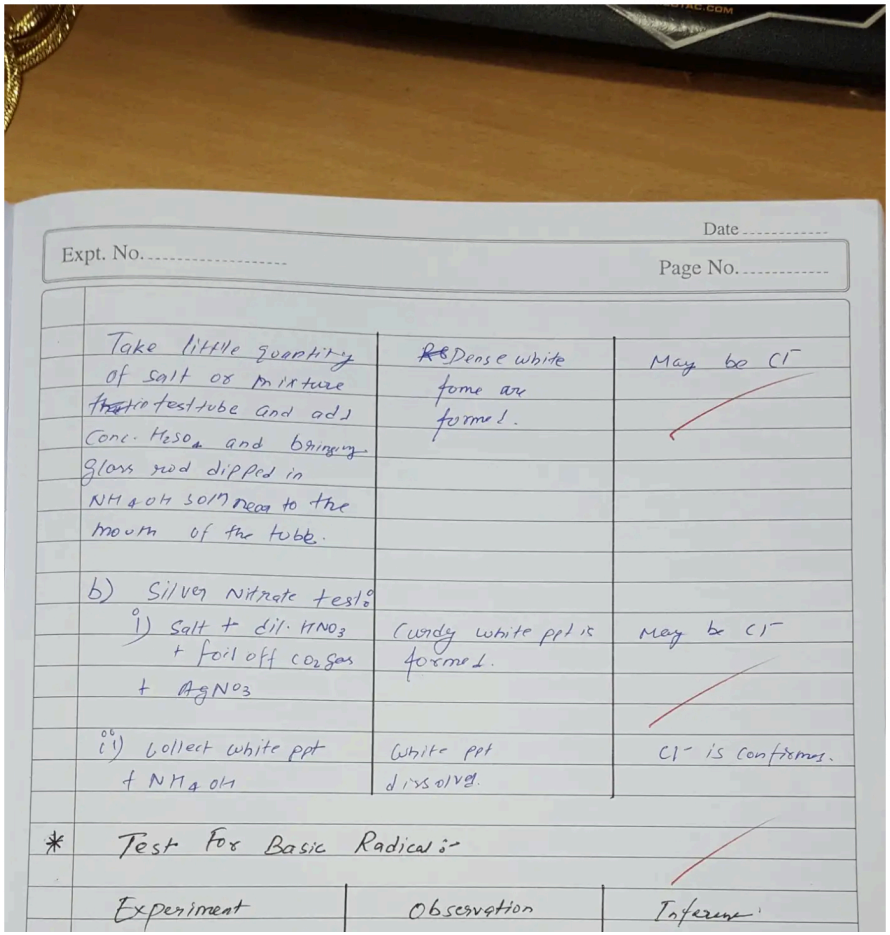
* Test For acid Radical :-

	Experiment	observation	Inference
1	Salt + dil. H_2SO_4	No reaction	Cl^- is absent.
2	Salt + conc. H_2SO_4	Yellowish green Colour gas is enclosed.	May be Cl^- (Chloride)



g) Ammonium Hydroxide Test :-

Teacher's Signature : _____



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Take little quantity of salt or mixture in test tube and add Conc. H_2SO_4 and bringing glass rod dipped in NH_4OH soln near to the mouth of the tube.	Dense white fume are formed.	May be Cl^-
b) Silver Nitrate test :-		
i) Salt + dil. HNO_3 + boil off CO_2 gas + $AgNO_3$	Curdy white ppt is formed.	May be Cl^-
ii) Collect white ppt + NH_4OH	White ppt dissolved.	Cl^- is confirmed.

* Test For Basic Radicals :-

Experiment	Observation	Inference

1	Salt + NaOH	NO reaction	0th group absent
2	Salt + dil HCl	NO reaction	1st group absent.
3	Salt + dil. HCl + H_2S	NO Reaction	2Rd group absent.
4	Salt + NH_4Cl + NH_4OH	NO - reaction	3Rd group absent.
5	Salt + NH_4Cl + NH_4OH + H_2S	Light Pink ppt is formed and buzz colour ppt is formed.	4th group present.

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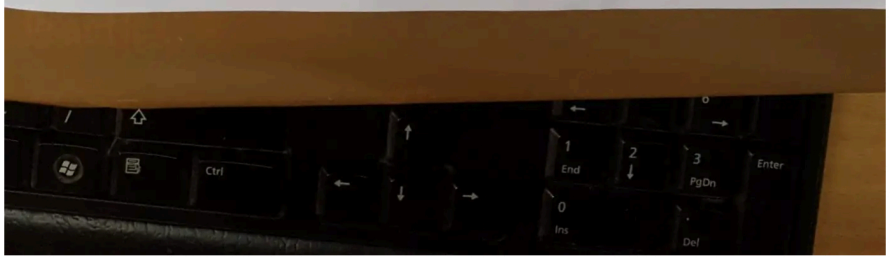

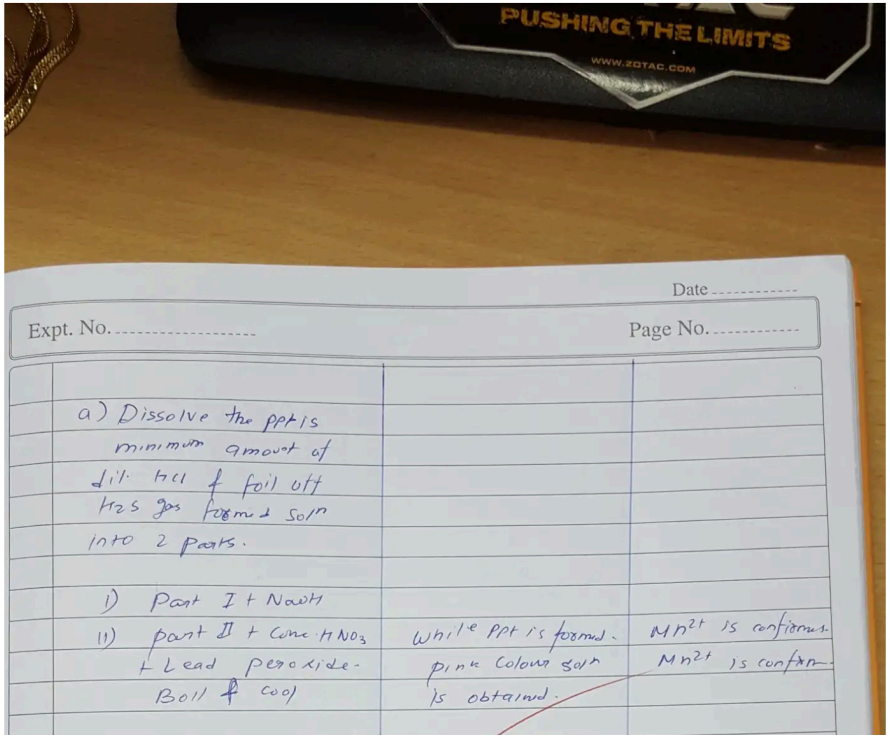

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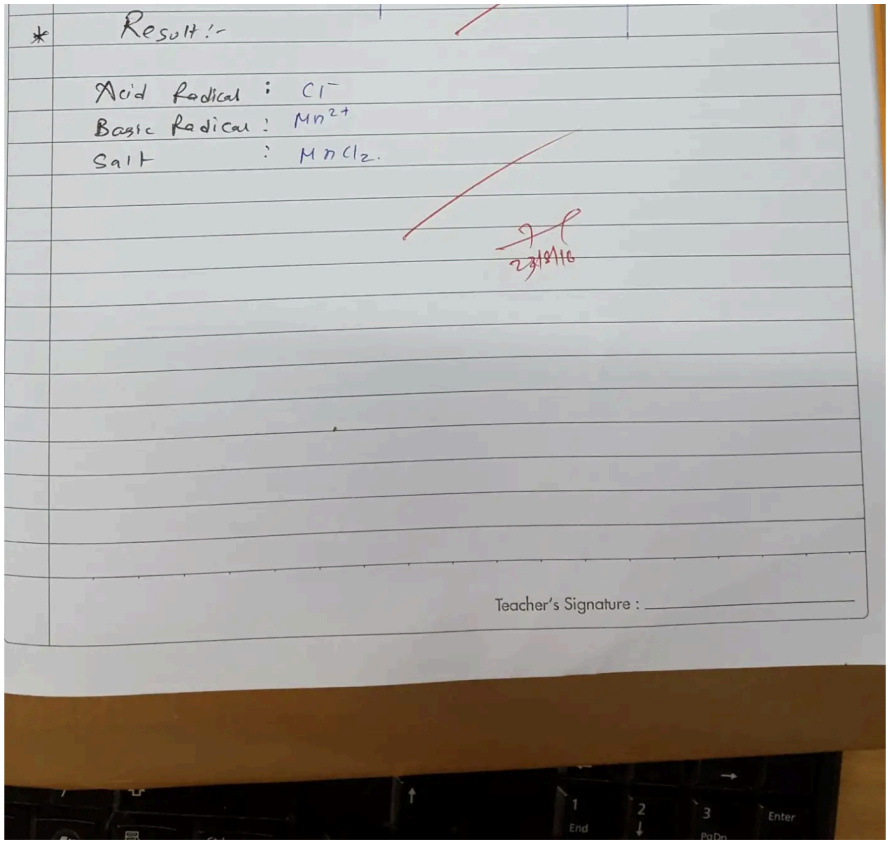
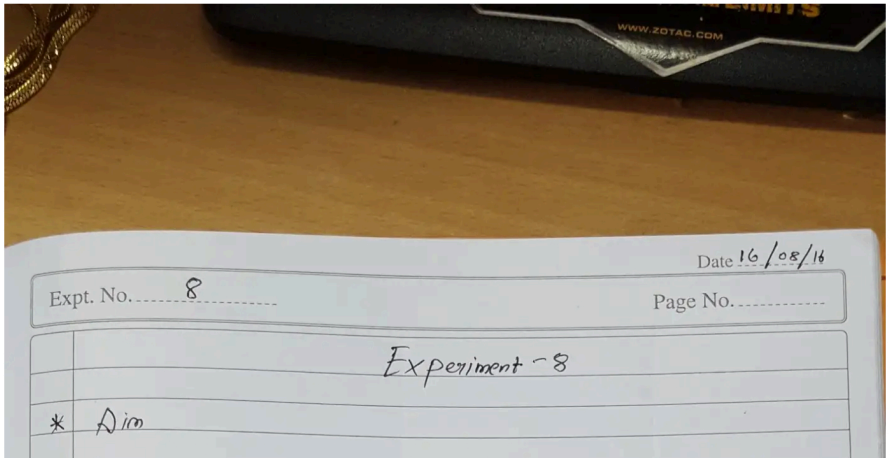
a) Dissolve the ppt is minimum amount of dil. HCl & boil off H_2S gas formed soln into 2 parts.

1) Part I + NaOH		
11) part II + Conc. HNO_3 + Lead peroxide. Boil & cool	While ppt is formed. Pink colour soln is obtained.	Mn^{2+} is confirms. Mn^{2+} is confirm.



> *Experiment 7 (NiSo4)*



To analysis the given salt for acid and basic radical -

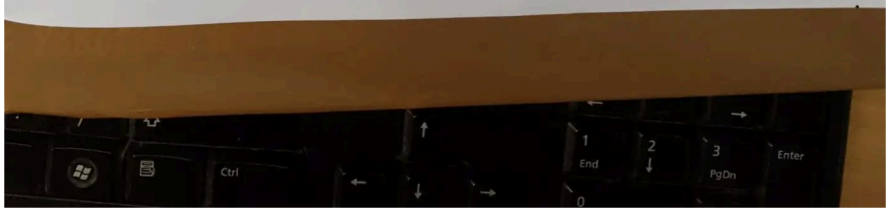
* Physical properties

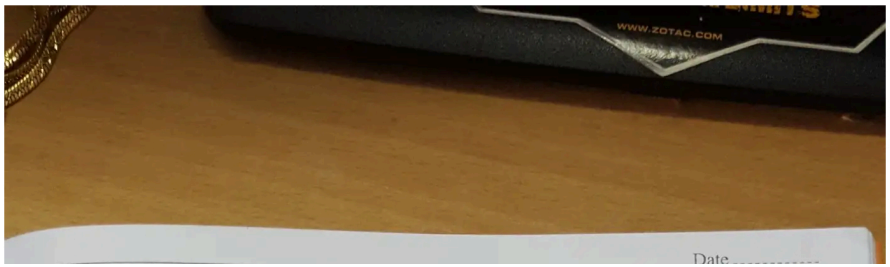
Experiment	Observation	Inference
Colour	Green	Ni^{2+}, Cu^{2+} may be present -
Odour	odour /ess	NH_4^+, CH_3COO^-, S^{2-} may be absent.
Dry Heating Test	NO evolution of → Colourless gas with pungent smell, NO.	CH_3COO^- absent
	Evolution of colourless gas → with no odour appearing	NH_4^+ absent.

* Test for Acid Radical :-

	Experiment	Observation	Inference
1	Salt + dil HCl	NO Rxn	CO_3^{2-}, NO_2^-, SO_3^{2-} S^{2-}, absent.

Teacher's Signature : _____





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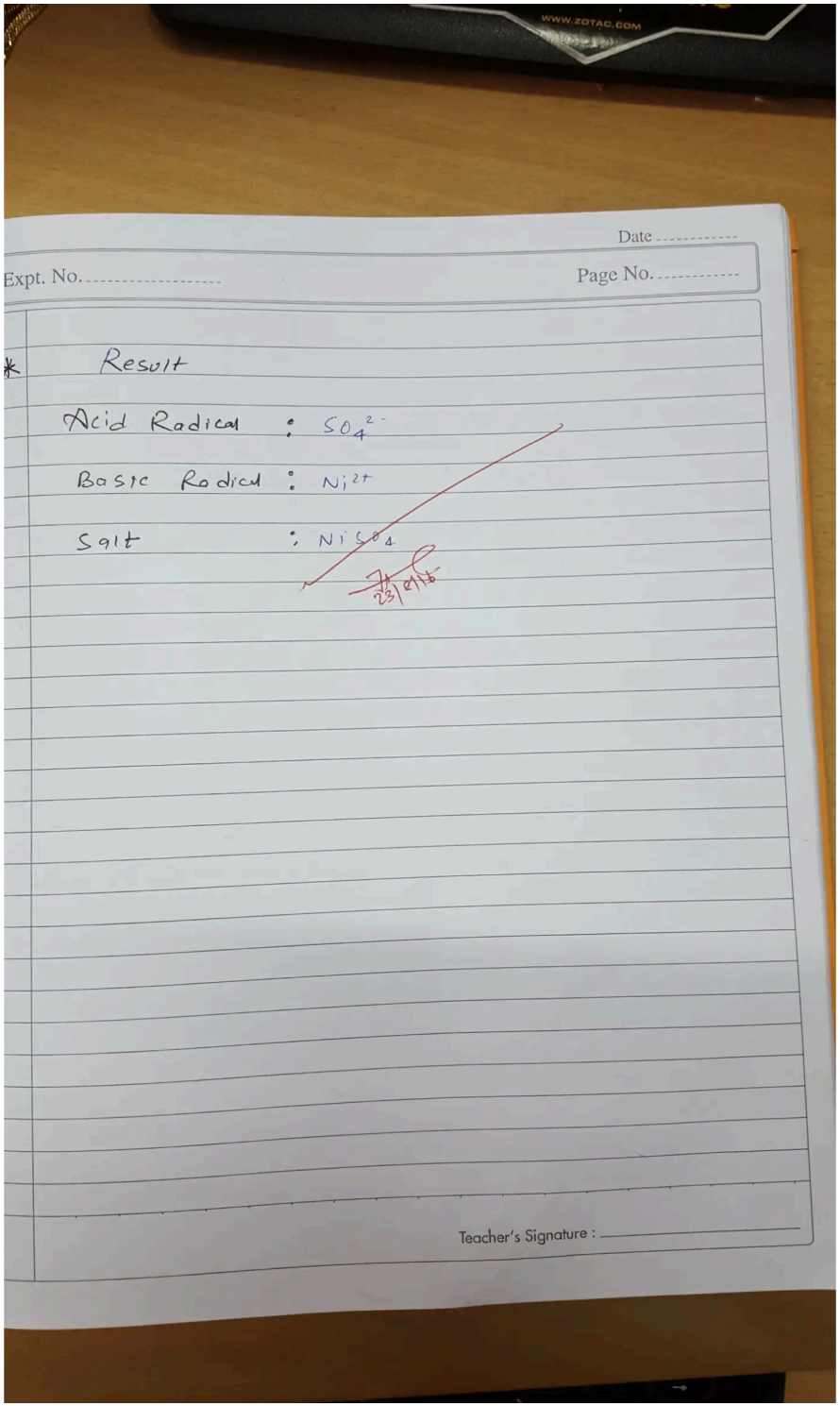
2.	Salt + Conc H_2SO_4	No reaction	Cl^-, Br^-, I^-, NO_3^- CH_3COO^- are absent.
3.	Salt + H_2O + $BaCl_2$	White ppt is formed.	SO_4^{2-} may be present.
4.	Salt + H_2O + acetic acid + $Pb_2(CH_3COO)_2$	White ppt is formed	SO_4^{2-} is confirmed.

* Test For Basic Radical.

	Experiment	observation	Inference.
1	Salt + NaOH	No reaction	Zero group absent
2	Salt + dil HCl	No Reaction	1st group absent.
3	Salt + dil. HCl + H_2S	No Reaction	2nd group absent.
4.	Salt + NH_4Cl + NH_4OH	No Reaction	3Rd group absent.
5	Salt + NH_4Cl + NH_4OH + H_2S	In presence of NH_4Cl & NH_4OH Ni↓ (Black)	4th group present.
	Dissolve the residue in distilled water NH_4OH + DMG	Bright rose-red ppt. in front	Ni^{2+} is confirm.

Teacher's Signature : _____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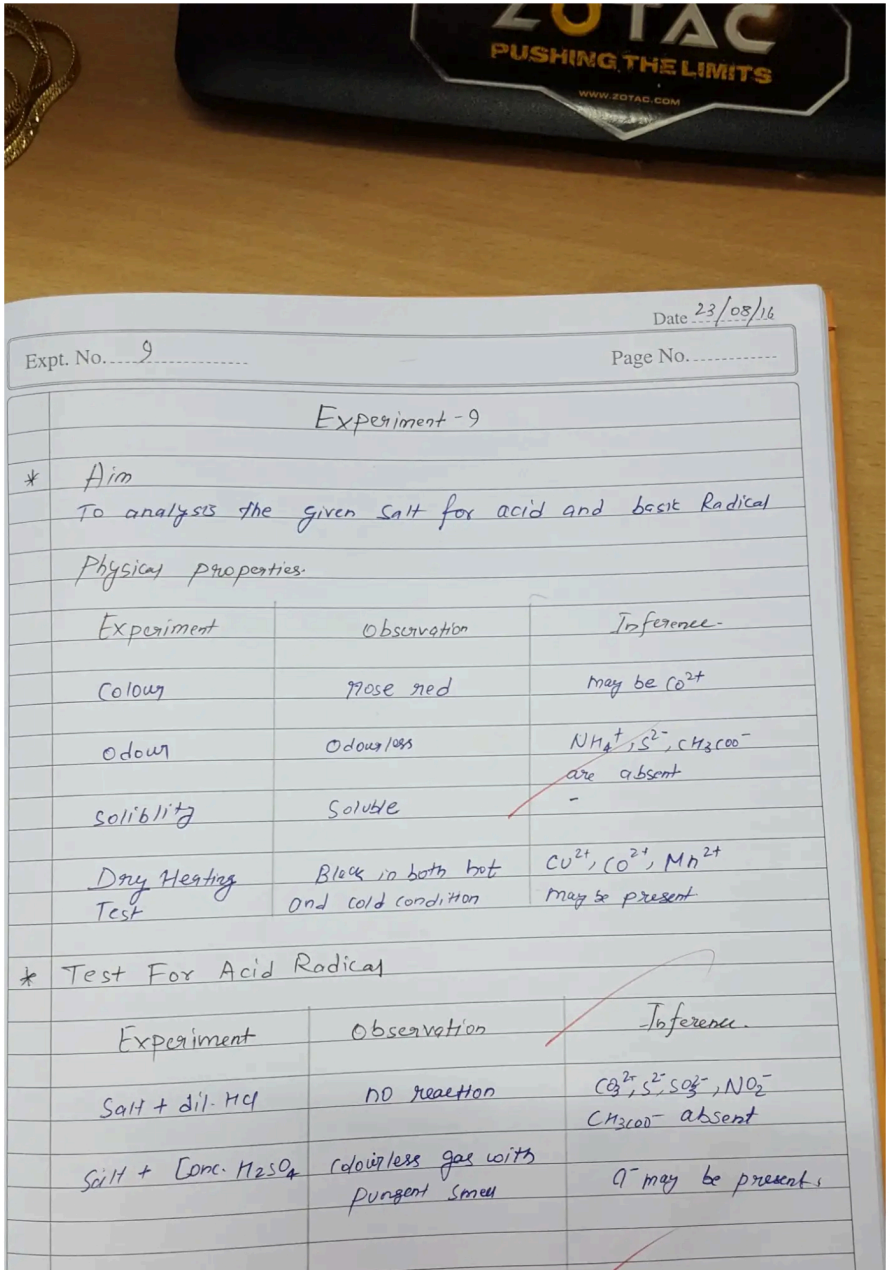
Date
Expt. No.
Page No.
* Result
Acid Radical : SO_4^{2-}
Basic Radical : Ni^{2+}
Salt : $NiSO_4$
23/9/15
Teacher's Signature :

Experiment 8 (CoCl2)



Date 23/08/16

Expt. No. 9 Page No.

Experiment - 9

* Aim

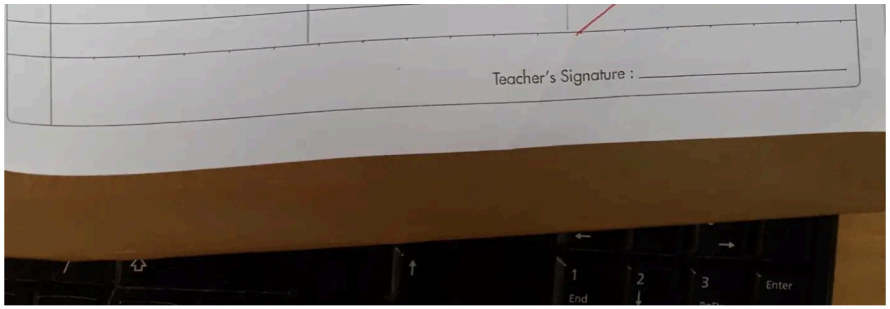
To analysis the given salt for acid and basic Radical

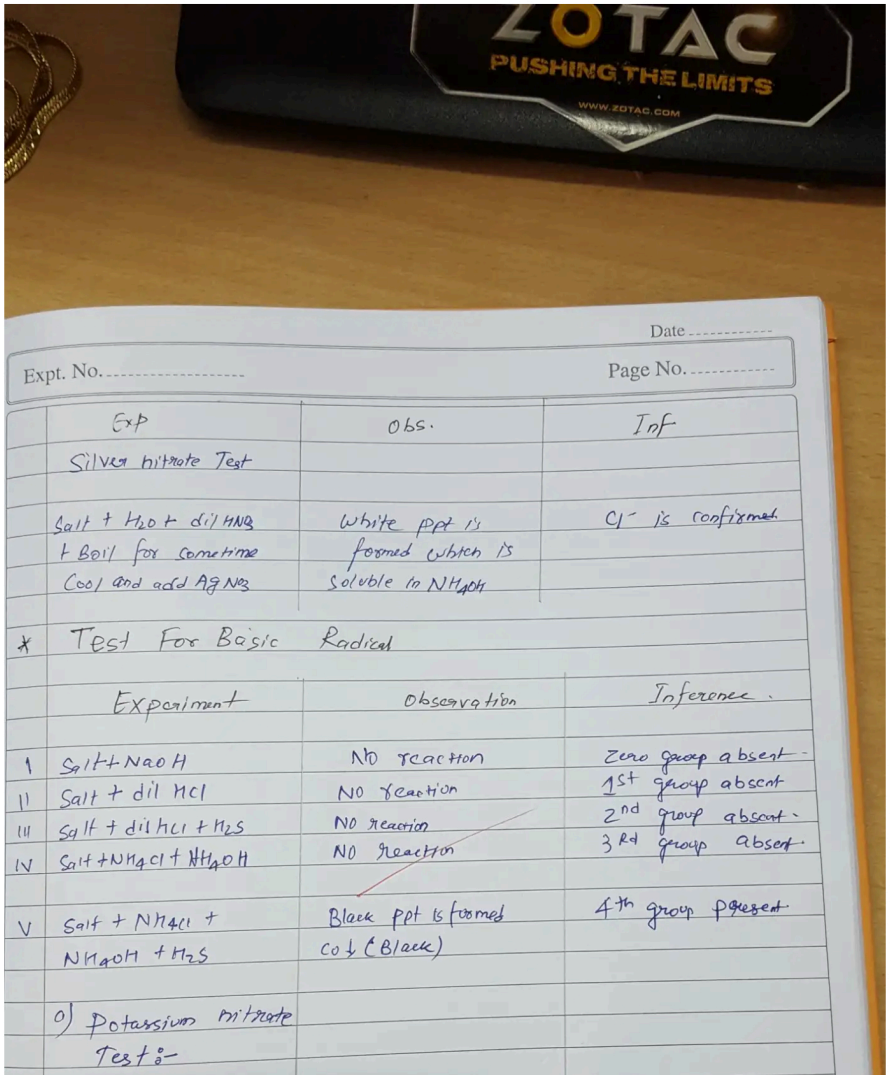
Physical properties.

Experiment	Observation	Inference
Colour	Rose red	may be Co^{2+}
Odour	Odourless	NH_4^+, S^{2-}, CH_3COO^- are absent
Solibility	Soluble	-
Dry Heating Test	Black in both hot and cold condition	Cu^{2+}, Co^{2+}, Mn^{2+} may be present

* Test For Acid Radical

Experiment	Observation	Inference
Salt + dil. HCl	no reaction	CO_3^{2-}, S^{2-}, SO_3^{2-}, NO_2^- CH_3COO^- absent
Salt + Conc. H_2SO_4	Colourless gas with pungent smell	Cl^- may be present.





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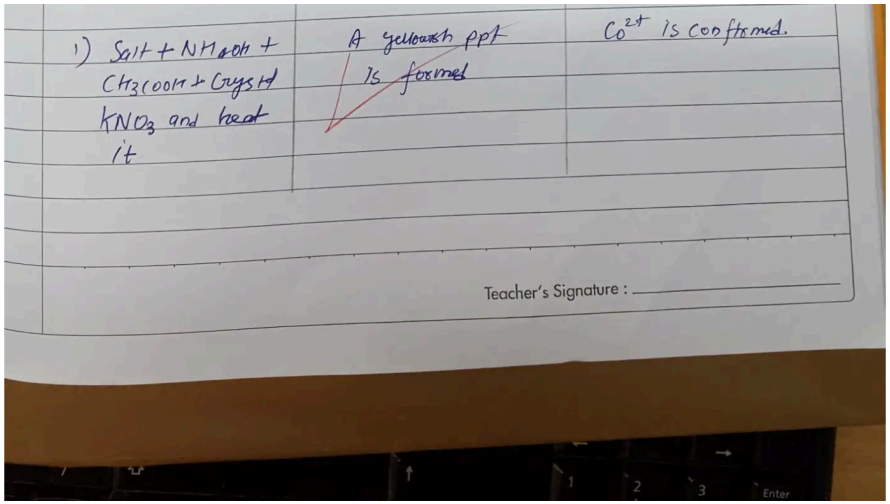
Expt. No. ..... Page No. .....

	Exp	Obs.	Inf
	Silver nitrate Test		
	Salt + H_2O + dil HNO_3 + Boil for sometime Cool and add $AgNO_3$	White ppt is formed which is soluble in NH_4OH	Cl^- is confirmed

★ Test For Basic Radical

	Experiment	Observation	Inference.
I	Salt + NaOH	No reaction	Zero group absent.
II	Salt + dil HCl	No reaction	1st group absent
III	Salt + dil HCl + H_2S	No reaction	2nd group absent.
IV	Salt + NH_4Cl + NH_4OH	No reaction	3 Rd group absent.
V	Salt + NH_4Cl + NH_4OH + H_2S	Black ppt is formed $CoS\downarrow$ (Black)	4th group present.

a) Potassium nitrate Test :-



1) Salt + NH_4OH + CH_3COOH + Cryst KNO_3 and heat it	A yellowish ppt is formed	Co^{2+} is confirmed.

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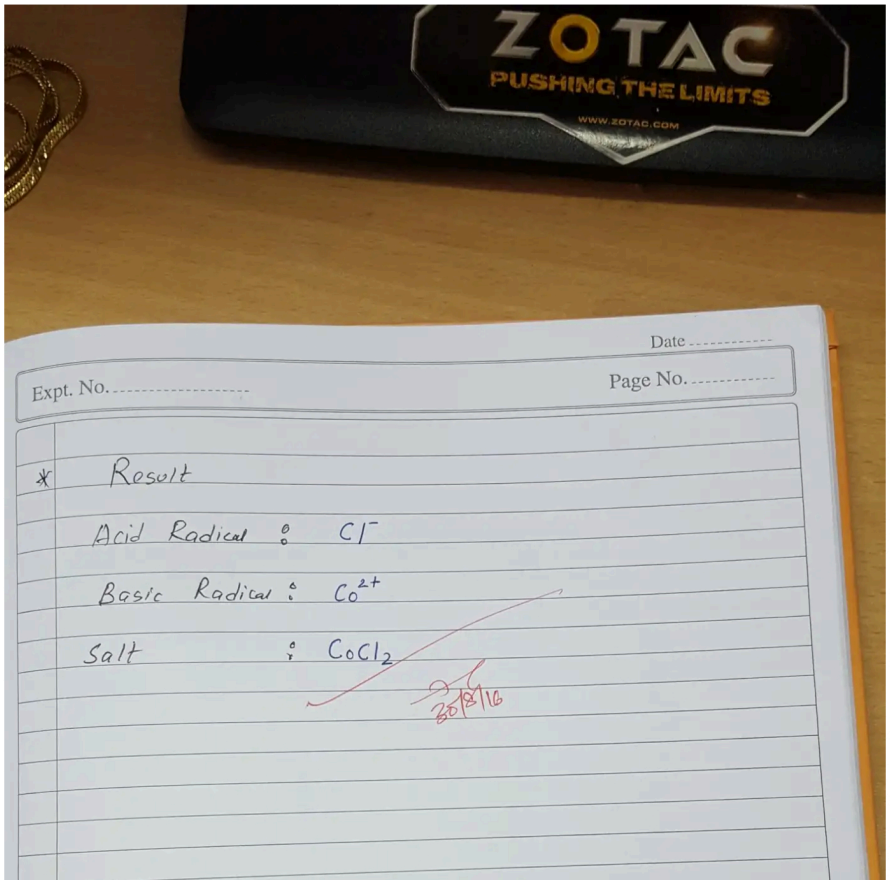

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Expt. No. _____ Page No. _____

* Result

Acid Radical : Cl^-

Basic Radical : Co^{2+}

Salt : $CoCl_2$

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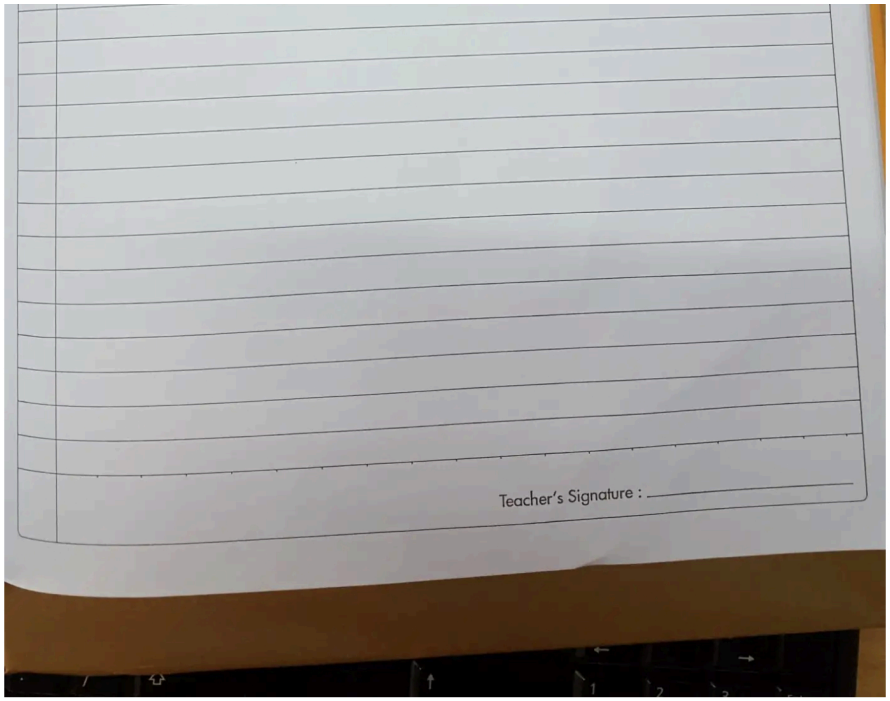
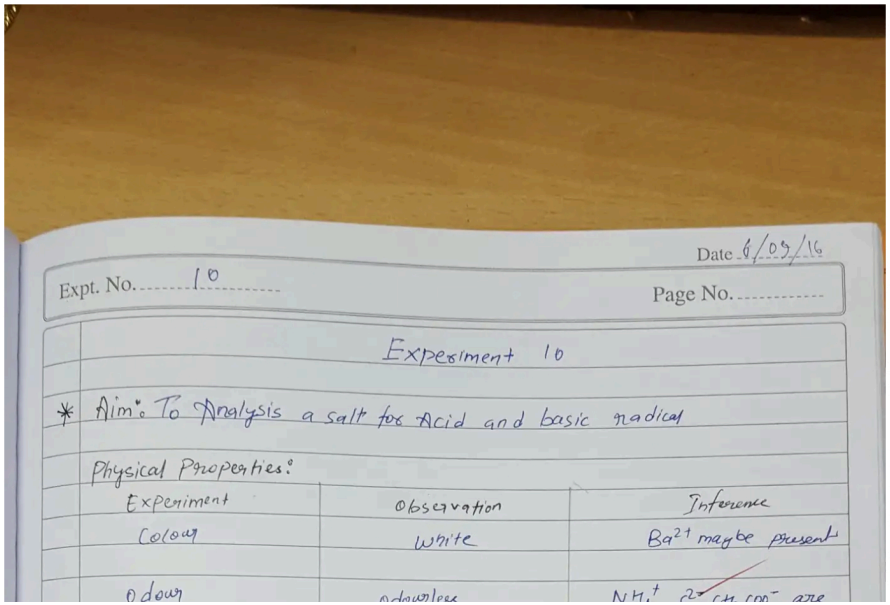


Experiment 9 (BaCl2)

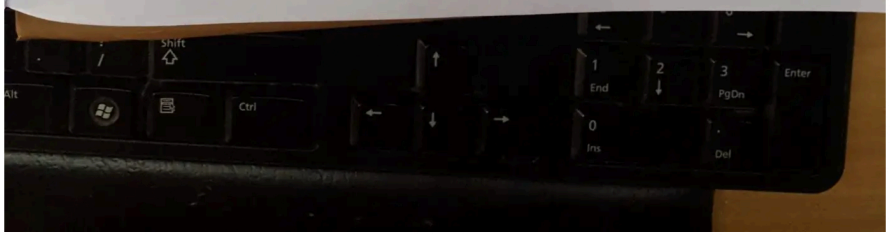


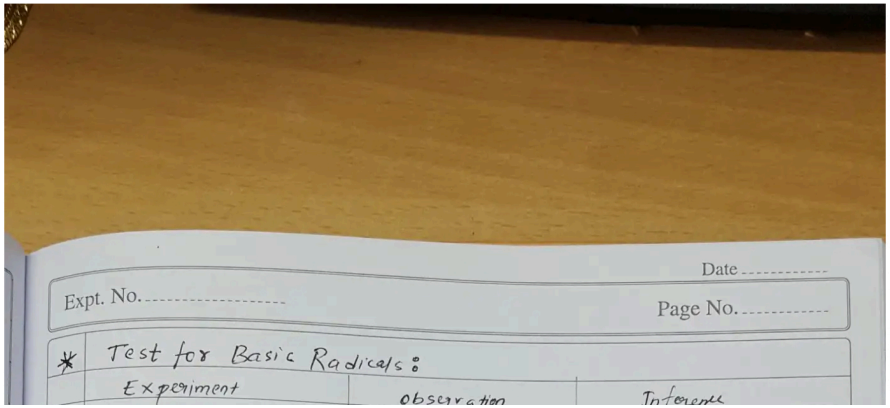
		absent
Solubility	Soluble in H_2O	
Dry Heating test	Light yellowish gas with pungent smell	May be Cl^-

I TEST FOR ACID RADICALS.

Experiment	observation	Inference
Salt + dil. H_2SO_4	No reaction	CO_3^{2-}, S^{2-}, SO_3^{2-} NO_2^- are absent
Salt + conc. H_2SO_4	Yellowish-green Colourless gas is evolved with pungent smell	May be Chloride Cl^-
→ a) Ammonium Hydroxide Test: Silver Ni'test Salt + H_2O + HNO_3 + $AgNO_3$	White ppt form soluble in excess of NaOH	Cl^- is confirmed.

Teacher's Signature : _____





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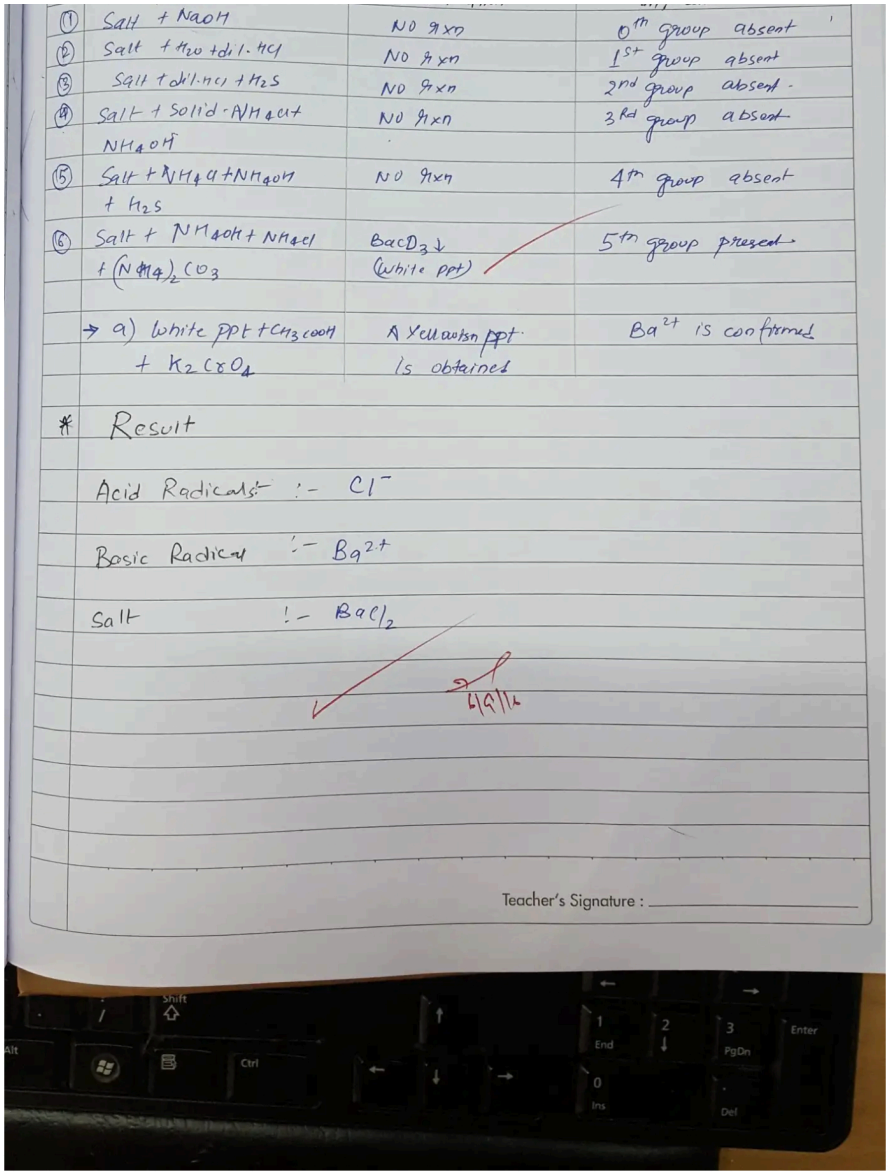
* Test for Basic Radicals:

Experiment	observation	Inference



①	Salt + NaOH	NO Rxn	0th group absent
②	Salt + H_2O + dil. HCl	NO Rxn	1st group absent
③	Salt + dil. HCl + H_2S	NO Rxn	2nd group absent
④	Salt + Solid NH_4Cl + NH_4OH	NO Rxn	3Rd group absent
⑤	Salt + NH_4Cl + NH_4OH + H_2S	NO Rxn	4th group absent
⑥	Salt + NH_4OH + NH_4Cl + $(NH_4)_2CO_3$	$BaCO_3$ ↓ (White ppt)	5th group present
→	a) White ppt + CH_3COOH + K_2CrO_4	A Yellowish ppt is obtained	Ba^{2+} is confirmed

* Result

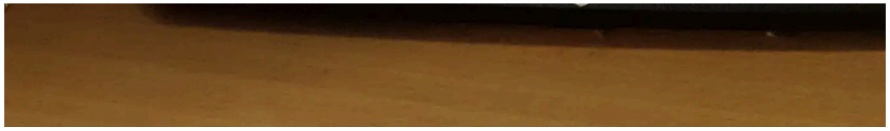
Acid Radical :- Cl^-

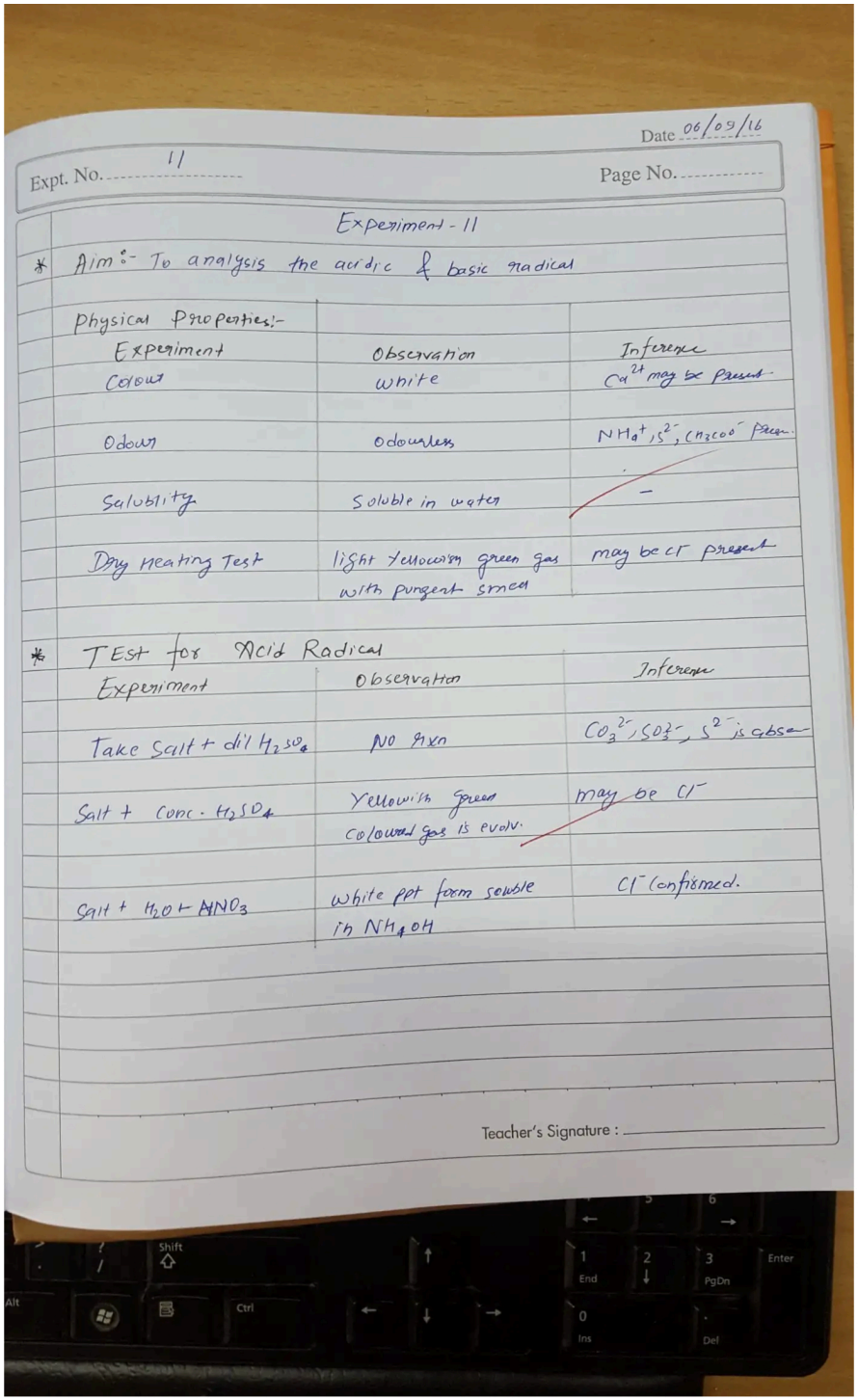
Basic Radical :- Ba^{2+}

Salt :- $BaCl_2$

Teacher's Signature : _____

Experiment 10 (CaCl2)





Date 06/09/16

Expt. No. 11 Page No.

Experiment - 11

* Aim :- To analysis the acidic & basic radical

Physical Properties:-

Experiment	Observation	Inference
Colour	White	Ca^{2+} may be present.
Odour	Odourless	NH_4^+, S^{2-}, CH_3COO^- Pres.
Solubility	Soluble in water	–
Dry Heating Test	light Yellowish green gas with pungent smell	may be Cl present

* TEst for Acid Radical

Experiment	Observation	Inference
Take Salt + dil H_2SO_4	No Rxn	CO_3^{2-}, SO_3^{2-}, S^{2-} is abse
Salt + Conc. H_2SO_4	Yellowish green coloured gas is evolv.	may be Cl^-
Salt + H_2O + $AgNO_3$	White ppt form sowble in NH_4OH	Cl^- confirmed.

Teacher's Signature :

Date

Expt. No. Page No.

Test For Basic Radical:

	Experiment	Observation	Inference
(1)	Salt + NaOH	No gas	0th group absent
(2)	Salt + H₂O + HCl	no rxn	1st group absent
(3)	Salt + dil HCl + H_2S	no rxn	2nd group absent
(4)	Salt + $NH_4Cl + NH_4OH$	no rxn	3rd group absent
(5)	Salt + $NH_4Cl + NH_4OH + H_2S$	no rxn	4th group absent
(6)	Salt + $NH_4Cl + NH_4OH + (NH_4)_2CO_3$	$CaCO_3\downarrow$ (white ppt)	5th group present
→ a)	White ppt + ammonium oxalate soln.		Ca^{2+} confirmed.

* Result :-

Acid Radical :- Cl^-

Basic Radical :- Ca^{2+}

Salt :- $CaCl_2$

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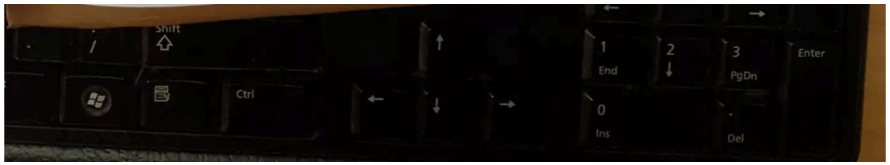
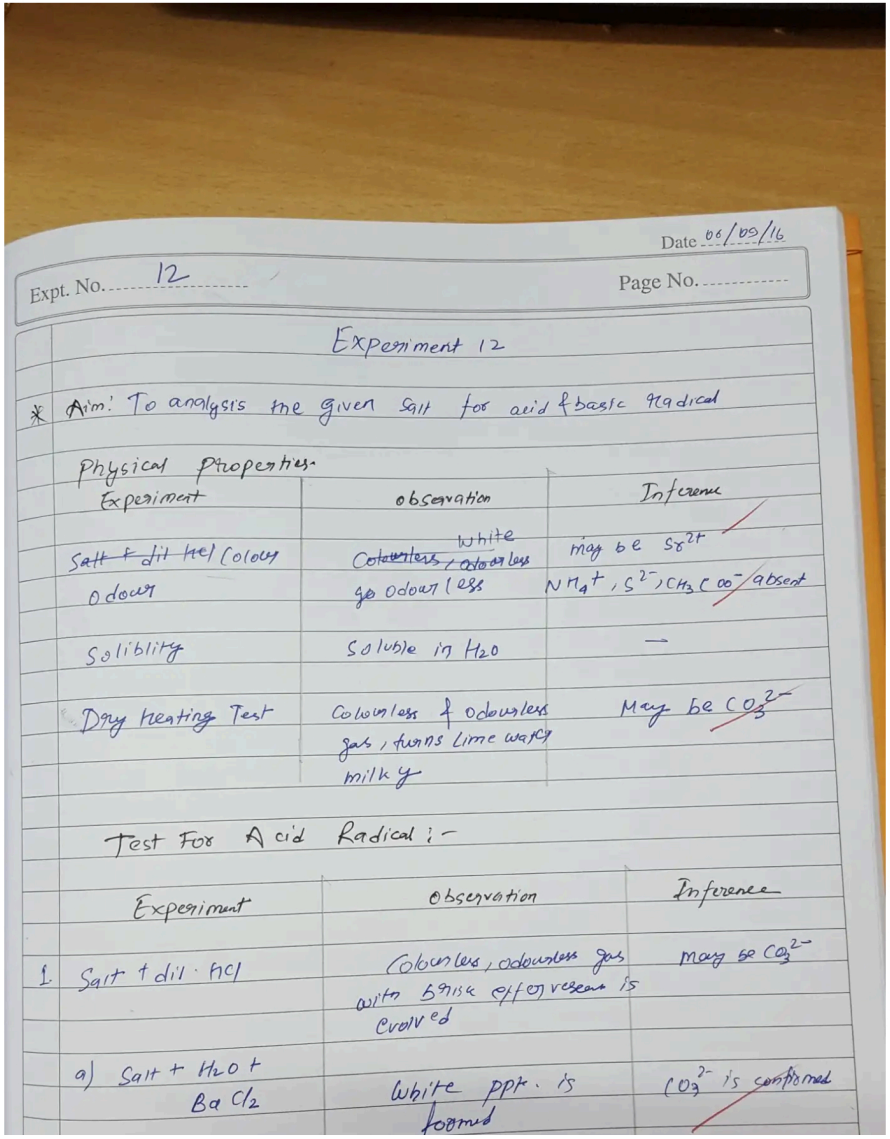


> *Experiment 11 (SrCo3)*



Date 06/09/16

Expt. No. 12 Page No.

Experiment 12

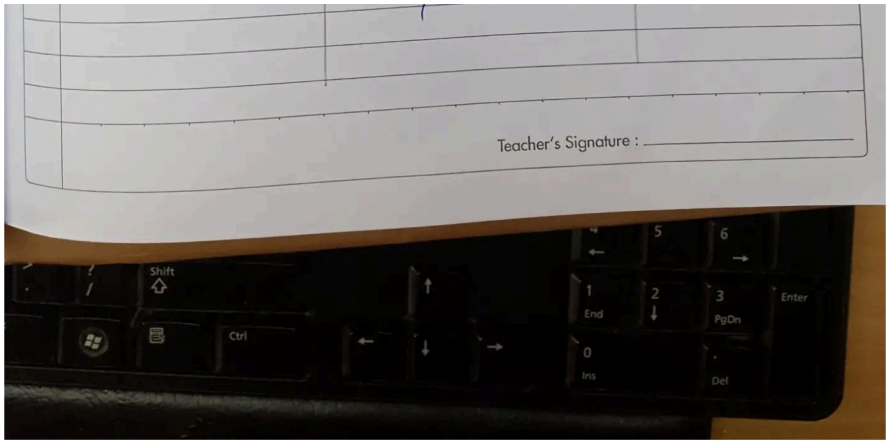
* Aim: To analysis the given salt for acid & basic radical

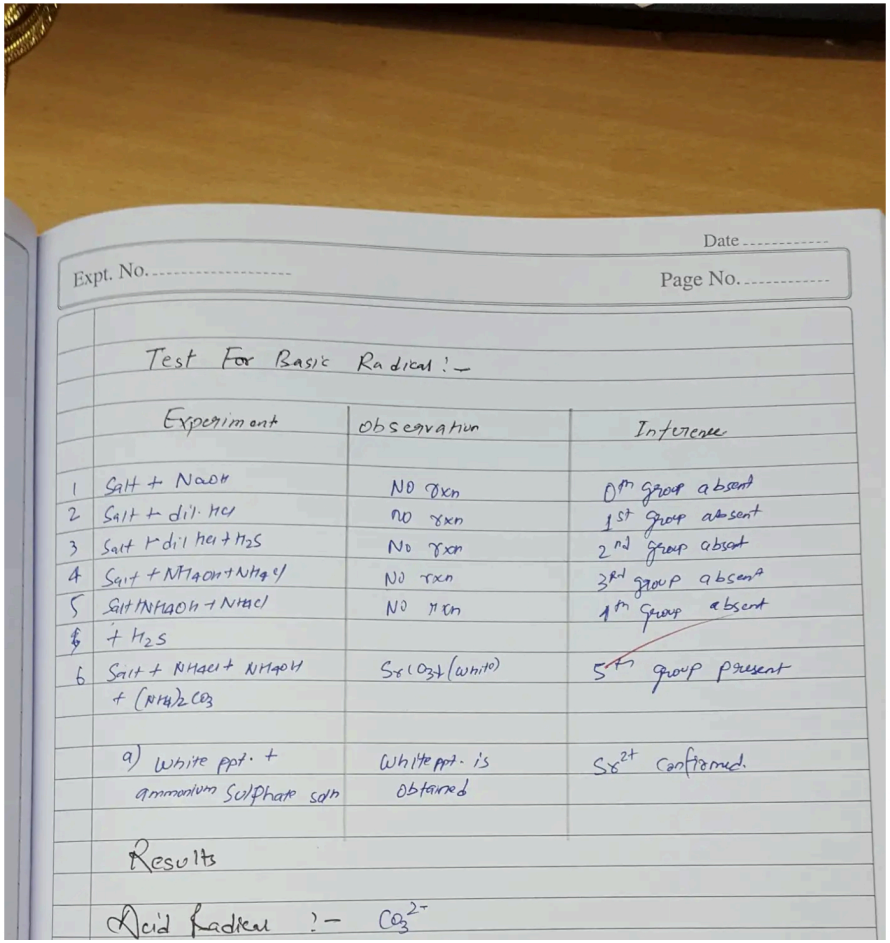
Physical properties.

Experiment	observation	Inference
Salt + dil HCl colour	~~Colourless~~ white	may be S^{2-}
Odour	~~odourless~~ odourless	NH_4^+, S^{2-}, CH_3COO^-/absent
Solibility	Soluble in H_2O	—
Dry Heating Test	Colourless & odourless gas, turns lime water milky	May be CO_3^{2-}

Test For Acid Radical :-

Experiment	observation	Inference
1. Salt + dil. HCl	Colourless, odourless gas with brisk effervescence is evolved	may be CO_3^{2-}
a) Salt + H_2O + $BaCl_2$	White ppt. is formed	CO_3^{2-} is confirmed





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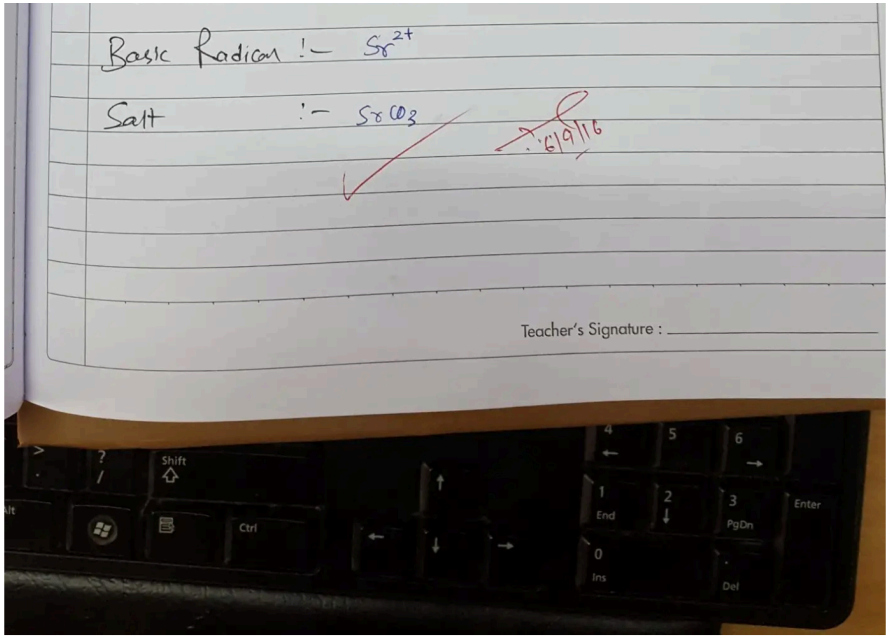
Test For Basic Radical :-

	Experiment	observation	Inference
1	Salt + NaOH	No rxn	0th group absent
2	Salt + dil. HCl	No rxn	1st group absent
3	Salt + dil HCl + H_2S	No rxn	2nd group absent
4	Salt + NH_4OH + NH_4Cl	No rxn	3rd group absent
5	Salt NH_4OH + NH_4Cl	No rxn	4th group absent
6	+ H_2S		
	Salt + NH_4Cl + NH_4OH + $(NH_4)_2CO_3$	$Sr(CO_3)$ (white)	5th group present
	a) White ppt. + ammonium sulphate soln	White ppt. is obtained	Sr^{2+} confirmed.

Results

Acid Radical :- CO_3^{2-}


Basic Radical :- Sr^{2+}
Salt :- $SrCO_3$
6/9/16
Teacher's Signature :
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