Systematic Salt Procedure

for XI and XII CBSE Students

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Prelimnary Tests

	Experiment	Observation	Inference
1	**Noted the colour of the given salt**	(i) Colourless	Absence of Cu^{2+}, Ni^{2+}, Co^{2+}, Mn^{2+}
		(ii) Blue	Presence of Cu^{2+} ions
		(iii) Flesh Colour	Presence of Mn^{2+} ions
		(iv) Green	Presence of Ni^{2+} ions
		(v) Pink	Presence of Co^{2+} ions
2	**Noted the Smell of the salt :** A pinch of the salt is taken in a watch glass and rubbed with a drop of water	Smell of Vinegar	Presence of CH_3COO^- ions
		Smell of Ammonia	Presence of NH_4^+ ions
		No Characteristic Smell	Absence of CH_3COO^- and NH_4^+ ions
3	**Solubility in Water :** A pinch of salt is shaken well with water	Soluble and No precipitate with Sodium Carbonate Solution	Presence of NH_4^+
		Soluble and precipitate with Sodium Carbonate Solution	Absence of NH_4^+
4	**Action of Heat :** About 0.5 g of the salt is heated in a *dry* test tube	Colourless and Odourless gas which turns lime water *milky*	Presence of Carbonates
		Vapours with Vinegar Smell	Presence of Acetates
		Reddish Brown Vapours	Presence of Nitrates
		Violet Vapours	Presence of Iodides
		Colourless Gas with the smell of Ammonia	Presence of Ammonia
		White Residue	Presence of Zinc
		No Characteristic Change	Absence of CO_3^{2-}, CH_3COO^-, NO_3^{2-}, I^-, NH_4^+, Zn^{2+}
5	**Flame Test :** A paste of the salt and conc.HCl is prepared, and the flame test is performed	Green Coloured Flame	Presence of Barium
		Crimson Red Coloured Flame	Presence of Strontium
		Brick Red Coloured Flame	Presence of Calcium
		Bright Bluish Green Fame	Presence of Copper

Analysis of Acid Radicals

	Experiment	**Observation**	**Inference**
1	**Test with dil. Hydrochloric Acid :** To a little of the salt, 1 mL of dil.HCl is aded		
2			
3			
4			
5			
6			

Conformation of Acid Radicals

	Experiment	**Observation**	**Inference**
1			
2			
3			
4			
5			
6			

Analysis of Basic Radicals

1) Zeroth Group Analysis

Experiment	**Observation**	**Inference**
		Presence of Ammonia (NH_4^+)

Group Analysis

<table>
<tr><td colspan="6">Group 1 test...</td></tr>
<tr><td rowspan="6">observation... Presence of Group I ions</td><td colspan="5">if group 1 test fails, Group 2 test...</td></tr>
<tr><td>observation 2...</td><td colspan="4">if group 2 test fails, Group 3 test...</td></tr>
<tr><td rowspan="5"></td><td>observation 3...</td><td colspan="3">if group 3 test fails, Group 4 test...</td></tr>
<tr><td rowspan="4"></td><td>observation 4...</td><td colspan="2">if group 4 test fails, Group 5 test...</td></tr>
<tr><td rowspan="3"></td><td>observation 5...</td><td>if group 5 test fails, Group 6 test...</td></tr>
<tr><td rowspan="2"></td><td>observation 6...</td><td>Presence of Group 6 ions</td></tr>
</table>

Conformation of Basic Radicals

	Experiment	Observation	Inference
1			
2			
3			
4			
5			
6			

Result

- The Acid Radical is found to be
- The Basic Radical is found to be

Therefore, The given salt is found to be
