

Identification of functional groups present in organic compounds

DATE: 18 - 8 - 23

## SALT ANALYSIS

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S.No.	EXPERIMENT	OBSERVATION	INFERENCE
A)	Stim:	To identify the sample that contains ketone functional group.	
1.	m-dinitrobenzene test:	<ul style="list-style-type: none"> <li>• violet colour is formed which slowly fades away with sample.</li> </ul>	Sample is a ketone.
	Then, dil. NaOH is added and shaken well.	<ul style="list-style-type: none"> <li>• violet colour is not formed with sample.</li> </ul>	

# SALT ANALYSIS

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DATE :

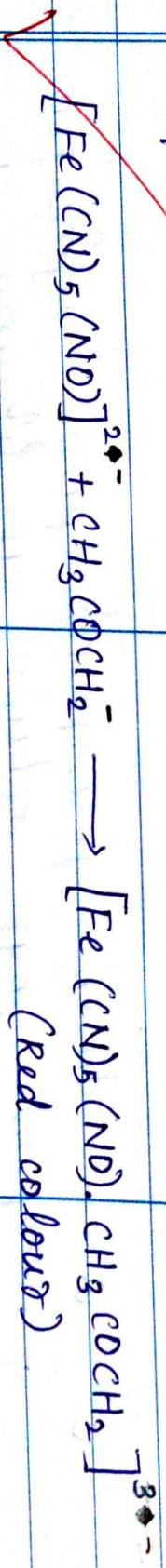
## EXPERIMENT

## OBSERVATION

## INFERENCE

S.No.

2.	<p><u>Sodium nitroprusside test :</u></p> <p>1 ml of sodium nitroprusside solution is formed with given samples A and B. Then, NaOH solution is added dropwise.</p>	<ul style="list-style-type: none"> <li>Red colouration is formed with sample A.</li> <li>Red colouration not formed with sample B.</li> </ul> <p>Sample is a ketone.</p>



Result :  
 The given sample A is a ketone

S.No.

EXPERIMENT

OBSERVATION

INFERENCE

B)

Stim:

To identify the sample that contains carboxylic acid functional group.

1. Blue litmus test :

Place a drop of the given samples A and B on a

- Blue litmus change to red for sample.

sample is a carboxylic acid.

~~moist blue litmus paper.~~

- No change in blue litmus paper for sample.



# SALT ANALYSIS

S.No.	EXPERIMENT	OBSERVATION	INFERENCE
2.	<p><math>\text{NaHCO}_3</math> test :</p> <p>A small amount of <math>\text{NaHCO}_3</math> is added to the given samples for sample A and B in a test tube.</p>	<p><math>\checkmark</math></p> $\text{RCOOH} + \text{NaHCO}_3 \longrightarrow \text{RCOONa} + \text{H}_2\text{O} + \text{CO}_2 \uparrow$	<ul style="list-style-type: none"> <li>Brisk effervescence of <math>\text{CO}_2</math> is observed for sample.</li> <li>No effervescence of <math>\text{CO}_2</math> for sample.</li> </ul> <p>Sample is a carbonylic acid.</p>
3.	<p>Ester test :</p> <p>1 ml of ethanol and few drops of conc. <math>\text{H}_2\text{SO}_4</math> are added to the samples A and B in the test tubes. Then, it is heated in a</p>	<ul style="list-style-type: none"> <li>Fruity smell is observed for sample.</li> <li>Fruity smell is not observed for sample.</li> </ul>	<p>Sample is a carbonylic acid.</p>

**SALT ANALYSIS**

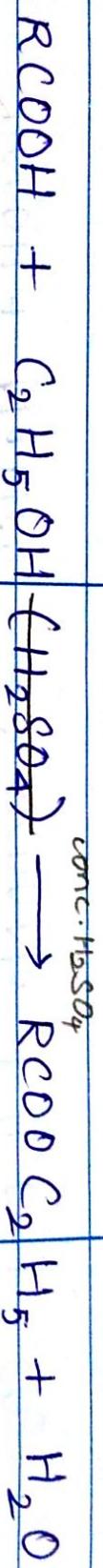
S.No.

EXPERIMENT

OBSERVATION

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water bath for 5 minutes and poured into a beaker containing water.



Result :

The given  
✓ Sample B is a carboxylic acid.

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S.NO.

K-OH EXPERIMENT

OBSERVATION

INFERENCE

C)

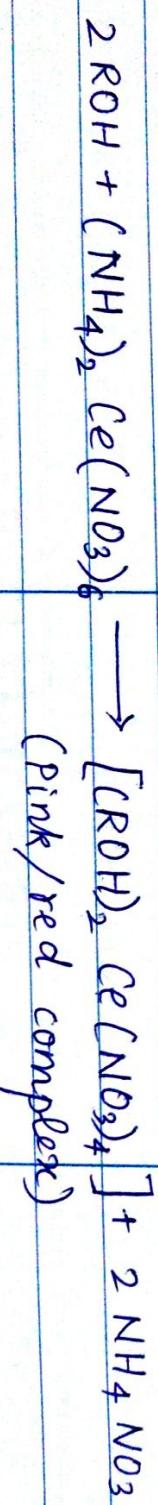
**Stim:**  
To identify the sample that contains alcohol functional group.

1. Ceric ammonium

nitrate test :

To the little of the organic compound a few drops of ceric ammonium nitrate is added and shaken well.

- Pink/red colouration is observed in sample.
- Pink/red colouration is not observed confirmed



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S.No.	EXPERIMENT	OBSERVATION	INFERENCE
2.	<p>Ester test :</p> <p>To a little of the organic compound, add few drops of acetic acid and concentrated <math>H_2SO_4</math>.</p> <p>Warm the mixture on a water bath for about 10 minutes.</p> <p>Pour it into 20 ml of cold water taken in a beaker and smell it.</p>	<p><del>fruity smell</del> <sup>pleasant</sup> observed for sample.</p> <p><del>fruity smell</del> not observed confirmed.</p>	<p>Presence of presence of alcoholic group in sample is confirmed.</p>



CH<sub>3</sub>COOH

DATE :

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**EXPERIMENT****OBSERVATION****INFERENCE**

Result :

The given  
sample is an alcohol.

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D)	dim :	To identify the sample that contains aldehyde functional group .	
1.	Tollen's test :	<ul style="list-style-type: none"> <li>Formation of shiny silver mirror along the sides of the test tube for sample . confirmed .</li> <li>shiny silver mirror is not formed for sample .</li> </ul>	Presence of aldehyde group in sample is confirmed .



**SALT ANALYSIS**

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2. Schiff's test :

To a little of the organic substance, add few drops of Schiff's reagent.

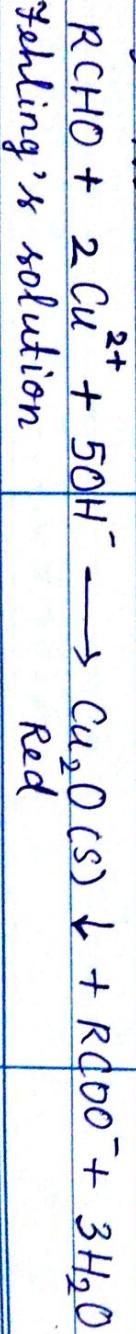
- pink colour is obtained for sample. aldehyde group in sample is confirmed.
- pink colour is not obtained for sample.

3. Fehling's test :

To the given organic substance, add equal amounts of Fehling's solutions A and B and heat gently in the water bath

- Red precipitate is formed for aldehyde group in sample.
- Red precipitate is not formed for sample.

for 5 minutes



Fehling's solution

Red

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~~Result :~~

The given sample D is an aldehyde.