



R. K. GROUP OF COLLEGE

BEHIND KALWAR POLICE STATION, KALWAR, JAIPUR (RAJ.)

CHEMISTRY

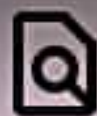
TIP

18





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उद्देश्य -

Experiment - 1
Potassium tetrovalent chromate (Ta) $K_2Cr_2O_7 \cdot 2H_2O$

necessary equipment

सामान

Oxygen, acetate (H_2CH_2O)

(ii) Solid potassium dye (304420)

(iii) इथाइल

(iv)

Alcohol (C_2H_5O)

Method:-

Dissolve 250ml of

4.5 gm ऑक्सालिक

एसिड डाइहाइड्रेट का तालक

distilled water in

a beaker. Heat it

oxalic acid in

to 20ml. After this, 1.5 gm potassium

dichromate is the acid solution. After this process, pour

added in the finished solution into a equal quantity

cool beaker. Heat it on a heater. After this, cool

the solution. Add 10ml of ethyl alcohol to it at room

for 30-40 minutes, due to temperature and let it

which dark, deep green crystals are

formed. Filter the crystals using a bookboat

funnel and wash it with 30% ethyl alcohol and

absolute alcohol. After that, dry the

crystals.

Reaction-

A

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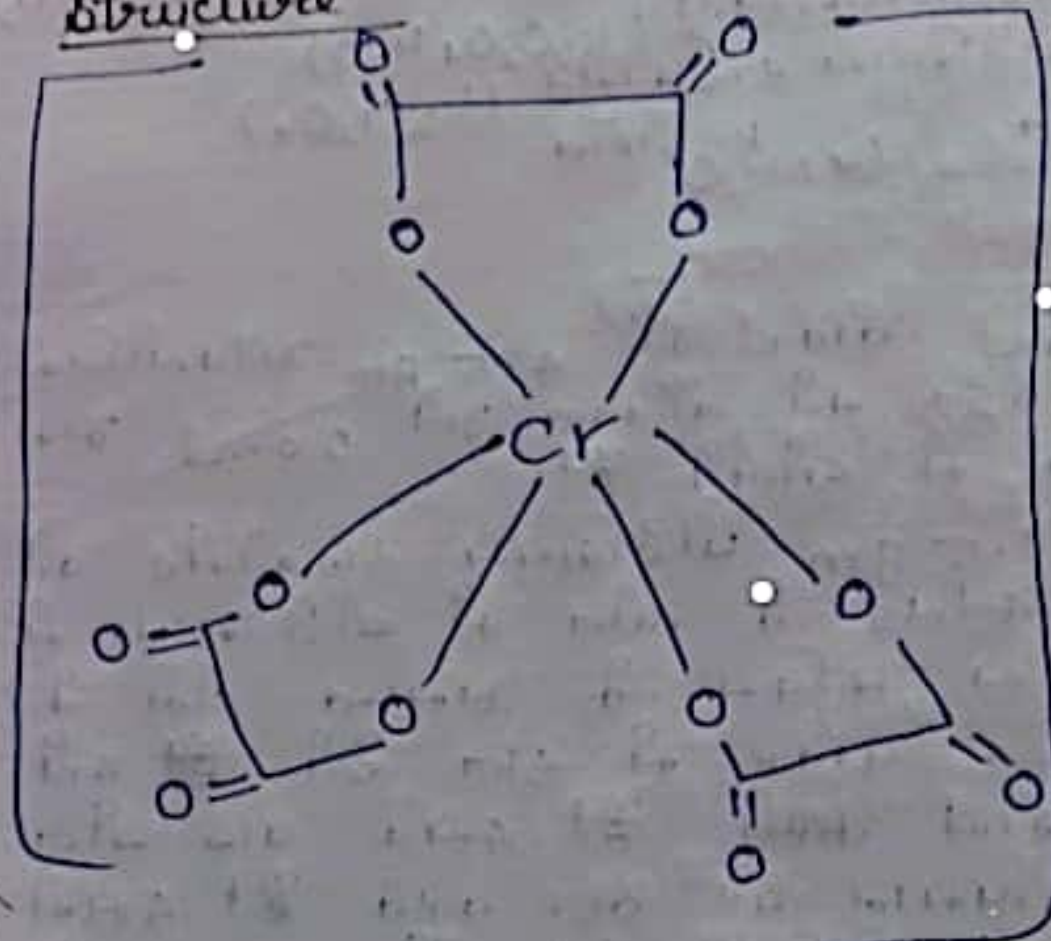
English

 $K_2Cr_2O_7$ $+ 6CO_2$
 $+ 7H_2O$ 

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Structure

 $3H_2O$

Potassium trioxalato Cr(III)

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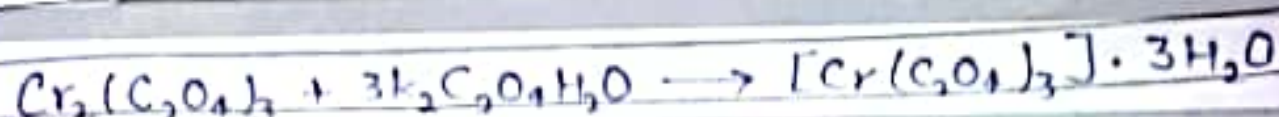
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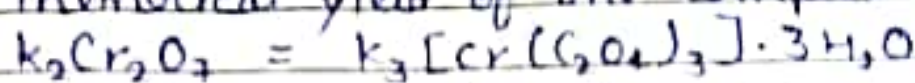
PAGE NO.

DATE



calculation -

(i) Theoretical yield of the complex -



$$294 \text{ gm} = 487.3 \text{ gm}$$

$$1.5 \text{ gm} = 2.486 \text{ gm}$$

(ii) % practical yield -

$$2.486 \text{ gm of the product} = 100\% \text{ yield}$$

$$\text{Wgm. of the product} = \frac{100 \times w}{2.486}$$

$$= \frac{100 \times 2.3}{2.486}$$

$$= 92.51\%$$

Result :-

$$(i) \text{ Theoretical yield} = 2.486 \text{ gm.}$$

$$(ii) \text{ Percentage product amount} = 92.51\%$$

✕A

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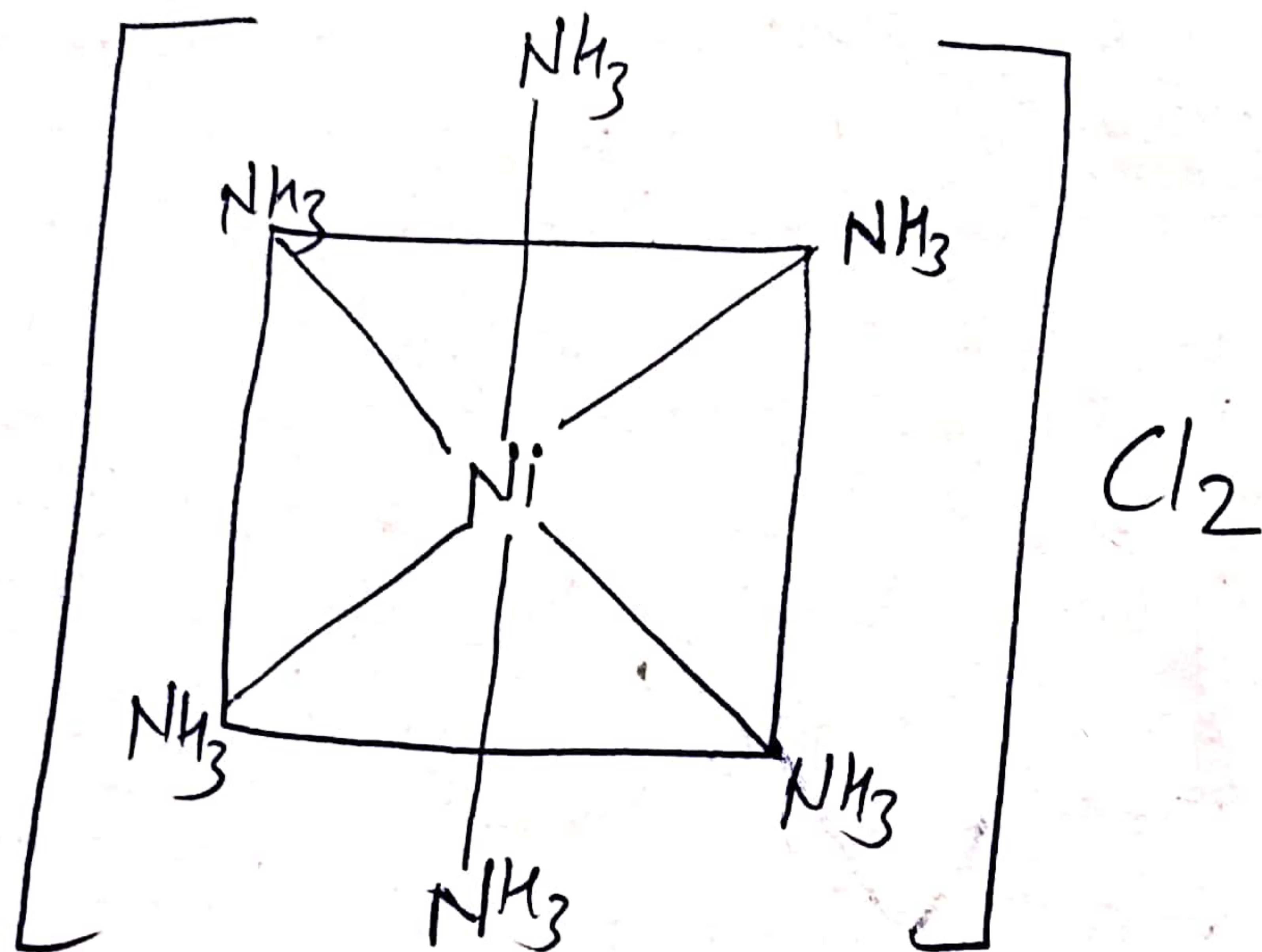
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Percentage product amount = 92.51%



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383127 :-

DATE Preparation of hexamine nickel (TT) chloride.



Equipment – creature, pot, glass pot, five glasses.

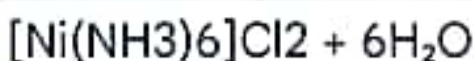
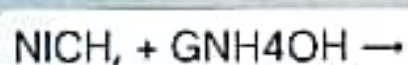
reagent nickel chlorand agm

concentrated ammonia solution

=

10 ml.

Reaction: Hexamine nickel chloride is formed when concentrated ammonia solution is added to nickel valerate solution.



Method: Powder 1 gm. of nickel bicarbonate. Dissolve it in a minimal amount of water in a beaker and let it cool on ice.

Concentrated ammonia solution is added to this cooled solution while stirring continuously.

Hexamine nickel chloride precipitates quickly.

Filter the precipitate using a filter paper. Then, wash it with acetone and allow it to air dry at room temperature. Weigh the dry precipitate.

Result: Dark coloured crystals are obtained in this.

Yield-4

gm.

A

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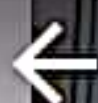
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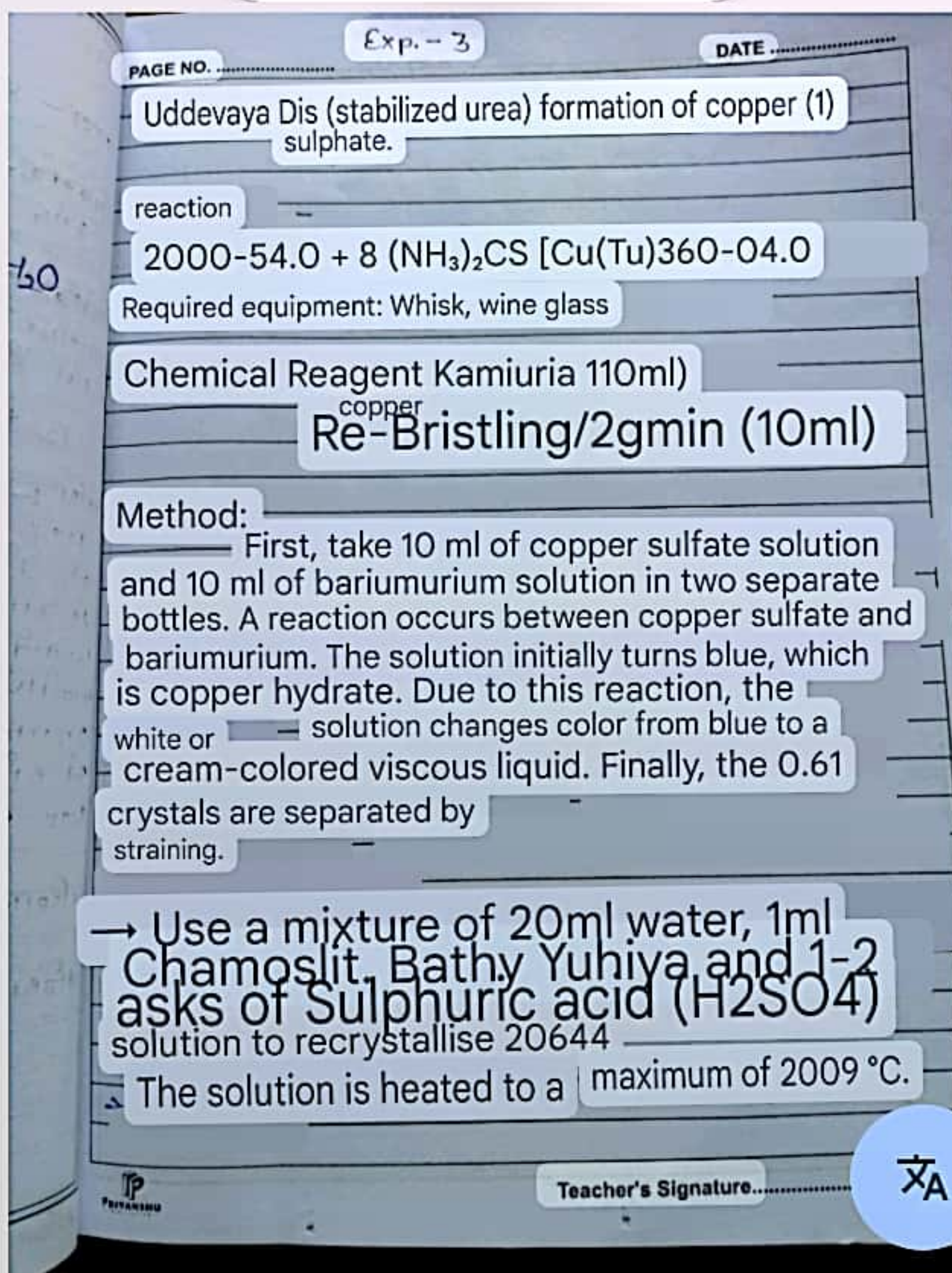
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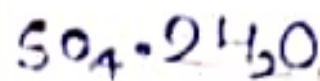
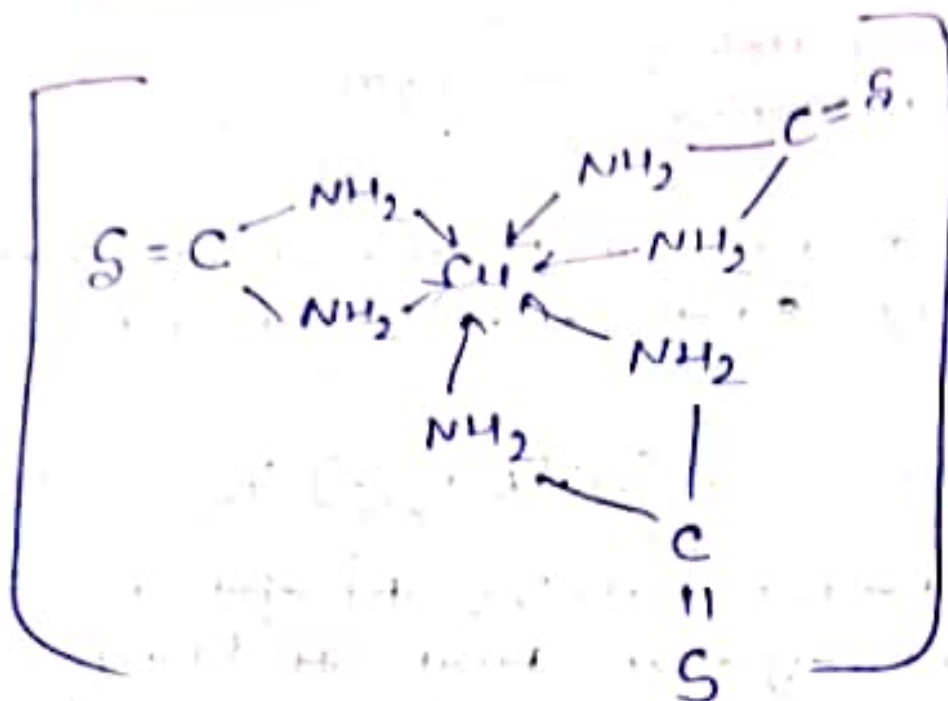
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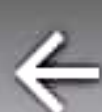
Yes

No

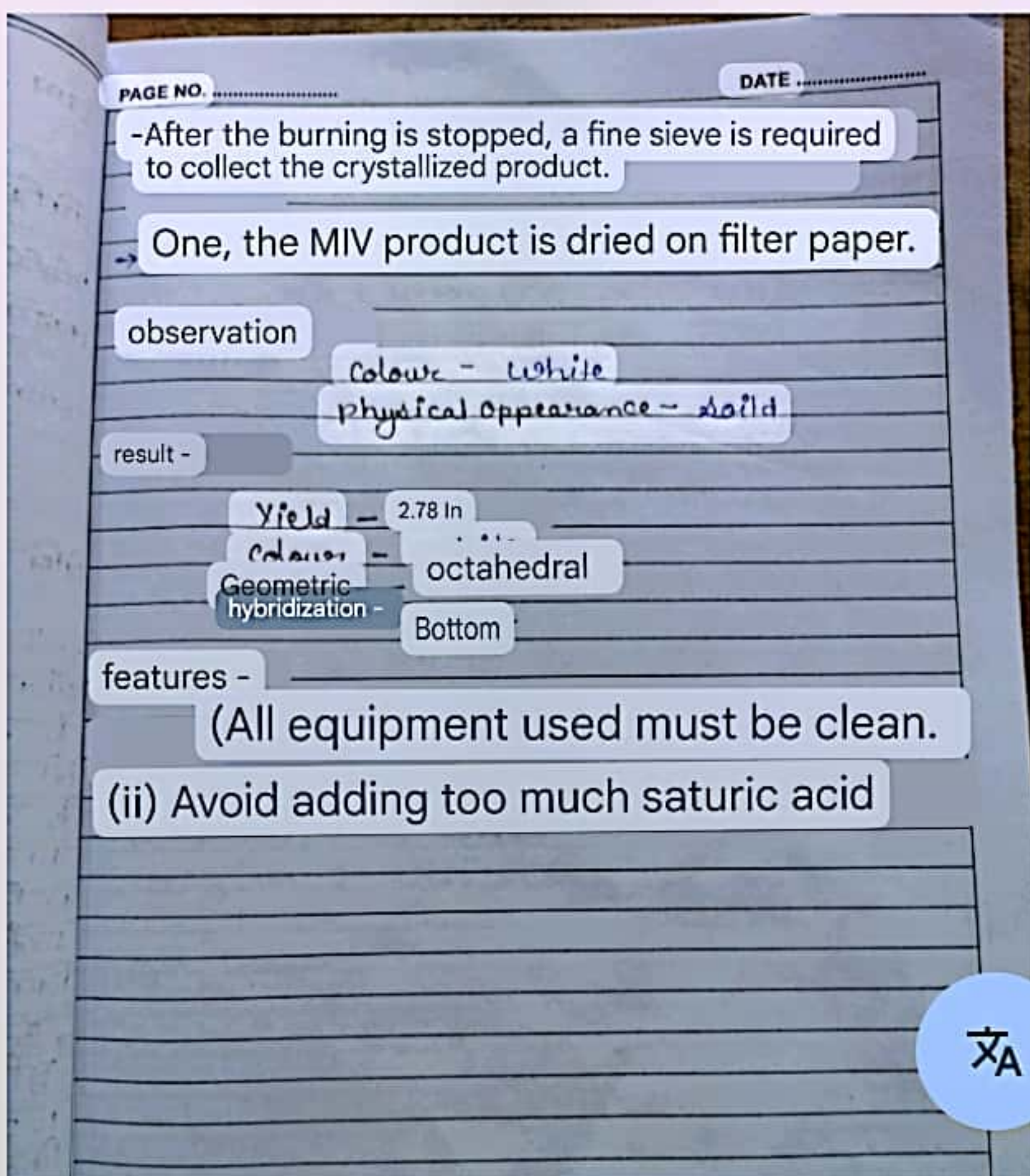
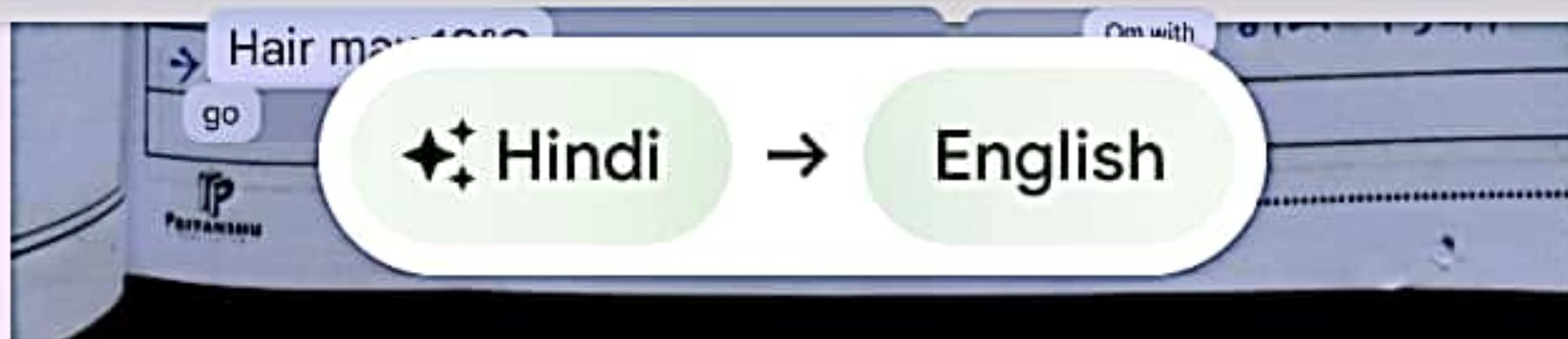


Reaction





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Exp.-1

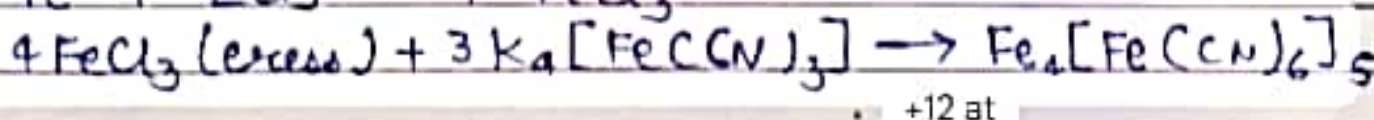
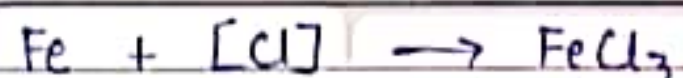
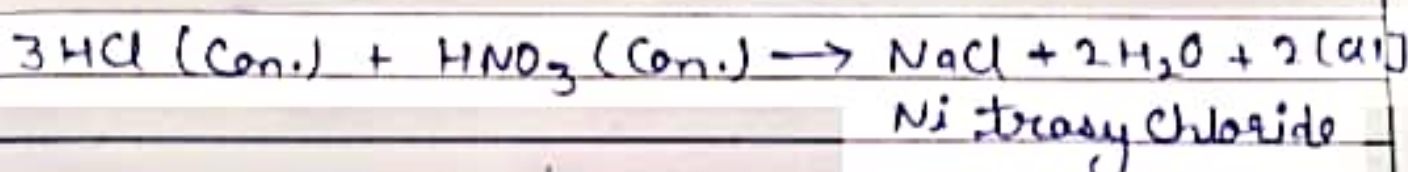
Origin - Prussian Blue Fea $[\text{Fe}(\text{CN})_6]$ prepare.

Equipment required: Water glass pot, testing glass, funnel, filter paper and verner.

Chemicals: Iron filling (0.5gm), Sohrit May (water), Samhit potassium ferricide Vilayna std (100ml),

Theory: Ferric

ferric ferric oxide is obtained by treating iron sulphide (FeCl_3) with acetic acid. This ferric clarifier is then treated with potassium ferric sulphide ($\text{K}_4[\text{Fe}(\text{CN})_6]$) to give ferric ferric sulphide, also known as process blue. The chemical equation for this reaction is given below:



Method: In this containing 2 ml of 85 gm of iron powder is added to HNO_3 and 5 ml of salt. The mixture is then stirred gently in a glass jar and covered with a glass. The beaker is then kept for five minutes.

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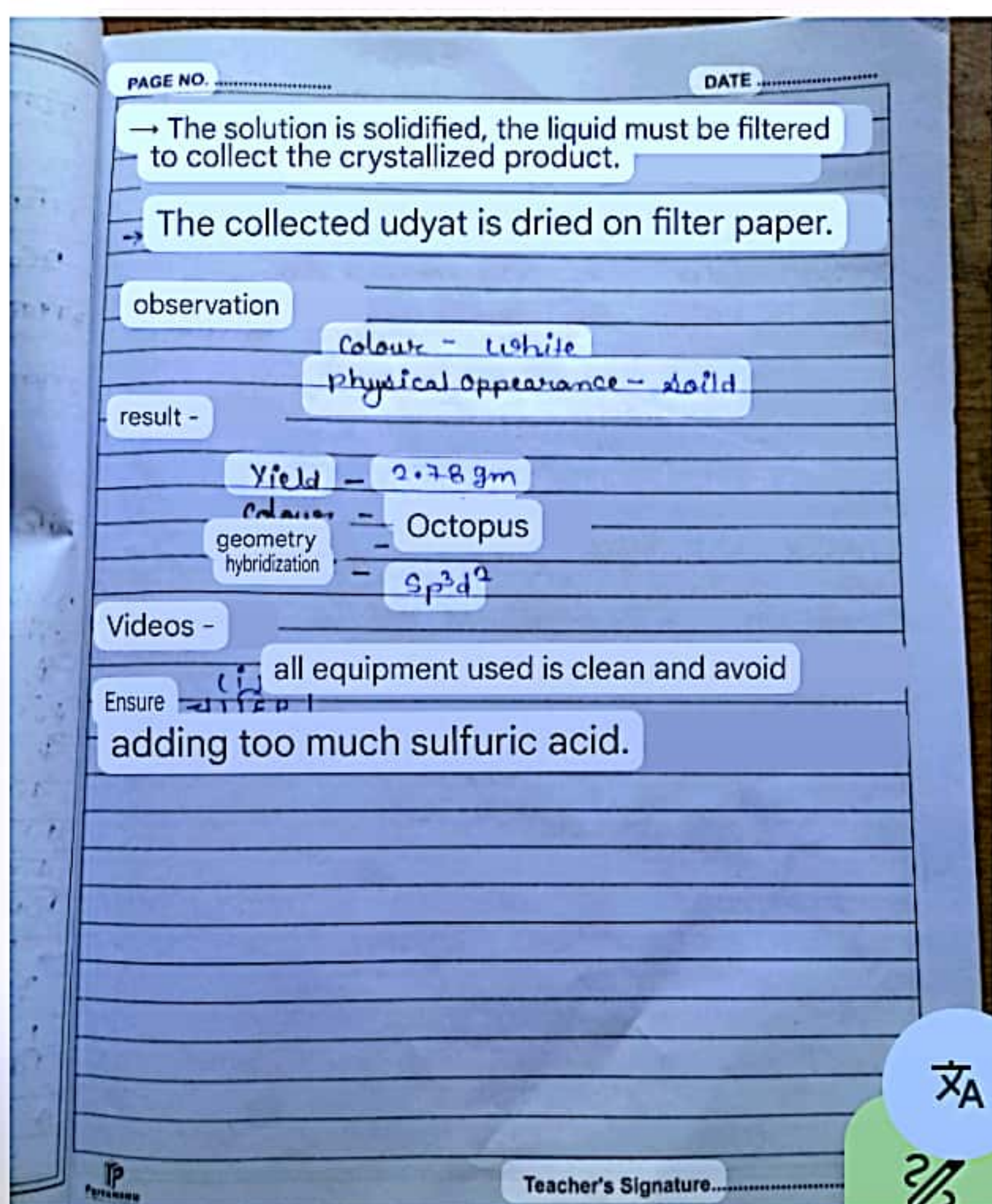
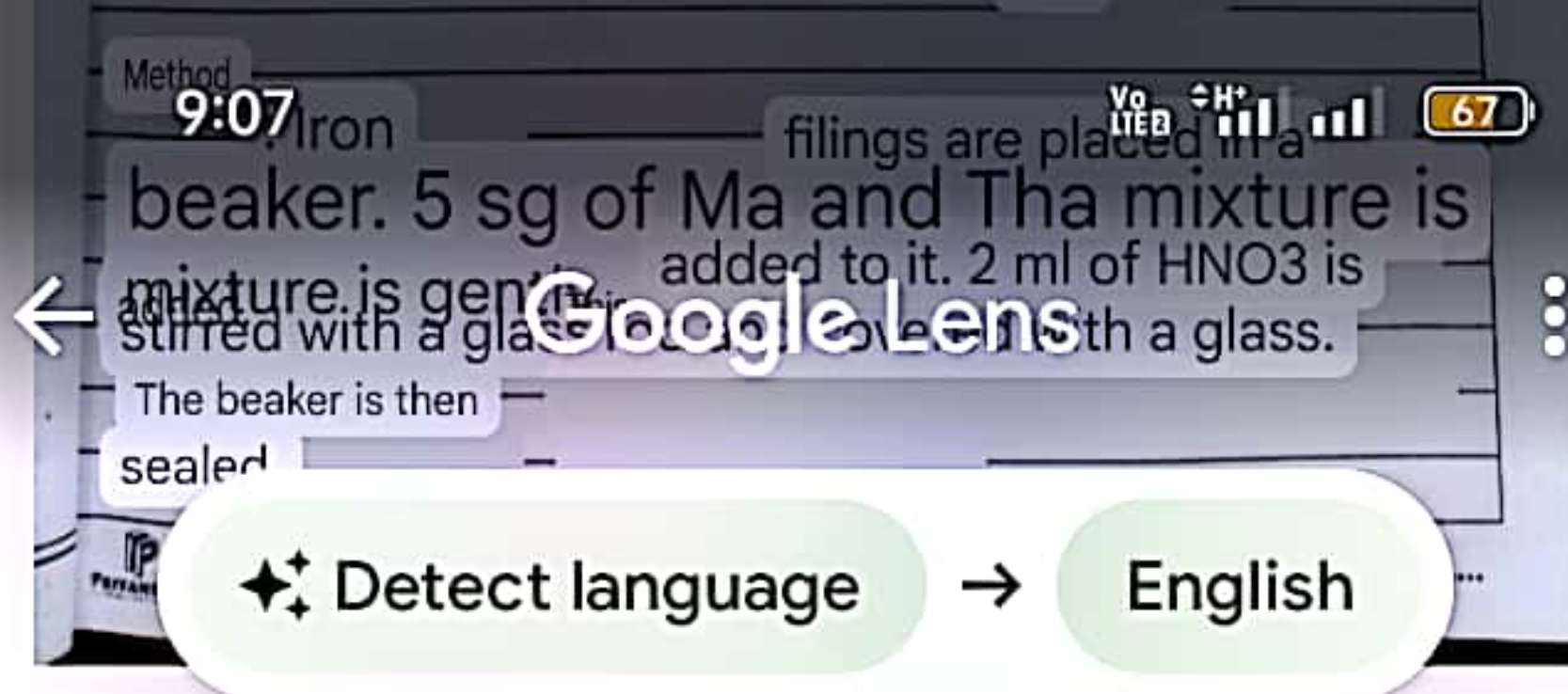


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Object :-

In given Organic mixture separated the organic compound and identified the compound A and B and derived.

1. Starting Test :-

Physical state - Base
 Colour - colourless
 Smell - odourless smell
 Solubility - insoluble in water.

Testing Table :- Test for compound 'A'.

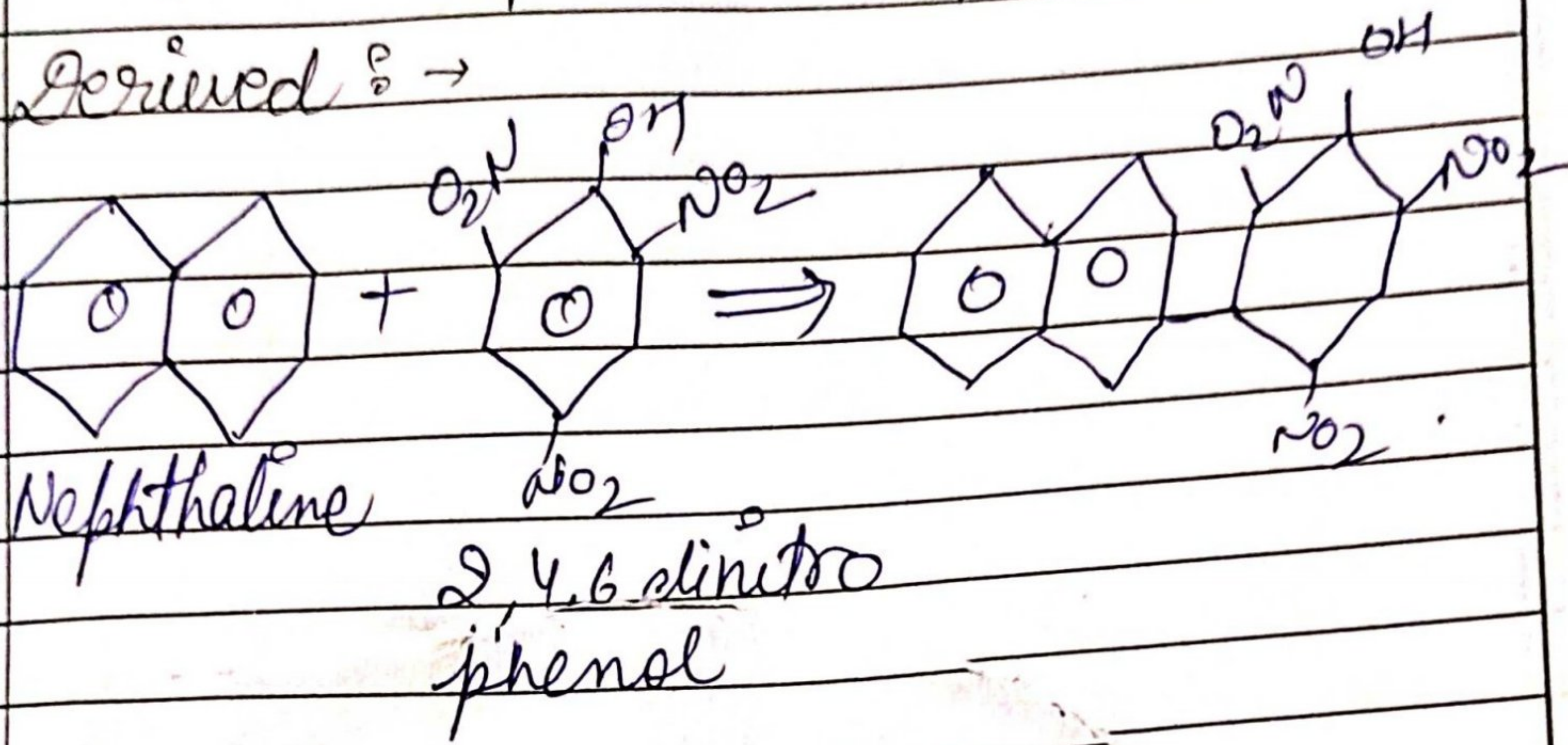
S.No.	Experiment	Test	Result
2.	Flame Test :- To burn the take small amount of substance	It burns with smog flame.	This is aromatic compound.
3.	Litmus Test :- Component + red litmus paper	No change	Compound is indifferent.

Teacher's Signature.....

4.	Element Test:-		
(i)	Red acetate benzene solution + $(CH_3COO)_2Pb$. (lead acetate).	Black colour is not pro. duced.	Sulphur is absent.
(ii)	Sodium nitroide + benzene solution + $Na_2[Fe(CN)_2NO]$	Violet colour is not produced.	S- Absent
(C)	Halogen Test: - benzene solution + dil HNO_3 + and cool $HgNO_3$.	Yellow & white precipitate is not prod.	X - Absent
5.	functional group Test: - Compound + dehydr -ate $AlCl_3$ + dried $CHCl_3$ + Δ .	green yell colour obtained.	$C_{10}H_8$ may be Naphthalene.
6.	M.P.	79°C obtain	$C_{10}H_8$ may be
7.	Special test of Compound: -		
(1)	Compound + $KMnO_4$ solid + $Con. H_2SO_4$ + Δ + Recocinol + Δ + $NaOH$ + sol ⁿ .	green precipitate produced	May be confirmed $C_{10}H_8$.

(11)	Compound + $\text{CHCl}_3 + \text{AlCl}_3$ dehydrate	green colour present	C_{10}H_8 confirmed.
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Derived $\Rightarrow$



Test for compound 'B'.

1. Primary Test:-

Physical state - solid
 Smell - Smellless
 Colour - colourless
 Solubility - Soluble in water.

Testing table:-

S.No.	Experiment	Test	Result.
2.	Flame Test:- The small amount of	Organic comp. burn with smokeless	Organic compound is aliphatic

Subst. take in the flame & heat it

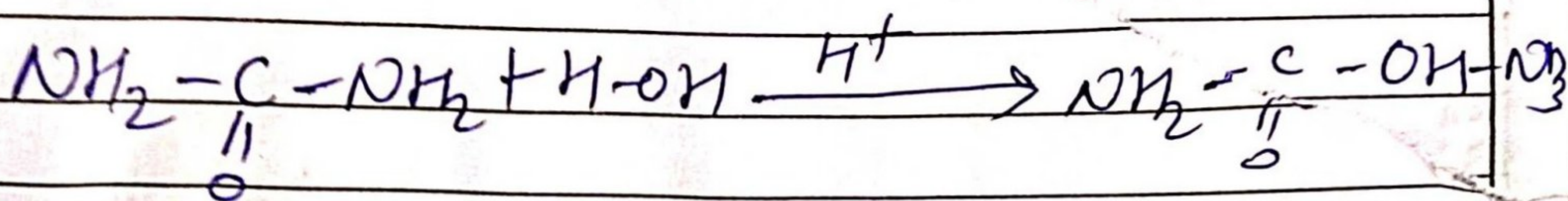
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3.	Litmus Test → comp. + Red litmus in Blue litmus	No changes	Compound is Indiff- erent.
4.	Element Tests		
(a)	N ₂ Test → Lamane sol. + FeSO ₄ (Pure) + FeCl ₃ + di Hcl.	produced blue colour solution	Nitrogen absent.
(b)	Sulphur Test: - CH ₃ COOH + Lamane sol. + (CH ₃ CrO) ₂ Pb	black preci- -pitate obtained.	Sulphur is absent
(c)	Halogen Test: - Lamane sol. + dil HNO ₃ + Δ + cool + AgNO ₃	White & yellow precip. obtained.	
5.	Functional group Test: - Main subst. + dil HCl + NaNH ₂ on mixed solution	more smell produced.	$\text{NH}_2 - \underset{\text{O}}{\underset{ }{\text{C}}} - \text{NH}_2$ group.

6.	Melting Point	130°C	$\text{NH}_2 - \underset{\text{O}}{\underset{ }{\text{C}}} - \text{NH}_2$
7.	Compound Test		
	Compound + NaOH + Δ + dil CuSO ₄	purple colour	$\text{NH}_2 - \underset{\text{O}}{\underset{ }{\text{C}}} - \text{NH}_2$ confirmed.

Derivate of Urea:-

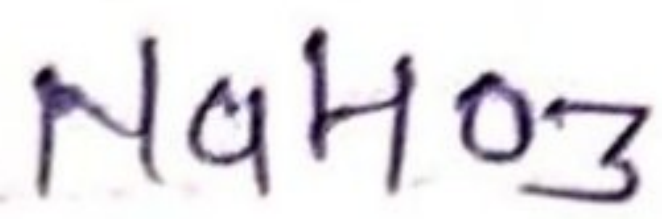
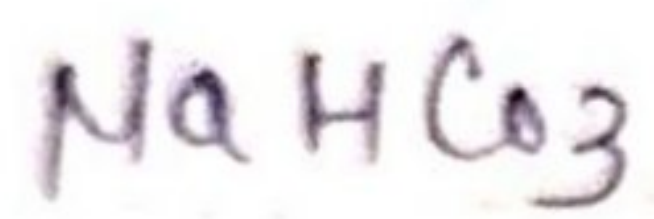
On water decomposition produced derivate:-



Result:- In given organic mixture to separate organic compound the group A - Nephthaline
B - Urea produced.

Melting Point:- 79°C and 13°C produced and derivate of Nephthaline is private.

mixture



[A]

[B]

Object: → In given organic mixture be separate the organic compound and identify the compound A and B and derivate one out of two.

Test for compound 'A'.

1. Primary State: -

Physical state - solid

Colour - colourless

Smell - odourless smell

Solubility - Insoluble in water

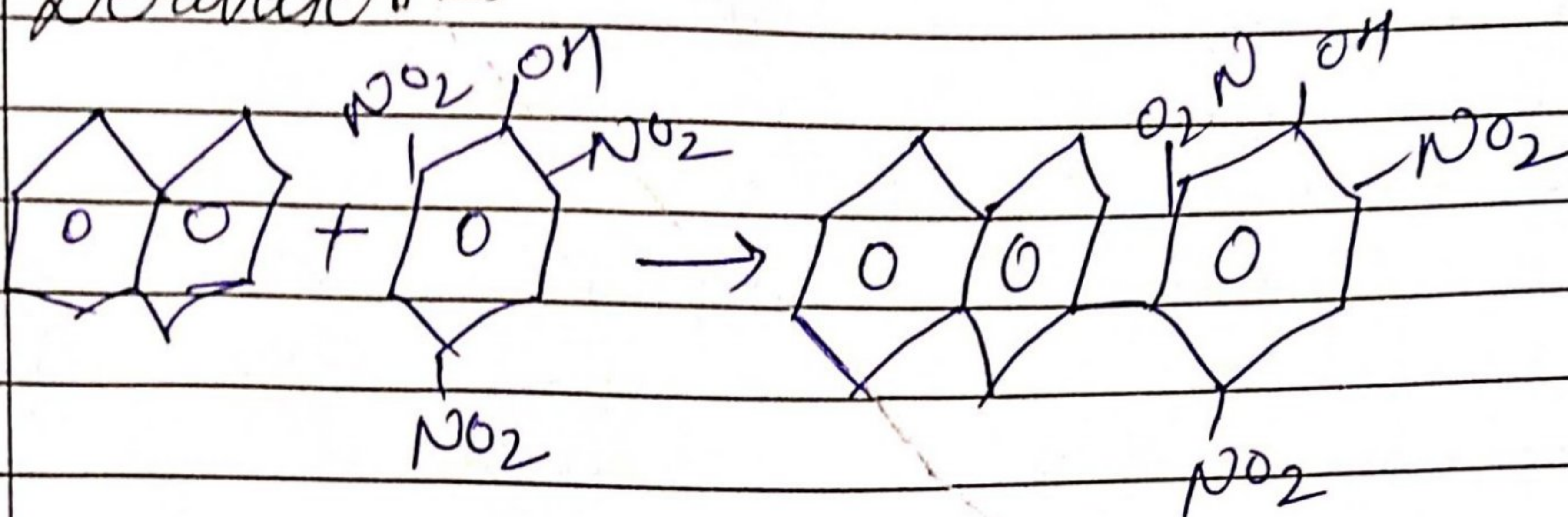
Table: -

S. No.	Experiment	Test	Result
2.	Flame Test: - Take compound on spatula and burn it.	compound burn with smoke flame.	Aromatic compound.
3.	Litmus Test: - compound + Red / blue litmus paper	No Reaction	Compound is derived.

4.	Elementary Test		
(a)	N_2 -test + Lem- -ane solution + $FeCl_3$ + dil HCl.	No Reaction	Nitrogen absent.
(b)	Sulphur test/ Lead acetate Test CH_3COOH + Lemane solution + $(CH_3COO)_2 Pb$	No Reaction	Sulphur absent.
(c)	Halogen Test? - Lemane sol. + dil HNO_3 + cool + $AgNO_3$	No Rx ⁿ .	X - Absent.
5.	Functional group Test :- Compound + dehy. $AlCl_3$ + $CHCl_3$.	green / yell -one colour.	may be Nephthalin
6.	Special Test of compound :- Compound + $KMnO_4$ (solid) + con. H_2SO_4 + Δ + NaOH solution.	green precipitate obtained.	May be $C_{10}H_8$.

ii	Compound + $\text{CHCl}_3 + \text{FeCl}_3$	green colour produced.	C_{10}H_8 confirmed.
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8. Derivate $\rightarrow$



Test for compound - "K"

1. Primary Test $\rightarrow$

Physical state - Solid
 Smell - odourless
 colour - colourless
 Solubility - soluble in NaHCO_3 .

Table:-

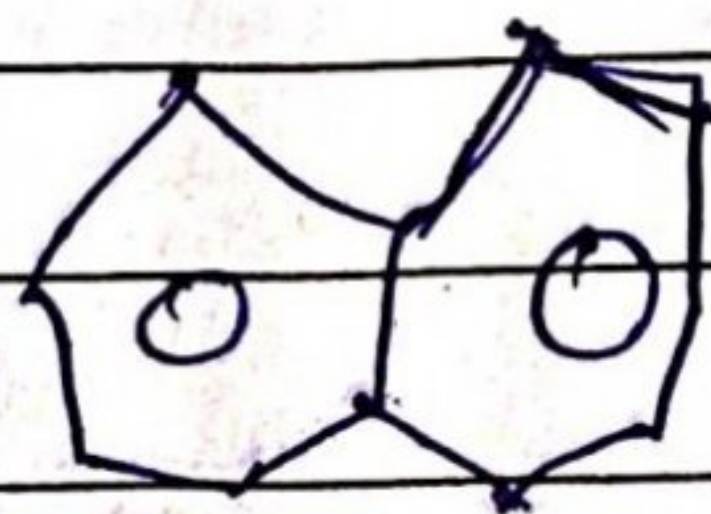
S.No.	Flame Test:	Test	Result.
	To burn Compound on Spetulla	Compound burn with smoke flame.	compound nature is aromatic.

Litmus Test - Comp. + Red/Blue litmus paper.	Turns blue litmus into Red litmus.	may be carboxylic acid.
Elementary Test:-		
4a) Nitrogen Test → Lamane sol. + pure feso ₄ + fcd ₃ + dil HCl.	No Rx ⁿ	Nitrogen is absent.
b) Sulphur Test:- CH ₃ COOH + Lamane solution + (CH ₃ CO) ₂ Pb.	No Rx ⁿ .	Sulphur absent.
c) Helogen Test:- Lamane sol. + dil HNO ₃ + Cool it + mixed AgNO ₃ .	No Rx ⁿ .	X - Absent.
5. Functional group Test:- Comp. + ethyl alcohol + Conc. H ₂ SO ₄ + Δ + Cool + H ₂ O	Smell like fruits	may be carboxylic acid.

6.	Melting Point	159°C	
7.	Special test of compound → Comp. + H ₂ O + FeCl ₃	dark violet colour obt.	HOC ₆ H ₄ COOH may be.
→	Compound + CH ₃ -OH + Conc. H ₂ SO ₄ + Δ + cooled + water.	Smell like wintergreen oil.	HOC ₆ H ₄ COOH is confirmed (red colour).

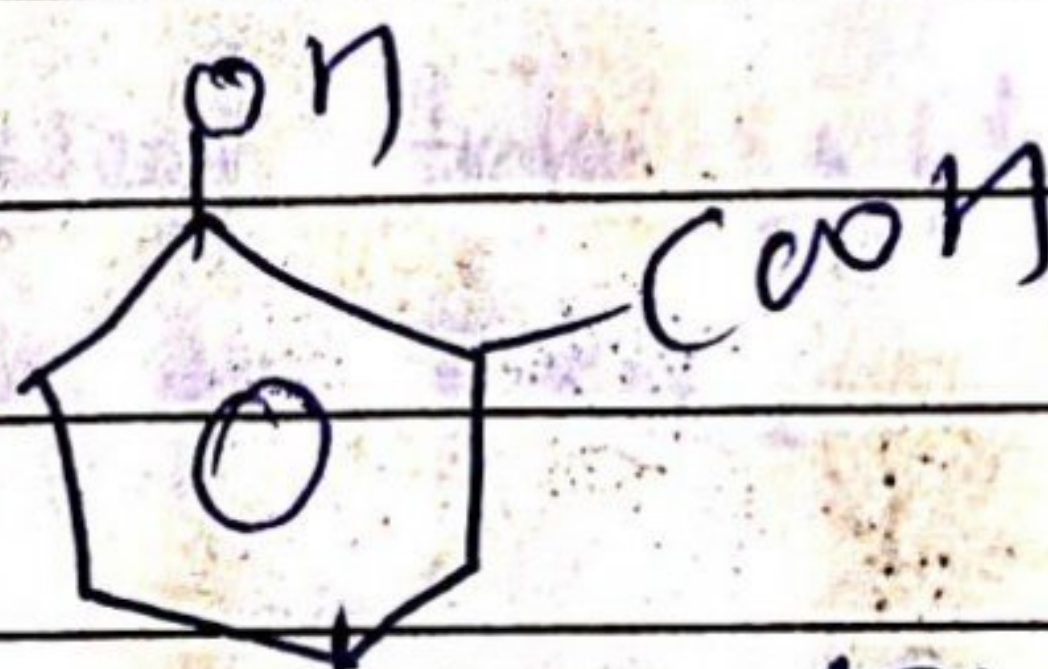
Result: → In given organic mixture the compound A and B is obtained.

Compound A →



Naphthalene

Compound B →



(Saliphatie acid).

Object? →

In given mixture separate organic compound and identify A and B compound and derivate one out of two compound - "A"

Primary test - physical state - Solid

Glucose - Colourless

Smell - Smellless

Solubility - NaOH solubial

Test table:-

S.N.	Expt.	Test	Result
2.	Flame test		
	Comp. take in Spe. tube and Heat in fire.	flame with smoke.	Aromatic Compound.
3.	Litmus test		
	Comp + Red/blue litmus paper.	Blue litmus change into Red.	Compound is Acidic.
4.	Element test		
	(a) Nitrogen test		
	Lamara Sol + pure FeSO ₄ + FeCl ₃ soln + dil + HCl	Blue and green colour not obtain	N - Absent

Halogen test

Remana Sol ⁿ Dil + AgNO ₃	Whit / Yello	x ^o Absent
+ Heat + Cool + AgNO ₃ mixed	precip. is Not obtain.	

5. Functional group test

(1) test of Anol

Alcoholic Solution + FeCl ₃	Violet Colour is produced.	OH group present.
--	----------------------------	-------------------

→ Comp + Hytamic acid + Conc H ₂ SO ₄	green Colour produced	B- Nephathline may be.
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→ Comp + NaNO ₃ + A + dil H ₂ SO ₄	green Colour produced	B- Nephathline may be.
---	-----------------------	------------------------

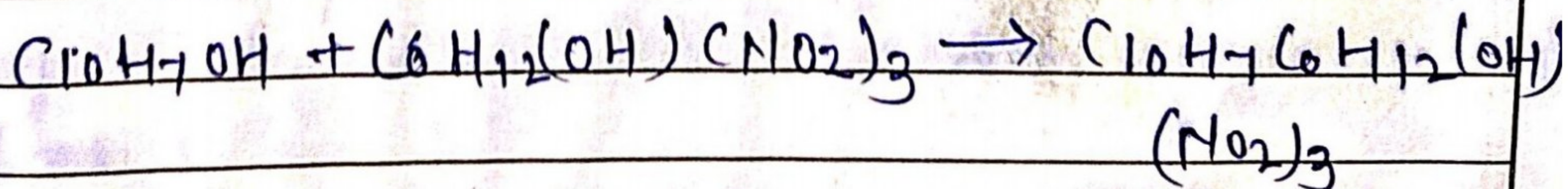
6. m.p	123° C	B- Nep. may be
--------	--------	----------------

7. Special test of Comp.

Comp + H ₂ O + FeCl ₃	milky / Whit	B- Nephathline
Comp + KOH + CHCl ₃	Blue Colour	is confirmed
Comp + I ₂ + NaOH + Sol ⁿ	violet Colour	B- Nephathline

8.

Detectate



Test Compound - "B"

1. primary test

physical state - Solid

Colour - colourless

Smell - Alcoholic

Solubility - NaOH Soluble

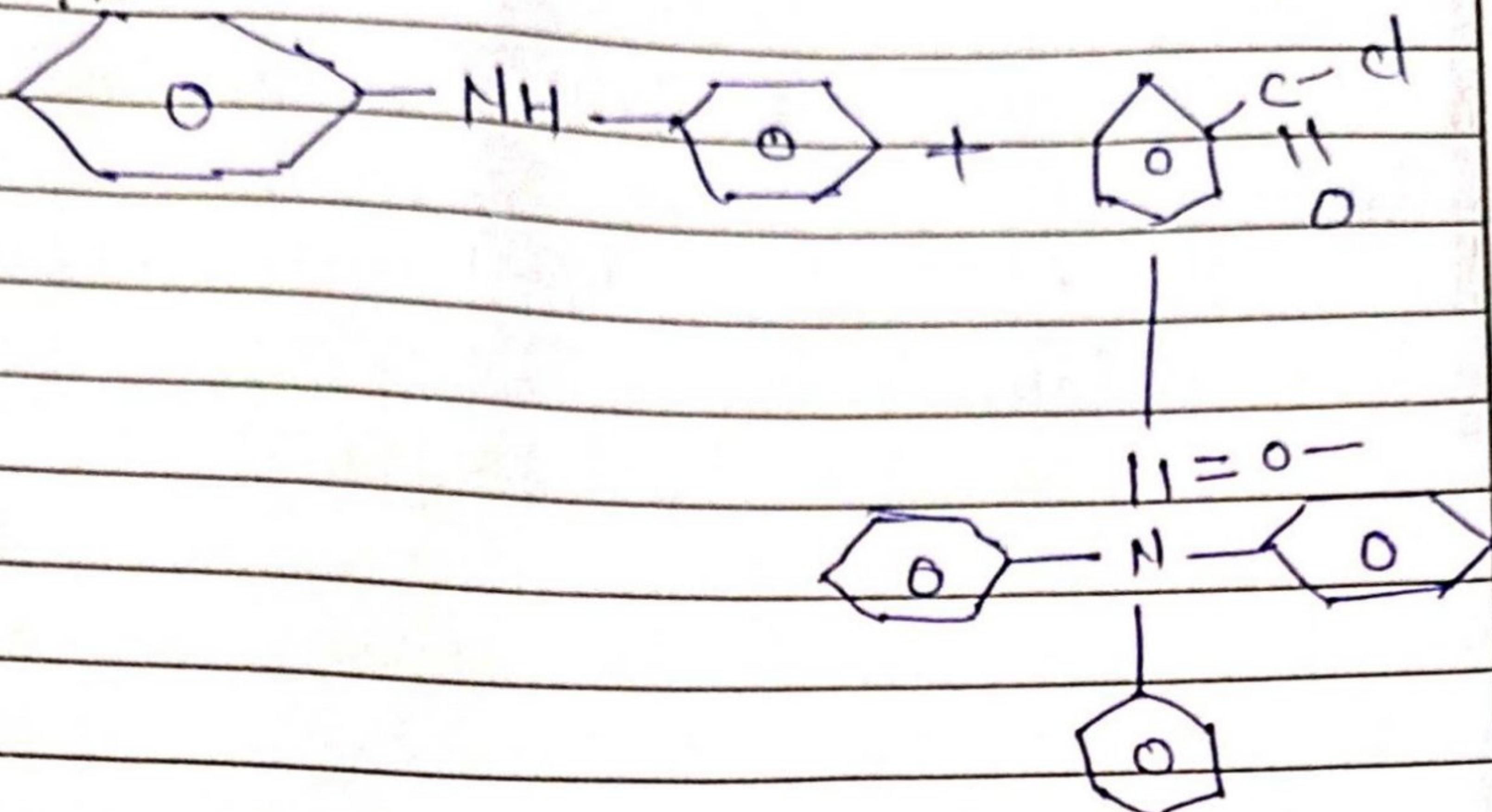
Table

S.No.	EXPT.	Test	Result.
	Comp. test in Spatula and Heat.	Burn with smoky flame	Aromatic Comp.
3.	litmus test		
	Comp + Red + Blue litmus paper	Red litmus Change in Blue.	Comp. is Basic
4.	Elementary test		
(a)	N- test		
	Leimann's soln + p-pheny + FeCl ₃ + Dil HCl	Blue Colour obtain	N- present
(b)	Sulphur test		
	Lead acetate test	Black precip. Not obtain	S - Absent.
	CH ₃ COOH + leimann's soln		
	CH ₃ COO(pB)		
		536°C	
	M.p		
6.	Spe. test of compound	Dark Blue colour	Di-phenyl Amine
	Comp + CONC. H ₂ SO ₄ + Ag.	Soln + is produced	Confirmed

NaNO₂

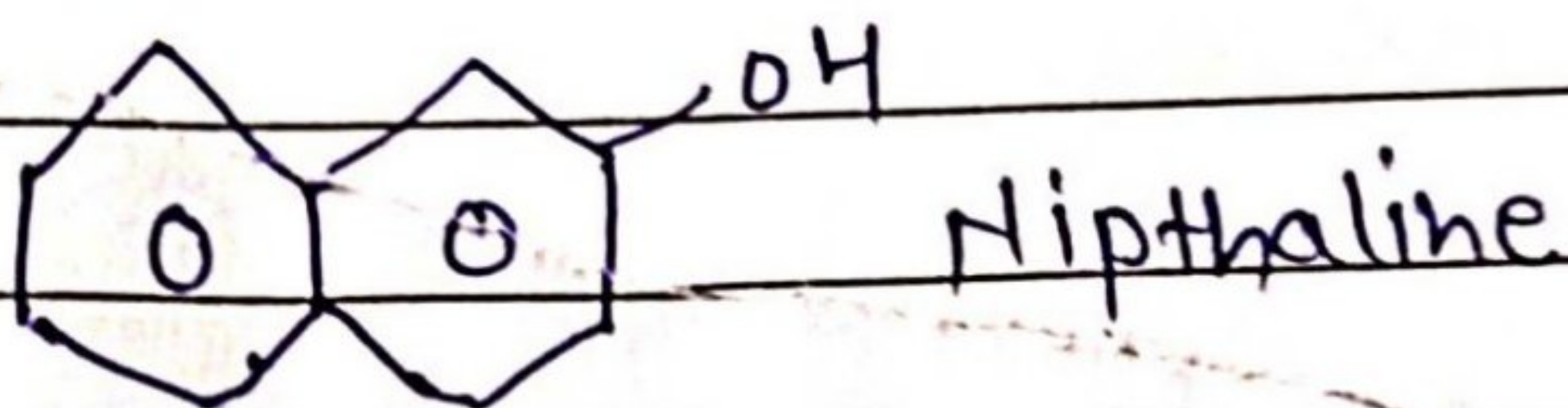
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Derivate 1 -

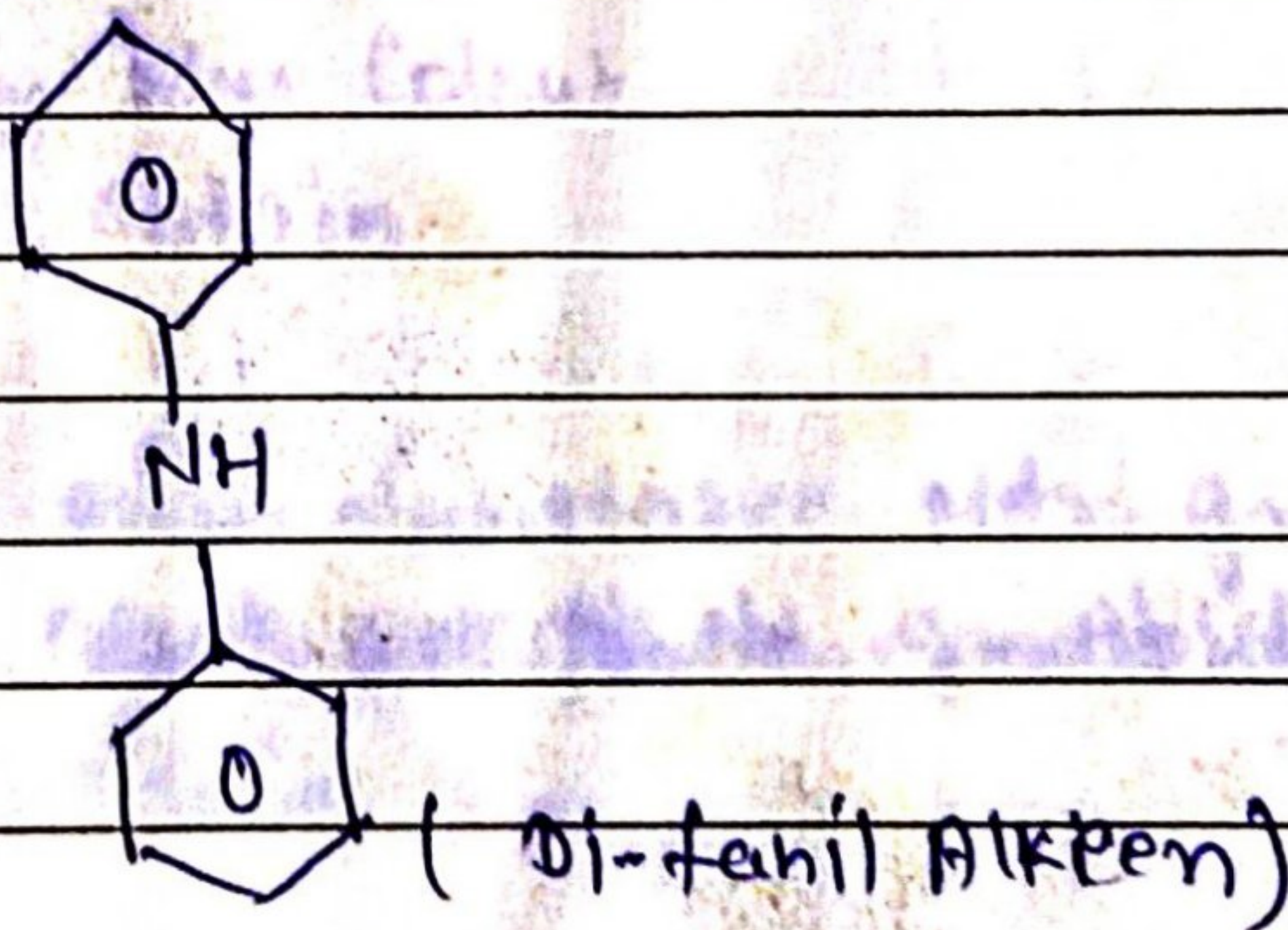


Result :-

Compound (A) -



Compound B -



Teacher's Signature.....

Object :- In given mixture find organic Compound.

Equipment :-

Test tube, Bikal, Holder, Conical flask etc.

Comp "A" →

Colour - light yellow colour

Smell - Bitter Almond like sm

Nature - Derivate

flametest Burn with smoke so it is aromatic com

Expt. table

S.No.	Expt.	Test	Result
1.	Nitrogen Expt.		
	Lamen Soln + Es peranto	persian blue	N - Absent
	Burn FeSO ₄ + NaOH + HCl	Colour Not formed	
2.	functional test		
	Nitro compound test		
	two ml Alcohol took.	main substance	Nitro group is
	in compound + some	is black / brown	present.
	drop of 10% CaCl ₂ +	Colour	
	Heat + Cool + Reagent		
3.	M.p.	114°C	M - Di-Nitro
			Benzen may
			be.

organic Comp-test

→ Comp + NaOH + Heat

Red Brown Colour

m-Di Nitro

- Comp + Dil NaOH + Heat

produced

Benzene Comp

glucose

Violet Colour

m-Di Nitro Ben

Comp - B

primary steric

Colour - Colourless

Smell - Smellless

Nature - Derivate

Flame test - Burn Not with smoke

So it is Aliphatic

Table Test

S.No	Expt.	Test	Result
1st	Nitrogen group test L.S. Soln + Espen to Burn + FeSO ₄ Solubel + NaOH HCl	persian Blue Colour Not formed.	N - absent.
2.	functional test		
(a)	- COOH Group test L.S. Soln + Espen Burn FeSO ₄ Soln + NaOH + HCl S/L NaOH CO ₂	CO ₂ gas Not Removed	- COOH group Absent.
(b)	final group test Comp. C ₆ H ₅ KOH Soln. + FeCl ₃ include	Violet Colour not produced	OH Group Absent.

Carbonic Group Test

two - four drop Di-Nitro
fertil in Substantin

Reagent

yellow prec.

is Not produced

Carbonile -
Absent.

Carbohydrate test

Comp. water Solⁿ + 2ml

+ 0.5gm + Lead + acet

ate + Heat + 5ml NH₄OH Solⁿ + 2 min.Pink colour
produced

CarbHydred

M.p.

25°C

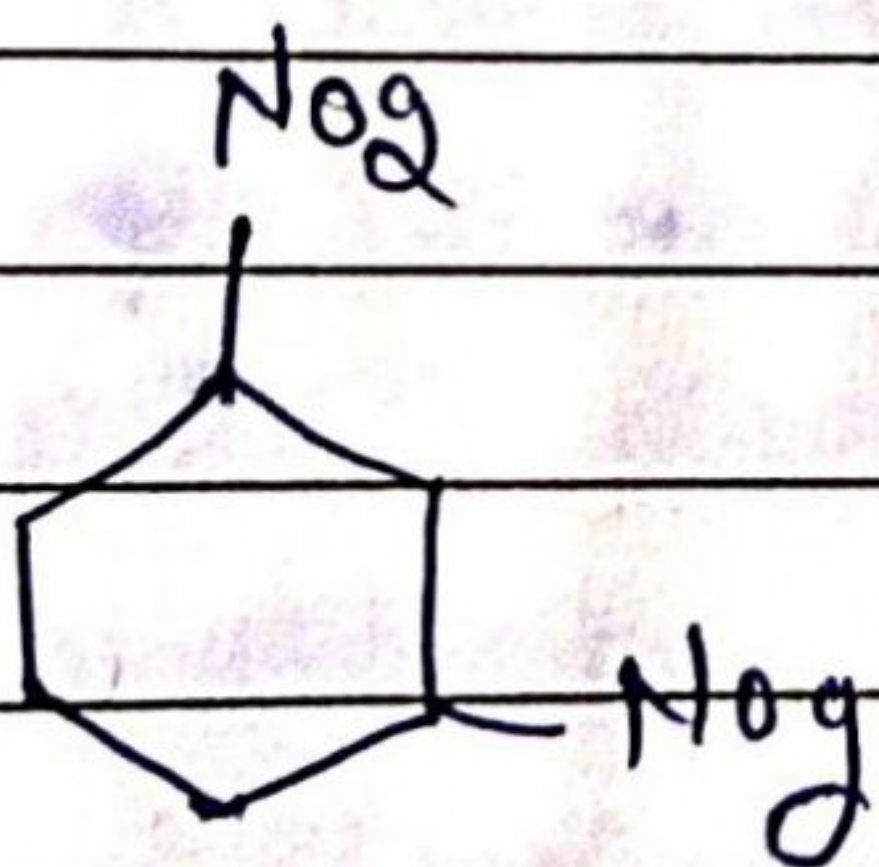
Compound + feril Solⁿ

2 min + Heat

25°C. Red colour
producedD-glucose
is presentBarfoid Reagent + 2min
Heatred colour
precipitate.D-glucose
Conformed.Result :- In given mixture M-DiNitro Comp
and D-glucose Comp. is present.

Comp "A"

Comp "B"



D-glucose

C₆H₁₂O₆

[M - Di Benzene]

Teacher's Signature.....

Object:- In given mixture identified organic compound.

Equipment:-

Test tube, Biker, Holders, Conical flask etc.

Comp "A"

1. primary test :-

physical state - Solid

Colour - Cream Colour

Smell - Smell less

Nature - Acidic

flame test - Fungus smoke

Burn so it is

aromatic comp.

Table Test

Expt. Test

Test

Result

N-Test

Leimann soln +

Blue/green

N - Absent

FeSO₄ + NaOH + CHCl₃ +

prec. produced

Conc. H₂SO₄

Not

2. functional Group test

Comp + NaHCO₃ water soln

Smell

- COOH group

CO₂ gas removed

are detectable

Astear test

Comp + Conc. H₂SO₄ +

fruit like

COOH group

C₂H₅OH + Δ

Smell

Absent

m.p

133°C

Menamilec

Acid present

Acidic 2ml derivat
Soln + 2ml reductive
KMnO₄ milating

Brown pre
cipitate
produced

Neopste Acid
are present

- Comp. derivat Soln.
KMnO₄ + Δ + filter
cold

white kristal menamilec
acid

Comp "B"

primary Expt. -

Physical State - Solid

Colour - Colourless

Smell - like smell

Solubility -

Table Test

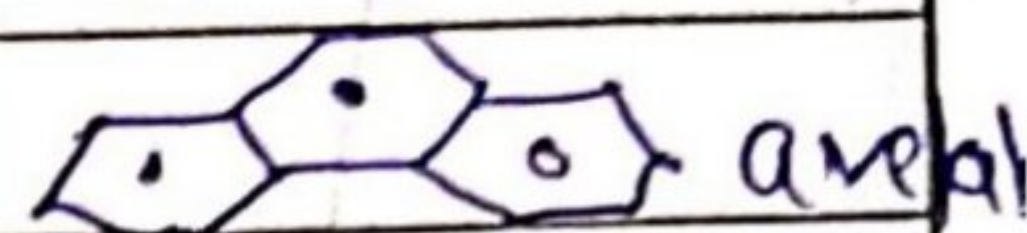
S.No	Expt.	Test	Result
1.	Element observation Demana Soln + FeSO ₄ + NaOH + FeCl ₃ + Conc. H ₂ SO ₄	Blue/green Colour not prod.	N-Absent.
2	functional test		HydroCarbon
(a)	Comp. + Conc. H ₂ SO ₄	Not Soluble	are present

b. Bayer Test

Comp + 2ml 2H₂O + KMnO₄
(Bayer Test)
are soln mixed.

3. m.p

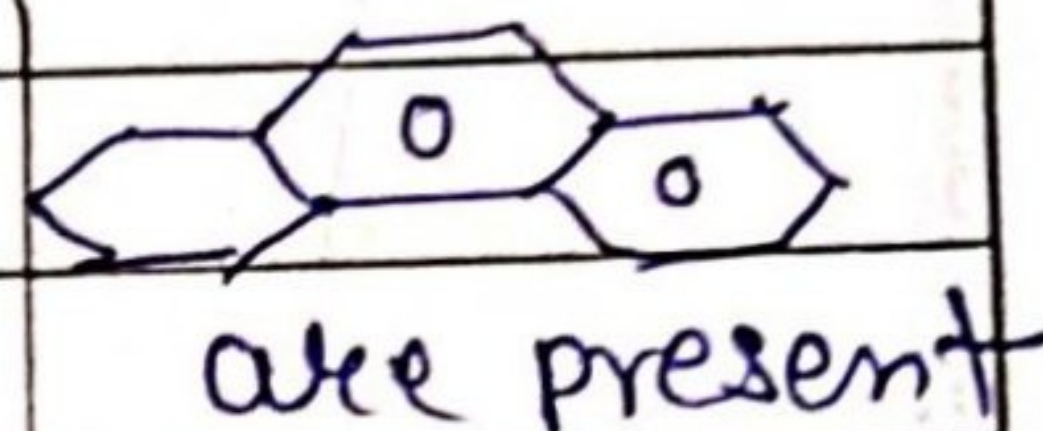
143°C



Special Test

Comp + Benzen are
mixed

Blue colour
are produced



Result :-

In given mixture

Comp "A"

Comp "B"

$C_6H_5-CH=CH-COOH$
(Cinnamic Acid)



Object :- In given mixture identified organic compound.

Equipment :- Test tube, Bika, Holder, Conical flask

Comp I

physical state - Solid

Colour - Colourless

Smell - Smellless

Nature - Acidic

Flame test - Not Burn with smoke. So it is

Table Test

Alpha HC Comp.

Expt.

Test

Result

1. N-Test - L.S. Soln.

fresh FeSO₄

Soln + NaOH + HCl

Persian Blue

Colour Not

produced

N - Absent

2. functional group Test

Carboxylic Group

Test. Comp. water

Soln + 5% NaHSO₃

Soln mixed

CO₂ gas

are produced

- COOH group

present

m.p

101°C

oxalic acid

Special Test

CO + CO₂ gas

oxalic acid

Comp + H₂SO₄ +

are produced

are present

Heat

Teacher's Signature.....

- Comp. 2 ml peric. solⁿ + CaCl₂ solⁿ white colour precipⁿ oxalic acid are present

Comp II

physical state - Solid
 Colour - Colourless

Smell -

flame Test - Not Burn with smoke

So it Aromatic Comp.

Nature - Acidic.

Table Test

Expt.

Test

Result

1. N-Test

persian Blue

N-absent

L.S solⁿ + freshed

Colour Not

fesoy solⁿ + NaOH + H₂O

produced.

2. functional group Test

(a) Carboxylic Group

Test. - Comp. water

CO₂ gas also

- COOH group

solⁿ + 8% NaHCO₃

produced

are absent.

solⁿ are mixed.

3. phenol group Test

Comp. Acidic solⁿ

violet colour

phenol group

+ some FeCl₃ solⁿ

produced.

are present

4. Carbanic Comp. Test

m.p

94°C

Teacher's Signature.....

α -Naphthol comp +
H₂O + FeCl₃

white precip.
obtain

α -Nepthalin
present

Comp + water NaOH
+ Cl₂ + one drop + Cu
powder + A

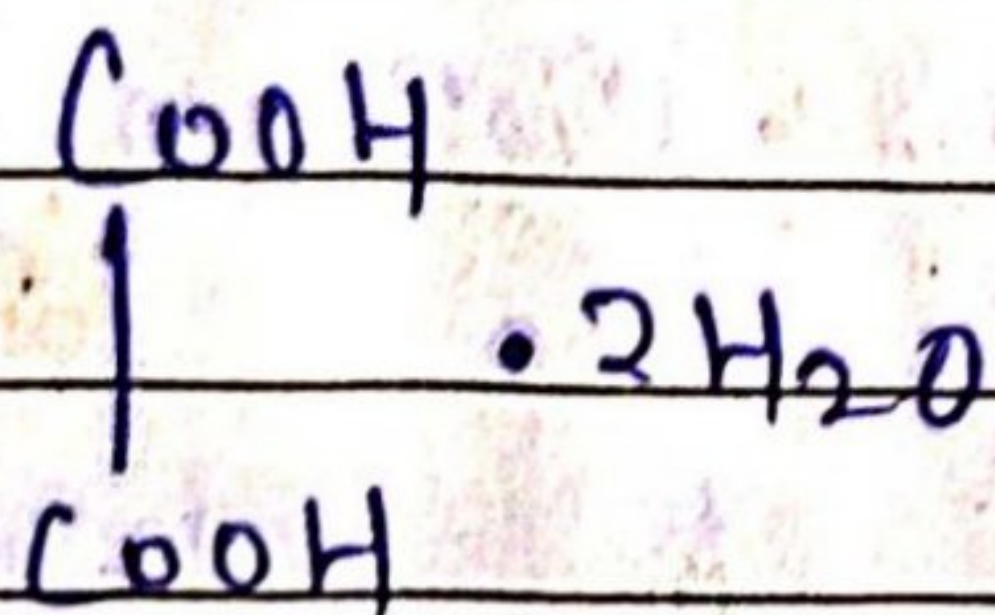
Blue colour
obtain

α -Nepthol
present

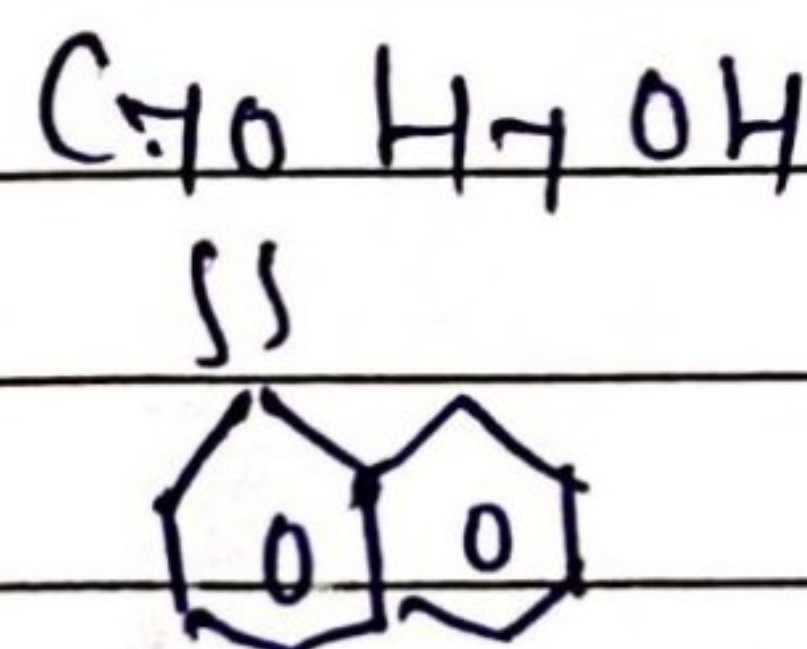
Result :-

In given mixture oxalic acid and
 α -Nepthaline are present.

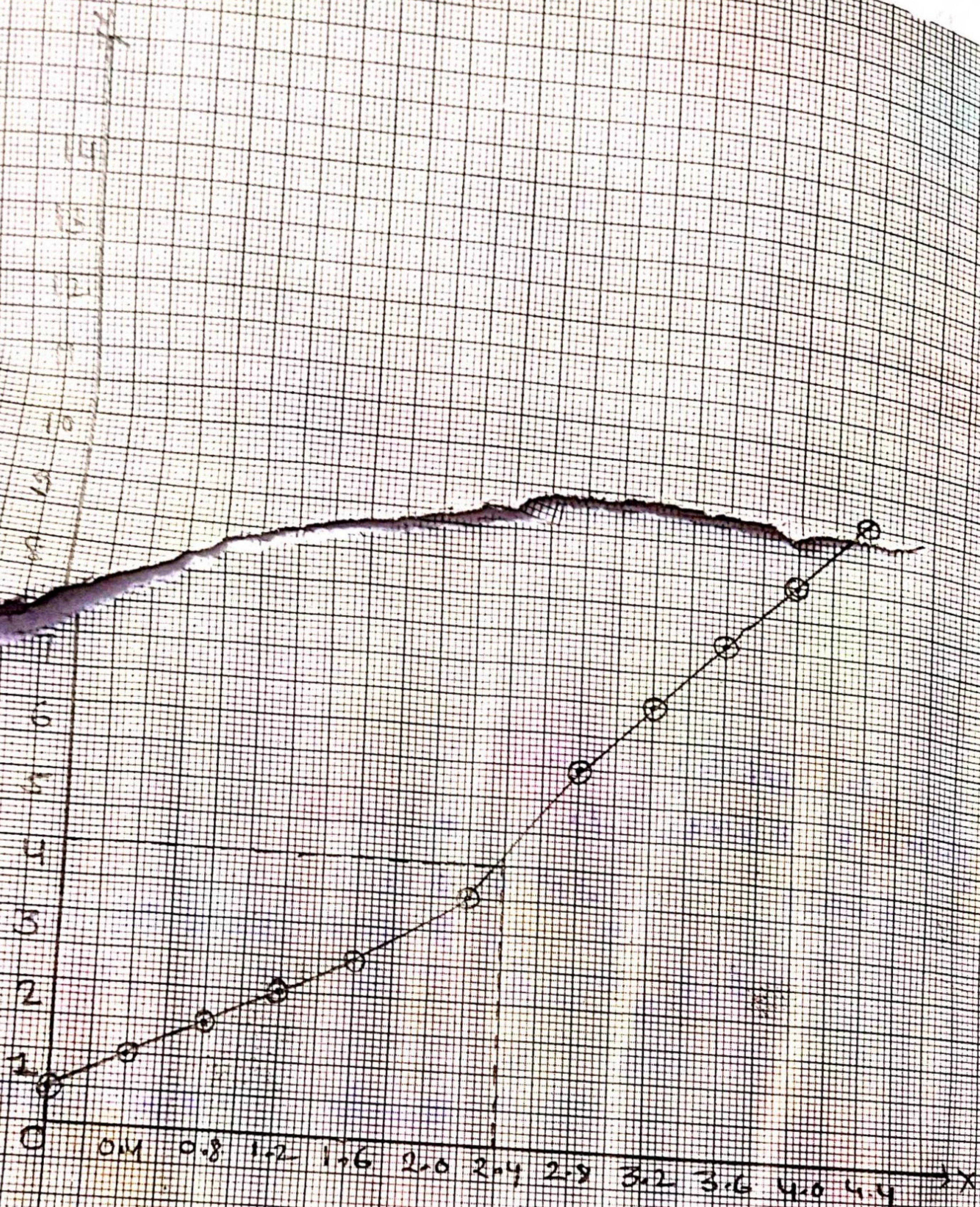
Comp - I



Comp - II



(α -Nepthol)



Object:- NaOH masked in HCl and Calculate Concentration.

Equipment:- Measured Conductivity, measured Cell, Pipette, Burette, Beaker.

Chemical:- (i) NaOH Solution.
(ii) HCl Solution.

principle:- $N_1 V_1 = N_2 V_2$ $N_1 = \text{Normality of Acid}$
 $V_1 = \text{Volume of Acid soln}$
 $N_2 = \text{Normality of Basic soln}$
 $V_2 = \text{Volume of Basic soln}$

$N_1 V_1 = 0.1 N \times \text{Volume of } \text{NaOH at mazar point}$

$N_1 V_1 = 0.1 N \times \text{Volume of Bas at mazar point}$
 and Concentration.

$= N_1 \times \text{measured weight}$

Test:-

① measurement of HCl = 36.5 gm

② Volume of Acid soln. = 10 ml

Calculation:-

$$N_1 V_1 = N_2 V_2 \quad N_1 = ?$$

$$V_1 = 10 \text{ mL}$$

$$V_2 = 7 \text{ mL}$$

$$N_2 = 0.1 \text{ N}$$

$$N_1 \times 10 = 0.1 \text{ N} \times \text{Sol}^n \text{ of Base at meq point}$$

$$N_1 = \frac{0.1 \text{ N} \times \text{Sol}^n \text{ of Base at meq point}}{10}$$

$$N_1 = \frac{1 \times 7}{100}$$

$$N_1 = 0.07 \text{ N}$$

HCl meq weight of HCl

Concentration = $N_1 \times \text{meq weight}$

$$= 0.07 \times 36.5$$

$$= 2.555 \text{ gm/liter}$$

Expt. Table		
S.No	NaOH Volume of Sol ⁿ	Conductivity of Sol ⁿ
1	0.0	26.60
2	1	24.60
3	2	20.00
4	3	17.210
5	4	14.210
6	5	11.210
7	6	8.20
8	7	5.40
9	8	6.00
10	9	7.10
11	10	7.80
12	11	8.40
13	12	8.80
14	13	9.40
15	14	10.00
16	15	10.00
17	16	10.00
18	17	11.60
19	18	12.20
20	19	12.80
21	20	13.40
22	21	13.80

Result:- gm given acid concentration is
2.56 gm/liter.

Teacher's Signature.....

Object:- In given Acid Solⁿ Salt identify the Solⁿ by Conductivity measurement method.

Equipment:-

measured Conductivity, measured Solⁿ

In given Solⁿ, the measured Conductivity can be given $IV = K \times V$ — (1)

$$\Delta V = \frac{K \times 100}{C} \text{ — (2)}$$

The acidic Solⁿ, Have the amount of salt Solⁿ is low, so it is fully in-soluble & in Soluble salt

$$\Delta V = 100 \text{ — (3)}$$

Kolrause principal

$$\Delta V = \lambda_{00}^{+} + \lambda_{00}^{-} \text{ — (4)}$$

$$C = \frac{K \times 100}{\lambda_{00}^{+} + \lambda_{00}^{-}}$$

While the in Soluble salt Solubility is less Soluble so

$$K_{Sol^n} = K_{Sol^n} - K_{H_2O} \text{ — (5)}$$

So Solubility in less Soluble salt.

$$C = \frac{(K_{Sol^n} - K_{H_2O}) \times 100 \text{ gm/liter}}{\lambda_{00}^{+} + \lambda_{00}^{-}}$$

Calculation:-

$$K = K_{sol} - K_{H_2O}$$

$$K = 1.200 - 0.954$$

$$K = 0.246 \Omega^{-1} m^{-1}$$

But room on Conductivity

$$K = 0.00246 \Omega^{-1} m^{-1}$$

So:- $S = \frac{0.00246 \times 1000 \times 116.70}{143.4 \times 200}$

$$S = \frac{0.00246 \times 116.70}{143.4 \times 200}$$

$$S = \frac{0.000285}{143.4 \times 200}$$

$$Q_{sol} + Q_{H_2O} = Q$$

$$Q_{sol} = K_{sol} \times A \times \Delta T$$

$$Q_{H_2O} = K_{H_2O} \times A \times \Delta T$$

$$Q = (K_{sol} - K_{H_2O}) \times A \times \Delta T$$

$$Q_{sol} + Q_{H_2O} = Q$$

Test Table :-

Temperature = 20°C Cell measured = 1cm^2

$$\text{Conductivity of water} = \frac{0.93 \times 0.947 \times 0.976}{3}$$

$$= 0.954$$

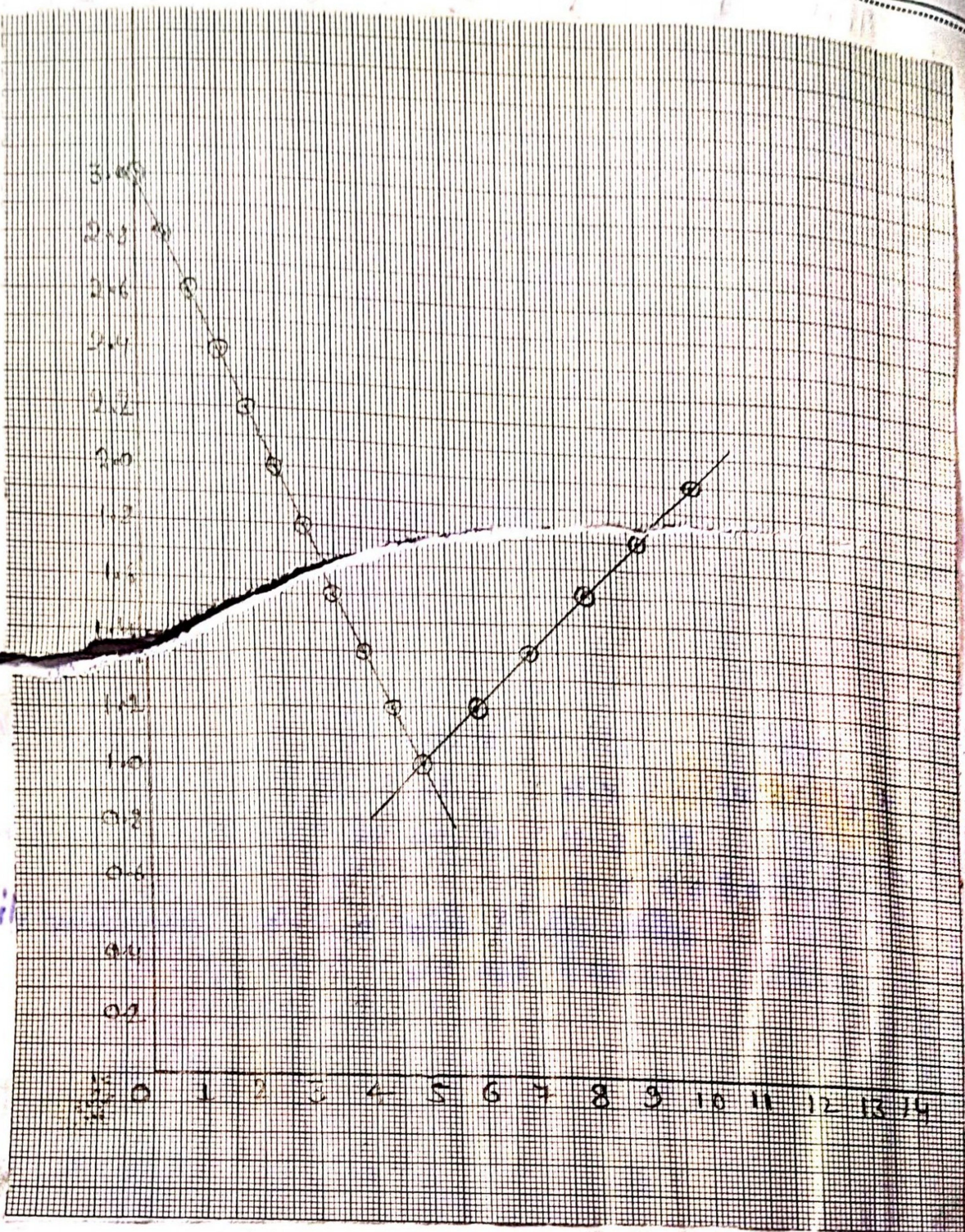
$$\text{Conductivity of specifi². water} = 0.954 \times 1$$

$$= 0.954$$

S.No	Basol Sol ⁿ Test	Basol Specific Conductivity	medium $\mu\text{-l m}^{-1}$
1.	1.194	$1 \times 1.194 \times 1.194$	
2.	1.200	$1 \times 1.200 \times 1.200$	1.200
3.	1.206	$1 \times 1.206 \times 1.206$	

Result :-

On 20°C Tem. The less solubility of salt Basol = 0.001 gm/lt.



Object:-

In given Conductivity measured weak acid (CH_3COOH) Calculate Concentration of NaOH (Base)

useful Equipment:- measured Conductivity measure cell pipette, micro tube, Beaker

Chemical:- NaOH , (i) CH_3COOH

Principle:- $N_1V_1 = N_2V_2$

N_1 = Normality of acid solⁿ.

N_2 = Normality of Base solⁿ.

V_1 = Volume of acidic solⁿ

V_2 = Volume of Basic solⁿ.

$N_1V_1 = 0.1N \times \text{Volume of Base on measure point}$

$N = 0.1N \times \text{Volume of Base on measure point}$

$N_1 = \text{Concentration} = N \times \text{measure weight}$

Test:-

(i) CH_3COOH measure weight of

(ii) Volume of acid solⁿ. = 10ml

Teacher's Signature.....

Calculation :-

$$N_1 V_1 = N_2 V_2$$

So

$$V_1 = 10 \text{ mL}$$

$$V_2 = 2.4 \text{ mL}$$

$$N_2 = 0.1 \text{ N}$$

$$\text{So } N_1 \times 10 = 0.1 \text{ N} \times \text{Volume of Base at measure point}$$

$$N_1 = \frac{0.1 \text{ N} \times \text{Volume of Base at measure point}}{100}$$

$$N_1 = \frac{2.4}{100} = 0.024$$

$$\text{CH}_3 \text{COOH} \text{ Required measure weight} = 60.06 \text{ gm}$$

$$\text{Concentration} = N_1 \times \text{measure weight}$$

$$= 0.024 \times 60.06$$

$$= 1.441 \text{ gm/liter}$$

Table Test		
S.N	Volume of mixed Basic Sol ⁿ (ml)	Conductivity of Sol ⁿ
1.	0.0	0.42
2	0.4	0.82
3	0.8	1.24
4	1.2	1.68
5	1.6	2.12
6	2.0	2.48
7	2.4	4.01
8	2.8	5.50
9	3.2	6.51
10	4.0	7.42
11	4.4	8.62
12	4.8	9.42
13	4.8	10.91

Result: -

In given Solⁿ Concentration is
1.44 gm/liter

Object:-

In a water solⁿ By the method of Himant measured substance by atomic weight

Equipment:- Thermometer, Beker.

Chemical:- Ice, salt paste of solvent.

principle:- Any unevaporation the solub^l substance solubline wgm which show in ΔT_f

$$\Delta T_f = \frac{1000 \times K_f \times W}{m \times W} \quad \text{OR} \quad \frac{1000 \times K_f \times W}{\Delta T_f \times W}$$

 T_f = Cold measurement W = weight of solⁿ W = weight of soluble K_f = Cold measured m = atomic weight of solⁿ.

Test:-

(i) Volume of water solⁿ(ii) Density on Room Temp. of water
 $= 1 \text{ gm/lit.}$ (iii) given weight of water (V x d)
 $15 \times 1 = 15 \text{ gm}$

(iv) Cooling point of water

Calculation:- Cooling point of water soln.

$$T_0 = \frac{T_1 + T_2 + T_3}{3}$$

$$T_0 = \frac{(-6) + (-6) + (-6)}{3} = -6^\circ\text{C}$$

2. Cooling Study of soln

$$T = \frac{(-4) + (-4) + (-4)}{3} = -4^\circ\text{C}$$

3. Cooling points

$$m = \frac{K_f \times 1000 \times W}{\Delta T \times W}$$

$$m = \frac{1.86 \times 1 \times 1000}{15 \times 2} = \frac{1860}{30}$$

$$m = 62 \text{ gm.}$$

Tasting Table:-

S.No.	weight of soln	Tem. of soln.	medium Tem of soln.	Tem of soln.	freezing point	atomic weight
				10°C	$T_f(T_b^{-1})$	wight (m)
1	1	-4				
2	1	-4	-4	-6	-4-(-6)	62gm
3	1	-4			= 2	

Result :-

In given Subsentent of atomic wight is 62gm.

Object:- By Conductivity method given HCl Solⁿ. Calculate Conduct Concentration.

Equipment:- measure conductivity, conductivity Cell, pipette, microburette, Burette etc.

Chemical:- (i) NH_4OH Solⁿ HCl
(ii) HCl Solⁿ.

Principle:- In HCl Solⁿ mixed NH_4OH solⁿ the last point conductivity is decreased. on after this NH_4OH have no change.

$$N_1 V_1 = N_2 V_2$$

Where N_1 = normality of acid Solⁿ.

V_1 = volume of acid solⁿ.

N_2 = normality of basic solⁿ.

V_2 = volume of basic solⁿ.

$$\text{So } N_1 V_1 = \frac{0.1 \times \text{Volume of basic at mesp}}{N_1}$$

Concentration = $n \times$ measure weight

Test. $\rightarrow$ Above HCl Solⁿ the Constr. is 40.0 ml

X-AXIS → 1 unit
Y-AXIS → 0.1 unit

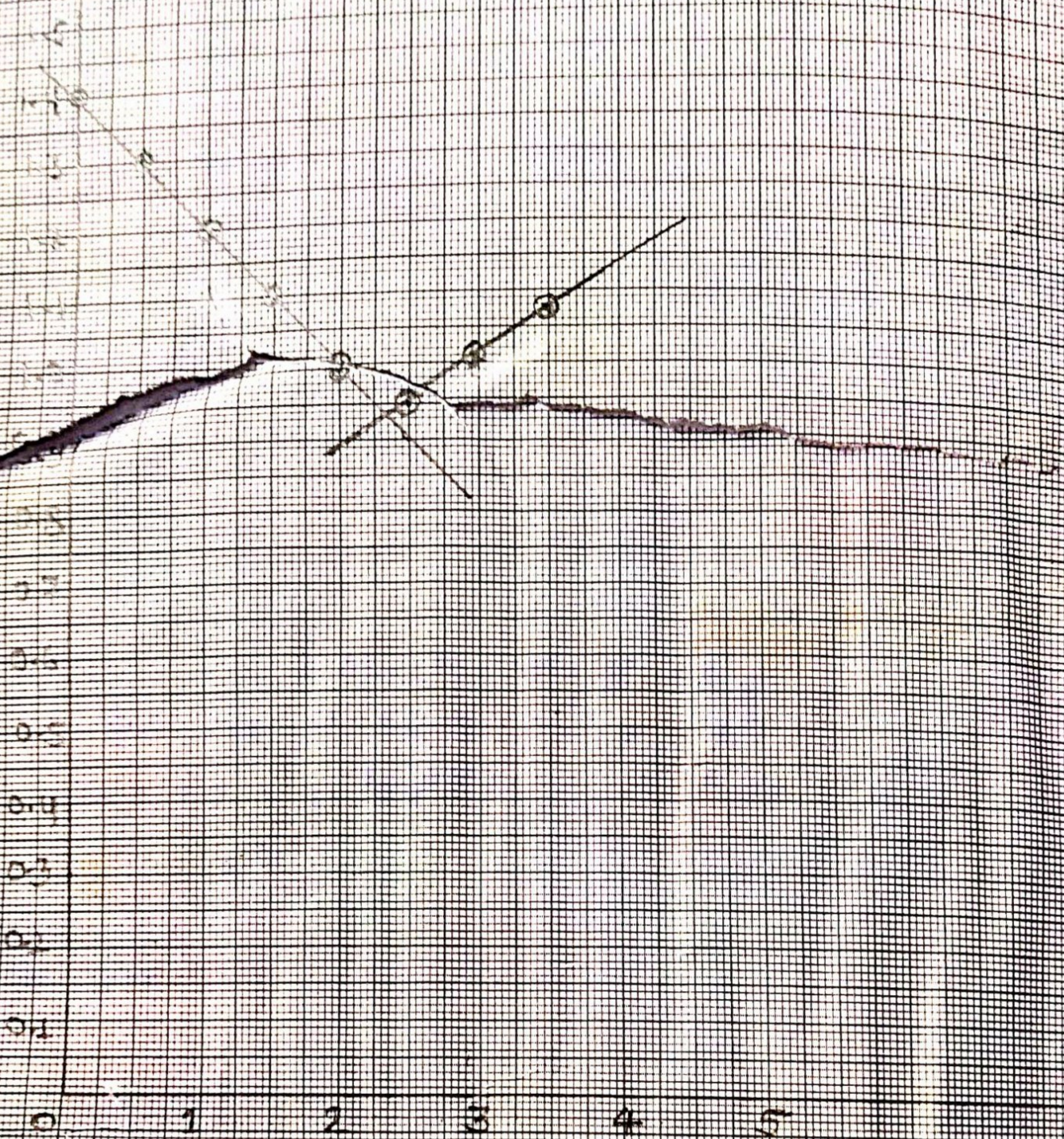


Table Test		
S.No	NaOH mixed volume (ml)	Conductivity
1	0.0	1.48
2	0.5	1.30
3	1.0	1.20
4	1.5	1.12
5	2.0	1.04
6	2.5	0.98
7	3.0	0.97
8	3.5	0.986
9	4.0	0.986
10	4.5	1.986
11	5.0	1.00
12	5.5	1.00

Result:-

In given unknown HCl soln.
Conc. is 0.2824 gm/-lit.