

UPDAAN



2025

Bharat Mata Ki Jai ♡

CHEMICAL REACTIONS AND EQUATIONS

Displacement, Double Displacement
Reactions and Its Types

Live exp + animation
videos

CHEMISTRY

Lecture – 06

BY: SUNIL BHAIIYA



Topics

to be covered

- 1 Displacement/Replacement Reactions and Its Types (✓)
- 2 Double Displacement/Metathesis Reactions and Its Types (✓)





SUNIL BHAIYA

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CBSE QUESTION & CONCEPT BANK

Chapter-wise & Topic-wise

Includes Point-wise Answers with Step-wise Marking

CLASS 10th SCIENCE

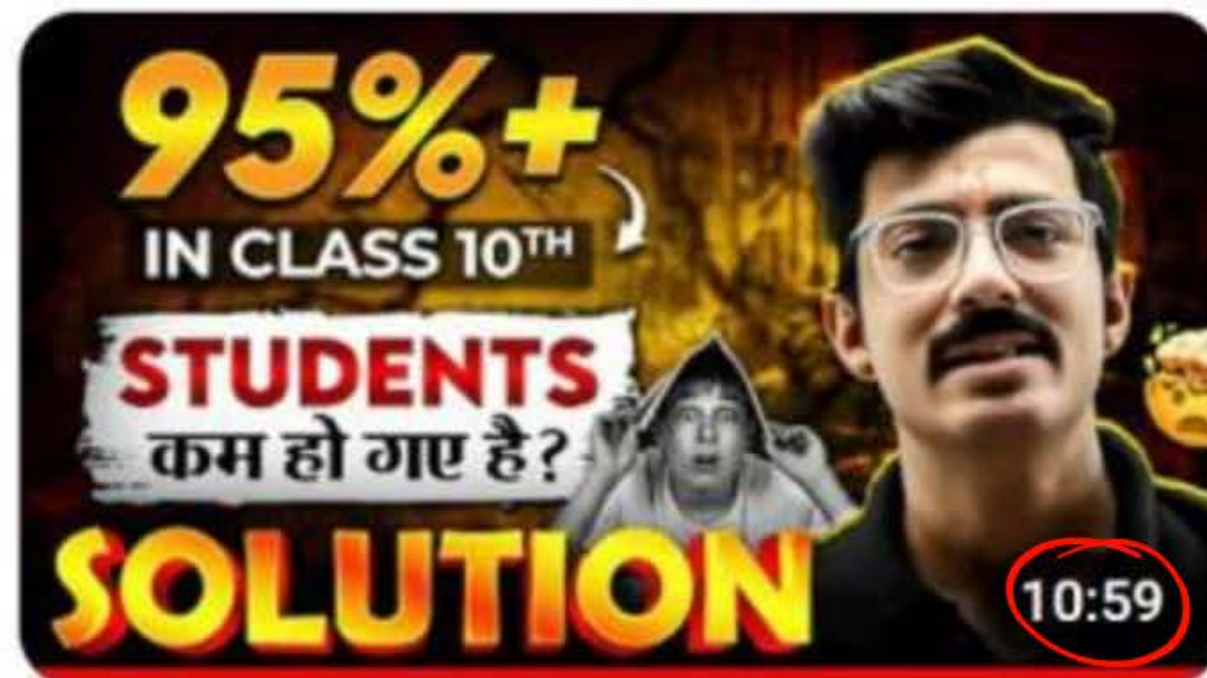
- Chapter-wise
CONCEPT MAPS
- CBSE 2024-25 & NEP 2020
CURRICULUM BASED
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MOCK TESTS

2025
EXAMINATION

👉 Rakshak Dua
👉 Samridhi Sharma
👉 Sunil Vijay Hingorani

Detailed Review and Importance of
the Book in One Video.

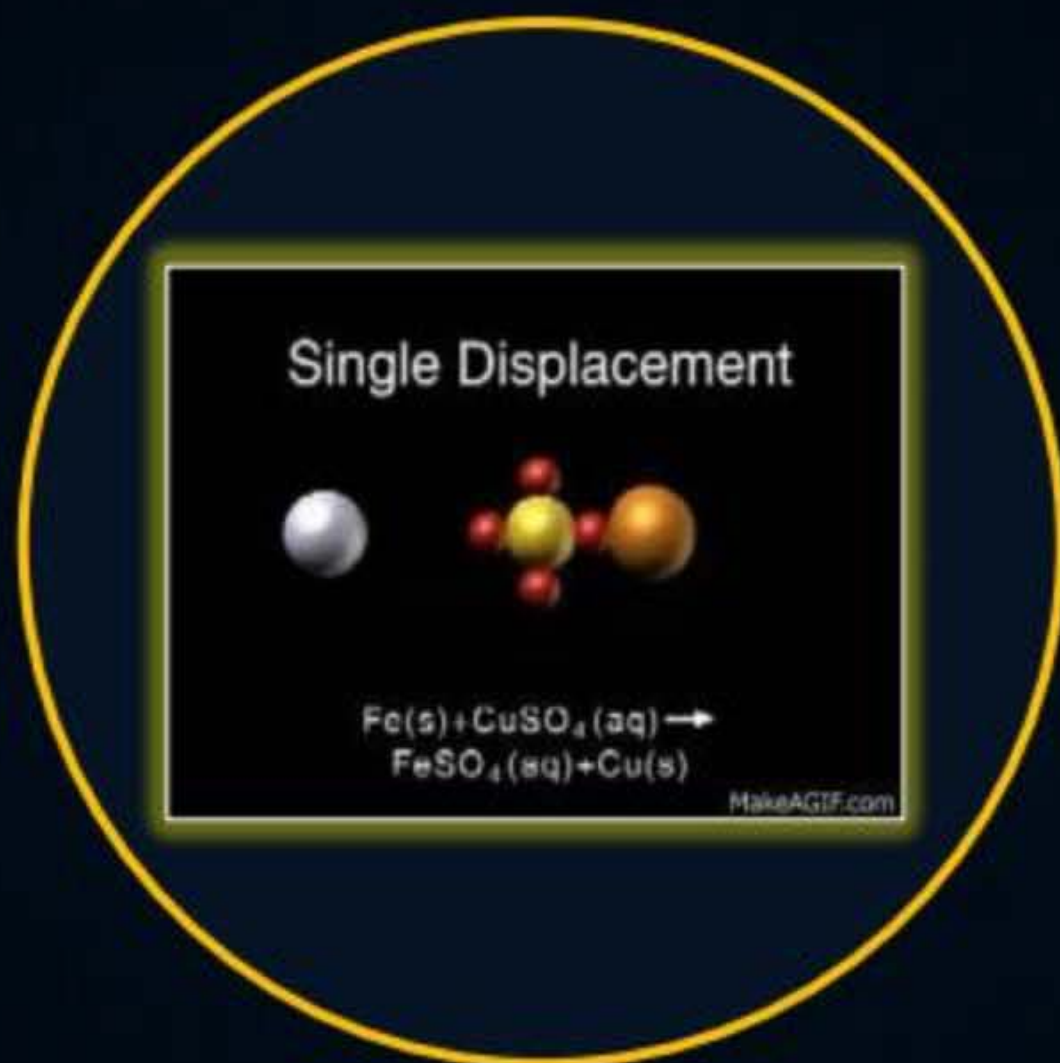
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Class 10th में 95%+ लाने वाले बच्चे घटे ?

🧐 Reason and Solution ✅

Knowledge Ride On



Displacement/Replacement
Reactions and Its Types

Knowledge Ride On



Double Displacement/Metathesis
Reactions and Its Types

Knowledge Ride On



Insaniyat Ka Gyaan



Hasmukhlal: Hi!

Simaila: Hey! Tell me something good about me in a different way.

Hasmukhlal: You are full of beryllium, gold and titanium.

Simaila: Samaj ni aaya par acha lga. Waise bola kya?

BeAuTi-Ful



Hasmukhlal: Hi!

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Sundar Balaks be like



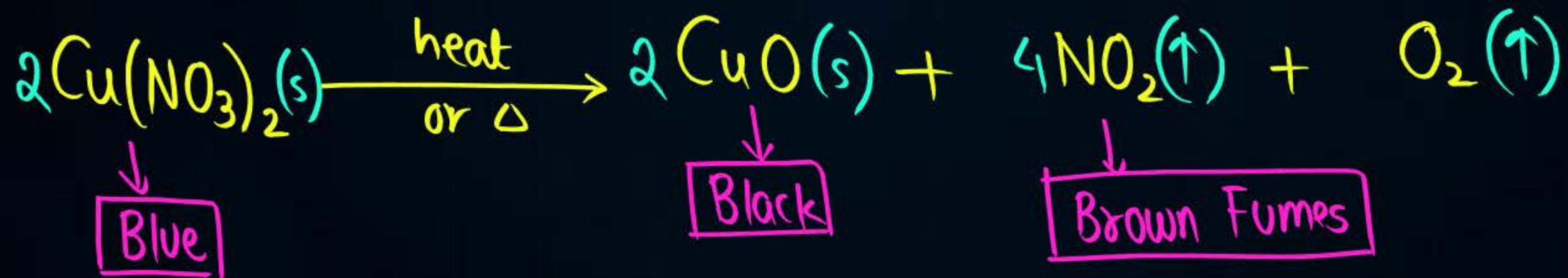
THE BOYS

Concept Polish (गृहकार्य) – Homework Discussion



What happens during thermolysis of copper nitrate?

Metal nitrate $\xrightarrow{\text{heat}}$ Metal oxide + Nitrogen dioxide + Oxygen
(Ca, Mg, Al, Zn, Fe, Pb, Cu)





Give a Thought



Decomposition reactions are generally endothermic. Do you agree?



Give a Thought



Decomposition reactions are generally endothermic. Do you agree?

Yes, ^{'most of the cases'} generally decomposition reactions are endothermic because energy is given (majorly in the form of heat but electricity, sunlight or sound are also considered).

→ ex: Decomposition of vegetable matter into compost → EXOTHERMIC



(Displacement/ Replacement Reactions and Its Types)



Give a Thought



What is the meaning of reactivity in terms of metals and non-metals?

↓
(ધાતુ)

↓
(અધાતુ)



Give a Thought



What is the meaning of reactivity in terms of metals and non-metals?

Metals → love to donate electrons [electron donors]

Non-metal [electron acceptors]

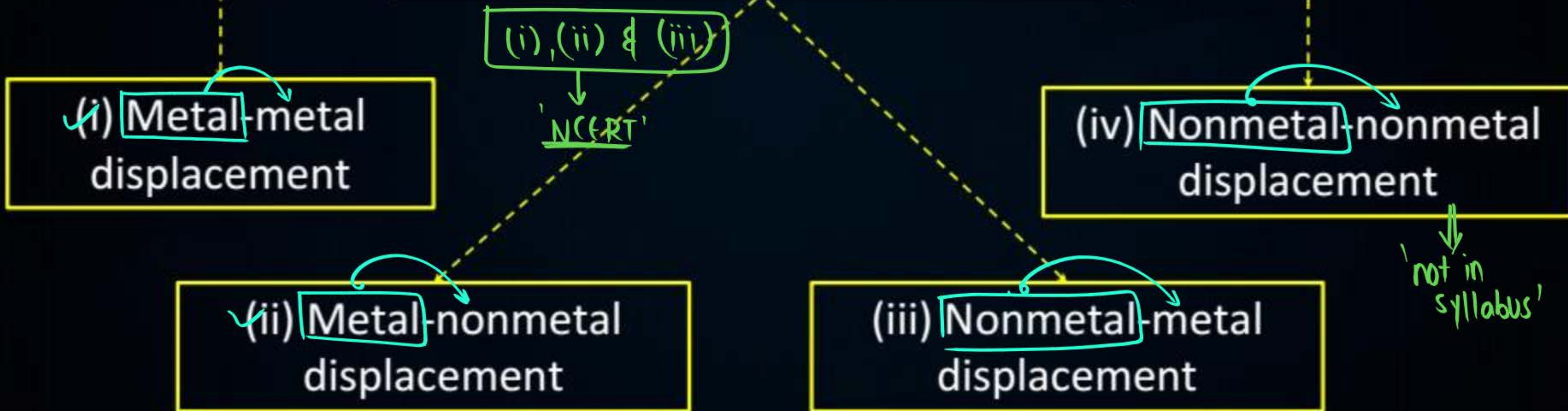
- A is more reactive metal than B.
'A' can easily donate electrons as compared to 'B'.
- A is more reactive non-metal than B.
- 'A' can easily accept electrons as compared to 'B'.

A chemical reaction in which a more active or reactive element displaces a less active or reactive element from its compound.

These reactions are generally found to occur in the solution.

(विस्थापन प्रतिक्रिया / अभिक्रिया)

Types of Displacement Reactions



Analogy - I



+



+



Sunil Bhaiya

Mohit Bhaiya

Radhika

Sunil Bhaiya - Radhika

Mohit Bhaiya

Reactivity of S.B. > M.B.

Analogy II - In video

Reactivity/Activity Series of Metals

order of reactivity of metals

Desi Trick

(C-I)

(C-II)
H (non-metal) lose | gain | share electrons
like metals
Reactivity decrease

K	← <u>K</u> udi	Potassium
Na	← <u>N</u> aal	Sodium
Ca	← <u>C</u> ar	Calcium
Mg	← <u>M</u> aango	Magnesium
Al	← <u>A</u> lto	Aluminium
Zn	← <u>Z</u> isko	Zinc
Fe	← <u>F</u> ir	Iron
Pb	<u>L</u> ekar →	Lead
H	<u>H</u> um	Hydrogen
Cu	<u>C</u> hale →	Copper
Hg	<u>M</u> athura →	Mercury
Ag	<u>S</u> ath →	Silver
Au	<u>A</u> humne →	Gold

Pt Prateek Platinum



Reactivity/Activity Series of Metals

- VIDESI TRICK

^(K) Please	^(Na) Stop	^(Ca) Calling	^(Mg) Me	^(Al) A
<div><div>^(C) Cute</div><div>^(Cu) Calling</div><div>^(Pt) Pobdo</div></div>	^(Zn) Zebra	^(Fe) I	^(Pb) Like	<div>^(H) Her</div>
	^(Hg) Mute	^(Ag) Smart	^(Au) Goat	

Useful in metallurgy → (points to the 'Cute' word in the first column)



Let's Practice



PW Ka **ChemStar!**

Question



Which among the following is the most reactive metal?

☒ A Na

☐ B Mg

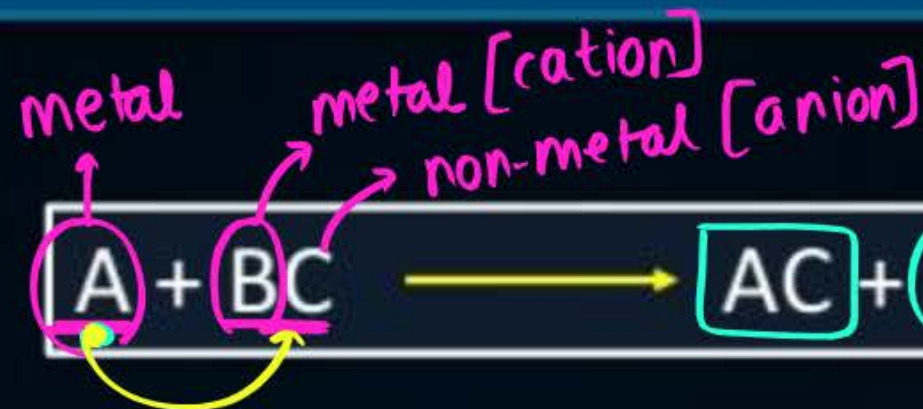
☐ C Zn

☐ D Ag

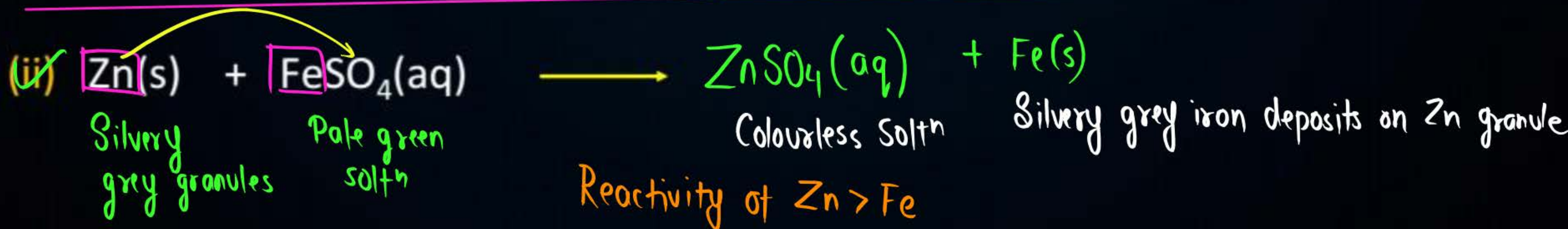
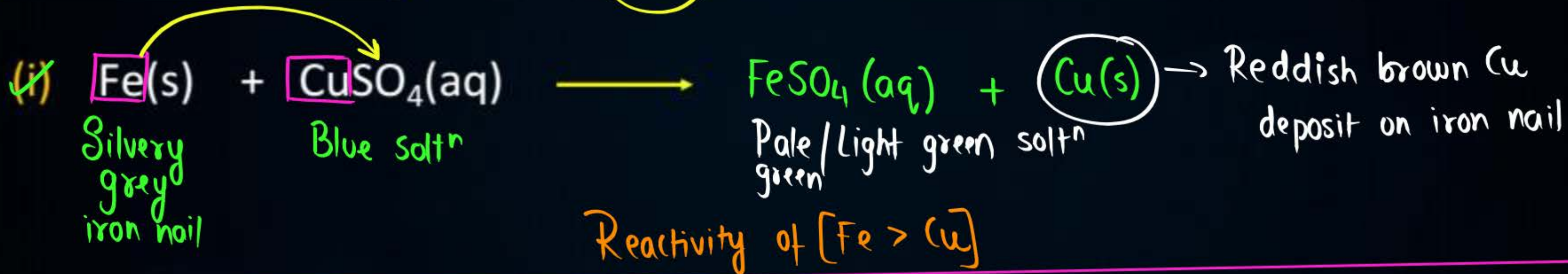


Metal-Metal Displacement Reaction

Representation



$\therefore [\text{Reactivity of } A > B]$





Metal-Metal Displacement Reaction

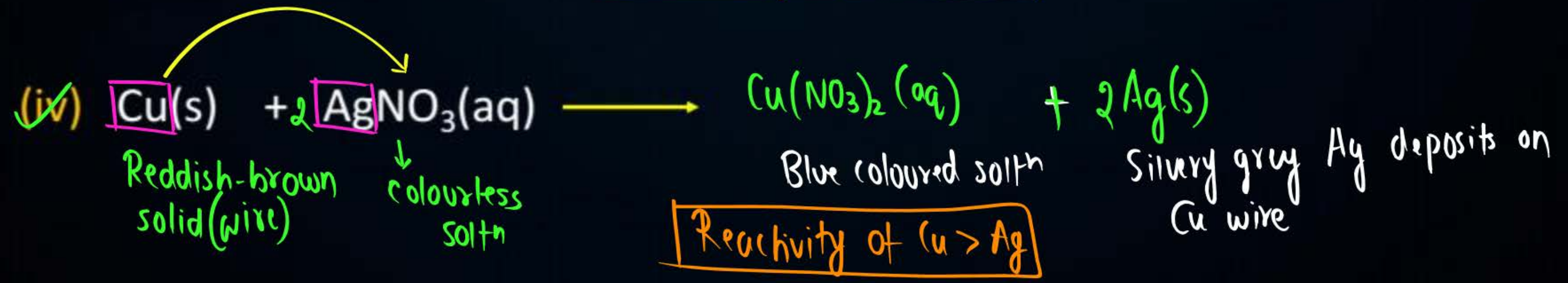
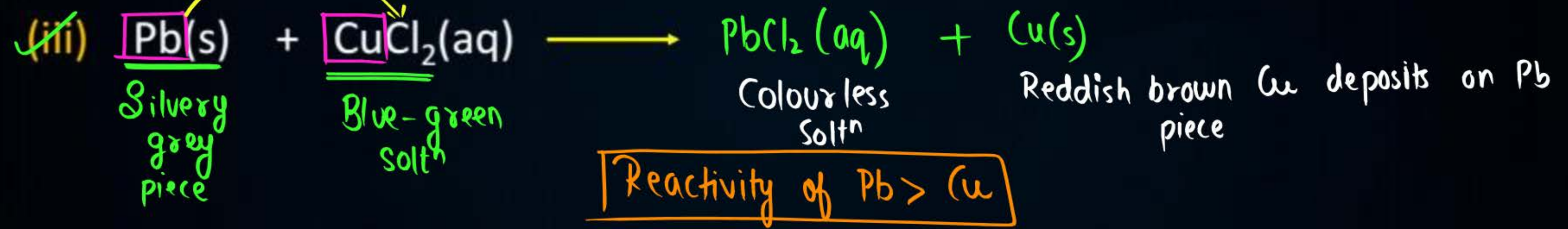
$PbCl_2(aq)$

↓
mentioned in NCERT

But

low solubility in H_2O

Representation



KYA BOLTI PUBLIC



Give a Thought



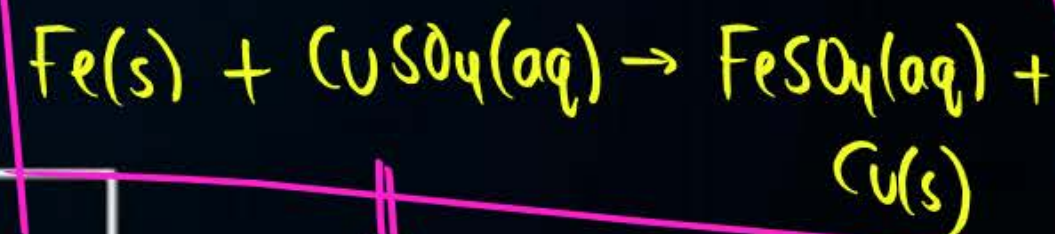
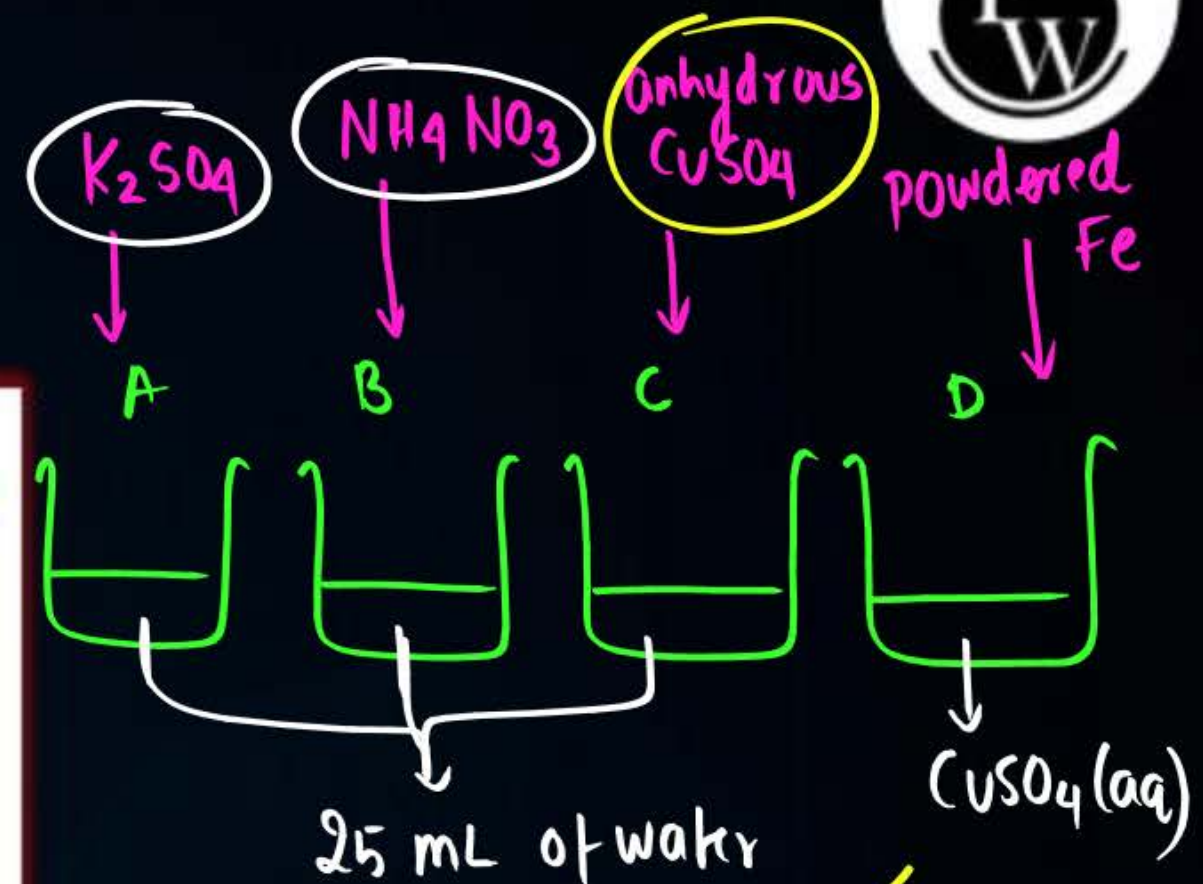
[CHIPA HUA GYAAN]

Group Activity

Perform the following activity.

- Take four beakers and label them as A, B, C and D.
- Put 25 mL of water in A, B and C beakers and copper sulphate solution in beaker D.
- Measure and record the temperature of each liquid contained in the beakers above.
- Add two spatulas of potassium sulphate, ammonium nitrate, anhydrous copper sulphate and fine iron fillings to beakers A, B, C and D respectively and stir.
- Finally measure and record the temperature of each of the mixture above.

Find out which reactions are exothermic and which ones are endothermic in nature.



Displacement Rxn
Generally, EXOTHERMIC

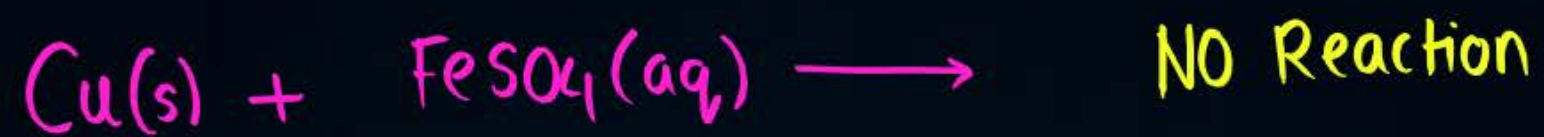
CONCLUSION

A and B: Endothermic (✓)

C: Exothermic (✓)

D: Displacement reactions are generally exothermic.

CURIOUS QUESTION



\because Reactivity of Fe > Cu

For Knowledge [another way of representation]





Double Displacement/Metathesis Reactions and Its Types

aye bhaiya ♡



(C-I)
A chemical reaction in which there is an exchange of ions, i.e. cations and anions between reactants.

Representation



Cation is written first followed by anion

(C-III)
Double displacement reactions

This chapter

(i) Precipitation reactions

(ii) Neutralisation reactions

(iii) Gas forming reactions

(next chapter)

Analogy



Cation

Anion

Cation

Anion



+



+



Sunil
Bhaiya

Radhika

Rahul

Simaila

Sunil
Bhaiya

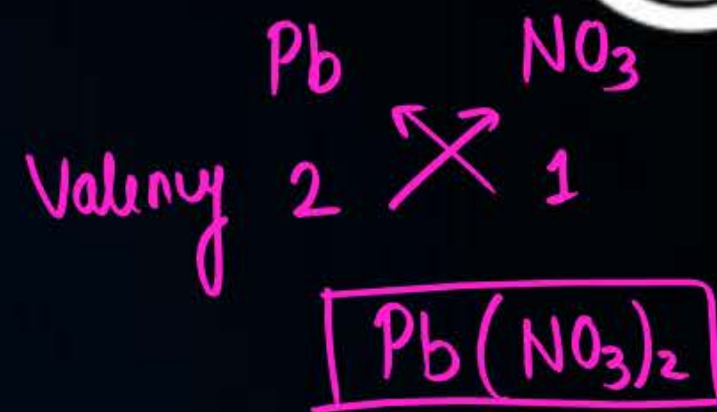
Simaila

Rahul

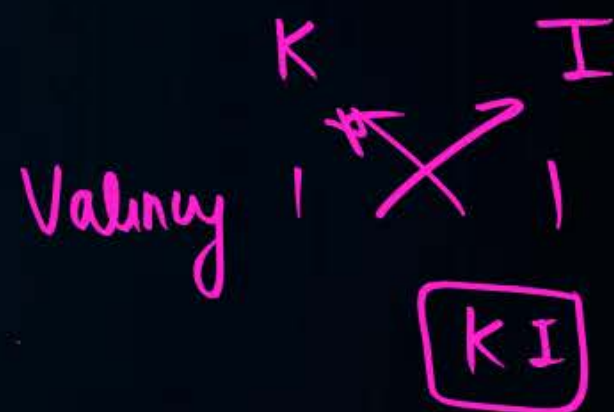
Radhika



Cation	Valency	Anion	Valency
Pb^{2+}	2	NO_3^{1-}	1
K^{1+}	1	I^{1-}	1



Pb^{2+}	2	I^{1-}	1
K^{1+}	1	NO_3^{1-}	1





(C-I)

PRECIPITATION RXN → Type of double displacement

The reaction in which aqueous solutions of two ionic compounds or a gas and an aqueous solution of ionic compound react to form an insoluble solid, i.e. precipitate.

(C-II)



$\text{Pb}(\text{NO}_3)_2 \rightarrow$ Lead nitrate / Lead(II) nitrate

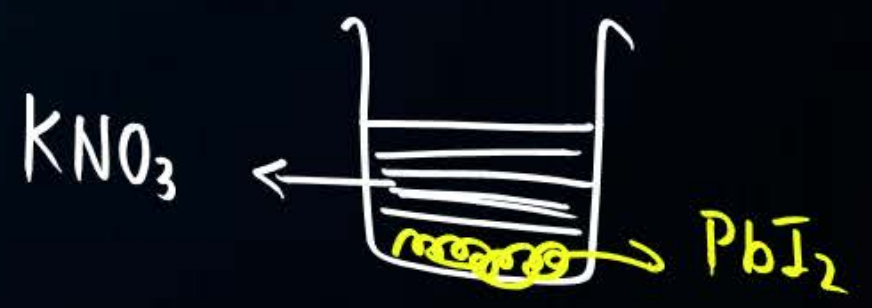
$\text{KI} \rightarrow$ Potassium iodide

$\text{PbI}_2 \rightarrow$ Lead iodide / Lead(II) iodide

$\text{KNO}_3 \rightarrow$ Potassium nitrate

(C-III)

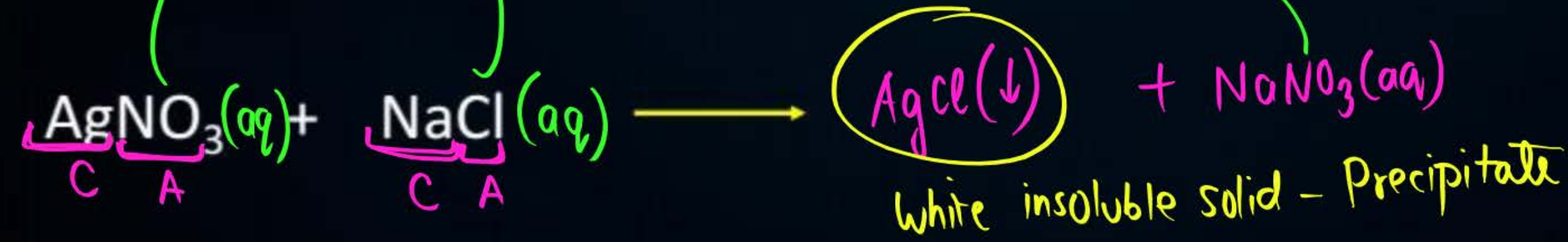
PbI_2 ppt. settles at bottom after some time.





Colourless Solution

ppt. will settle at the bottom of colourless soln



KYA BOLTI PUBLIC



Concept Polish (गृहकार्य)





Give A Thought

[NCERT Book Theory] → Homework

Take about 2 g barium hydroxide in a test tube. Add 1 g of ammonium chloride and mix with the help of a glass rod. Touch the bottom of the test tube with your palm. What do you feel? Is this an exothermic or endothermic reaction?

Insaniyat Ka Gyaan

***Insaniyat Ka Gyaan
Jo Banae Behtar Insan***

**तुम सत्य बोलोगे तो वो परमात्मा
की वाणी बन जाएगी।**

CBSE

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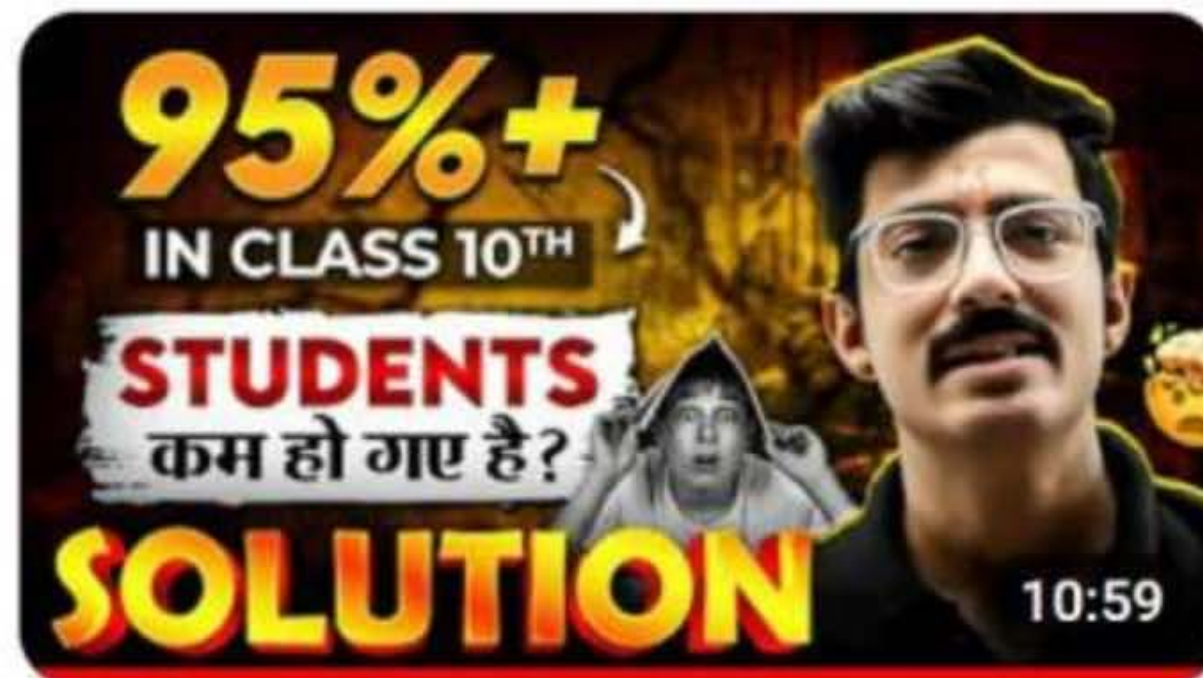
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🧐 Reason and Solution ☒

SUNIL BHAIYA IS ALWAYS THERE FOR YOU.

#sbsathhai ✓

#pwsathhai ✓



**THANK
YOU**

