

UPDAAN



2025

ACIDS, BASES AND SALTS
CLASSIFICATION AND PROPERTIES OF
ACIDS – PART II

*Bharat Mata Ki
Joi♥*

CHEMISTRY

Lecture – 03

BY: SUNIL BHAIIYA



Topics

to be covered

- 1 Chemical Properties of Acids – Part II (✓)
- 2 Bit More on Acids (✓)
- 3 Classification of Acids Based on Concentration (✓)



Ⓐ

Detailed Theory + Questions +
Live Exp.

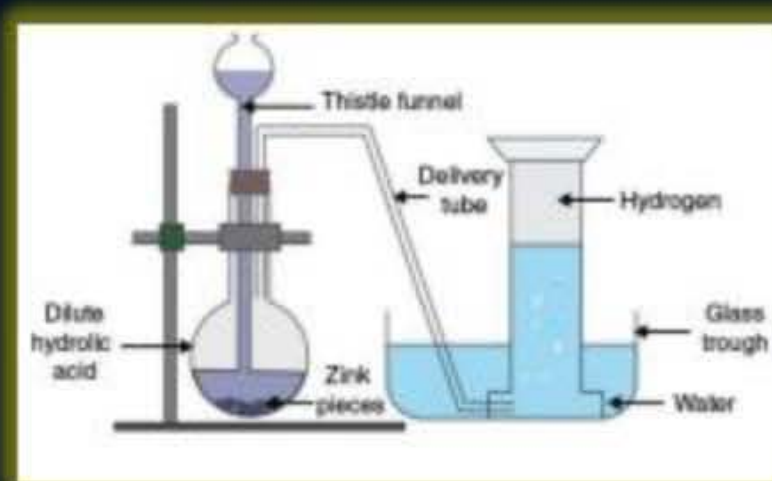
Lecture Duration → 5-6 hour

~~Ⓑ~~

Mind Map Revision + Questions + ^{Live} Exp.

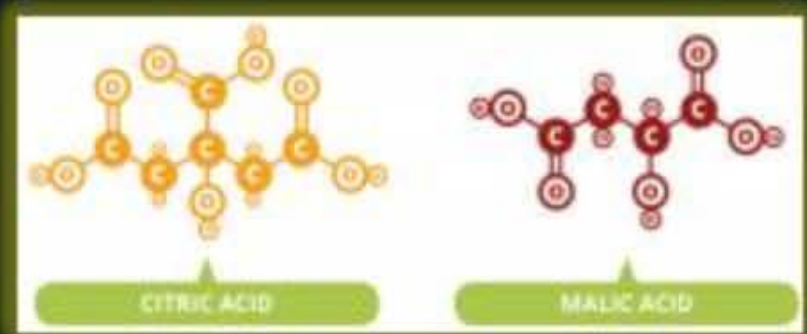
Lecture Duration → 3 hour

Knowledge Ride On



Chemical Properties of Acids – Part II

Knowledge Ride On



Bit More on Acids

Knowledge Ride On



Classification of Acids Based on
Concentration

Knowledge Ride On



Insaniyat Ka Gyaan ✓



Consider lips as a medium, identify the nature of medium in A and B with the help of colour of lips if phenolphthalein indicator is used.

(A)



Colourless

A: Acid or Neutral

(B)



Pink

B: Basic



Consider lips as a medium, identify the nature of medium in A and B with the help of colour of lips if phenolphthalein indicator is used.



*Hasmukhlal and
Other Boys Be Like*



Concept Polish (गृहकार्य) – Homework Discussion

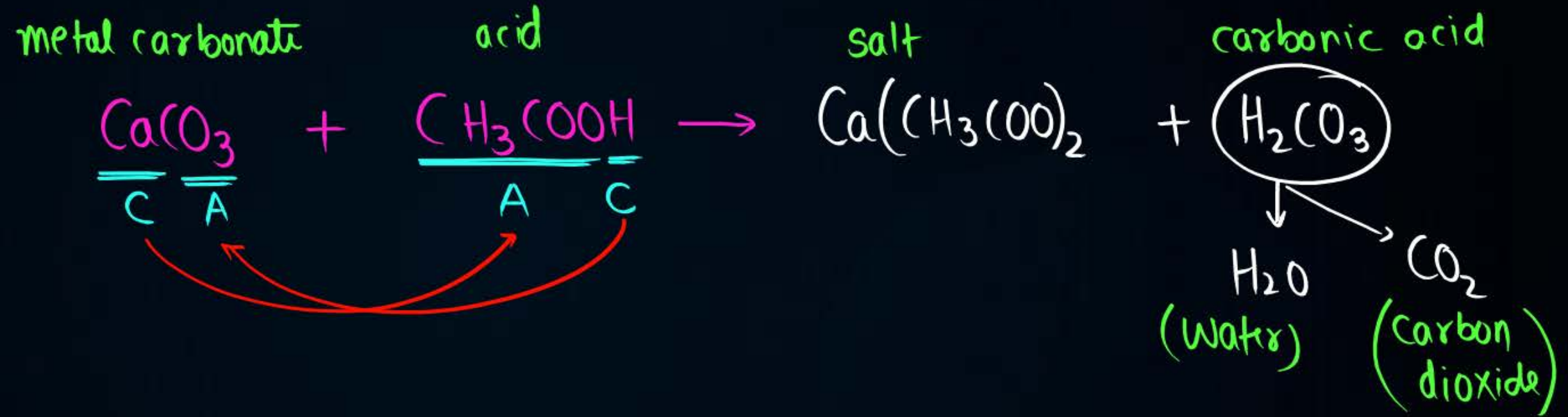


QUESTION



When we put a raw egg inside a beaker containing vinegar, there are bubbles of gas (X). Identify the gas (X).

egg-shells (white) → CaCO_3



- A** H_2
- B** CO
- C** CO_2
- D** H_2S



Chemical Properties of Acids – Part II



Give a Thought



Is reaction between acids and metal carbonates/bicarbonates a double displacement reaction?

- ☒ A. Yes
- ☐ B. No



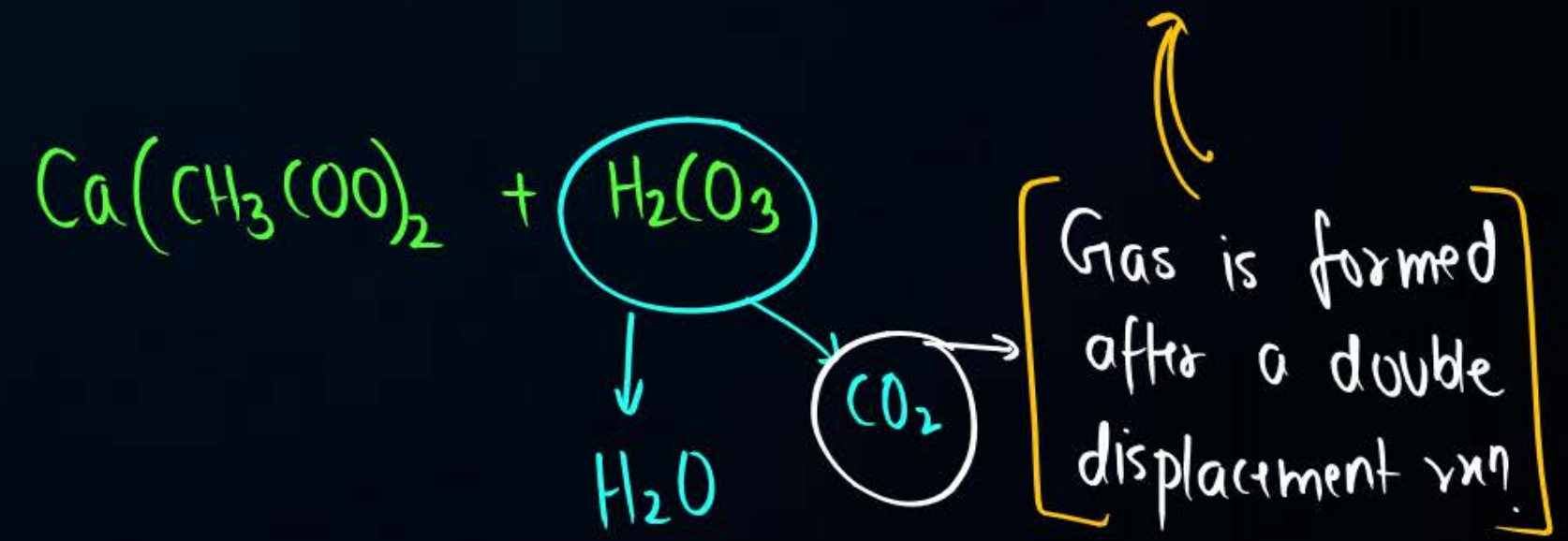
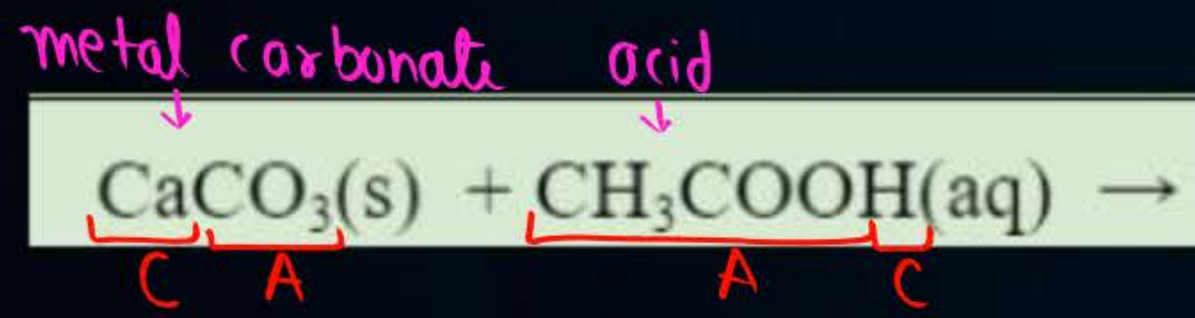
Give a Thought



Is reaction between acids and metal carbonates/bicarbonates a double displacement reaction?

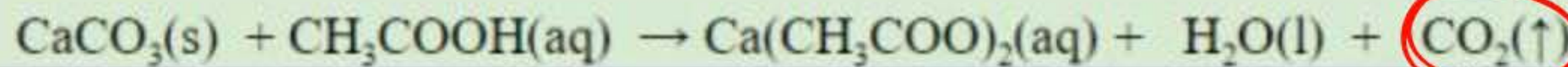
- ☒ A. Yes
- ☐ B. No

Gas forming Rxn



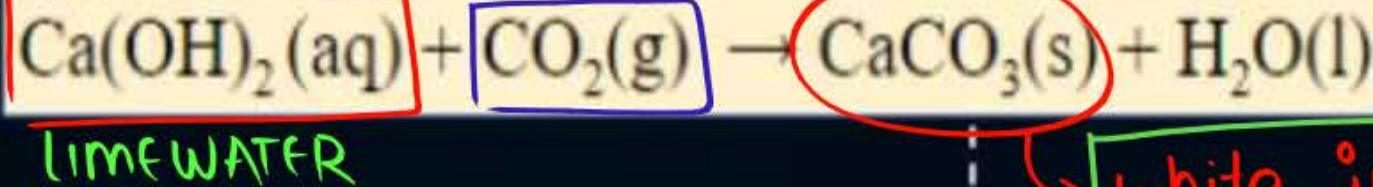
Experimental Verification of CO_2 Gas

Metal carbonate/ hydrogen carbonate + Acid \rightarrow Salt + Water + Carbon dioxide



Turns limewater milky/turbid

Colourless Soln



white insoluble solid

Excess of carbon dioxide gas passed through limewater



Tareeka IIIrd

Bring a burning matchstick near to

CO_2 gas

matchstick extinguishes

(CO_2 will displace O_2 because

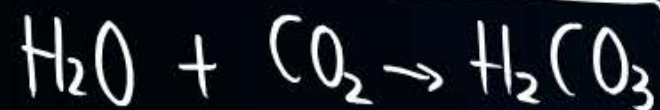
CO_2 is heavier than O_2)

Smothering

Tareeka - IInd

moist blue litmus paper in contact

to CO_2 gas \rightarrow paper turns red



Carbonic acid

Colourless Soln

Calcium bicarbonate



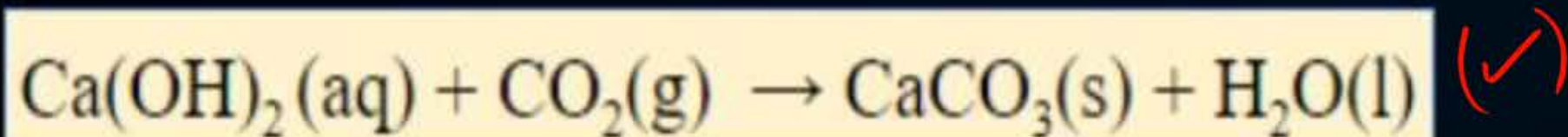
PYQs' Wallah



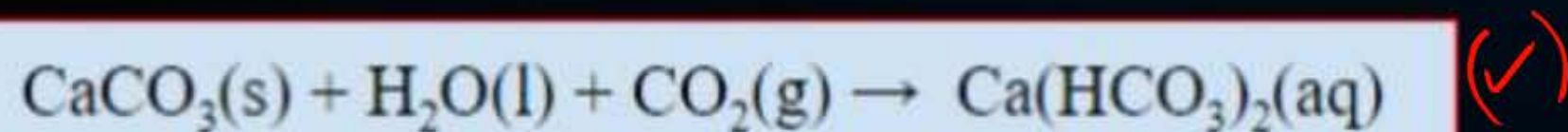
PW Ka **ChemStar!**

What is observed when carbon dioxide gas is passed through lime water
(i) for a short duration?
(ii) for a long duration? Also write the chemical equations for the reactions involved.

(i) Short duration: Turns limewater milky



(i) Long duration: Colourless solution is formed due to formation of $\text{Ca(HCO}_3)_2$.



Let's Practice – Concept
from Question



PW Ka **ChemStar!**

Q. Concept: Reaction of Metal oxide with Base

A black metal oxide (X) reacts with dilute hydrochloric acid to form another compound (Y) that turns the colour of the solution to blue-green. Identify (X), (Y) and the type of the reaction.

→ CuO

A (X): PbO, (Y): PbCl₂, Double displacement

B (X): Cu₂O, (Y): CuCl₂, Neutralisation

C (X): CuO, (Y): CuCl₂, Neutralisation

D (X): CaO, (Y): CaCl₂, Neutralisation

Q. Concept: Reaction of Metal oxide with Base



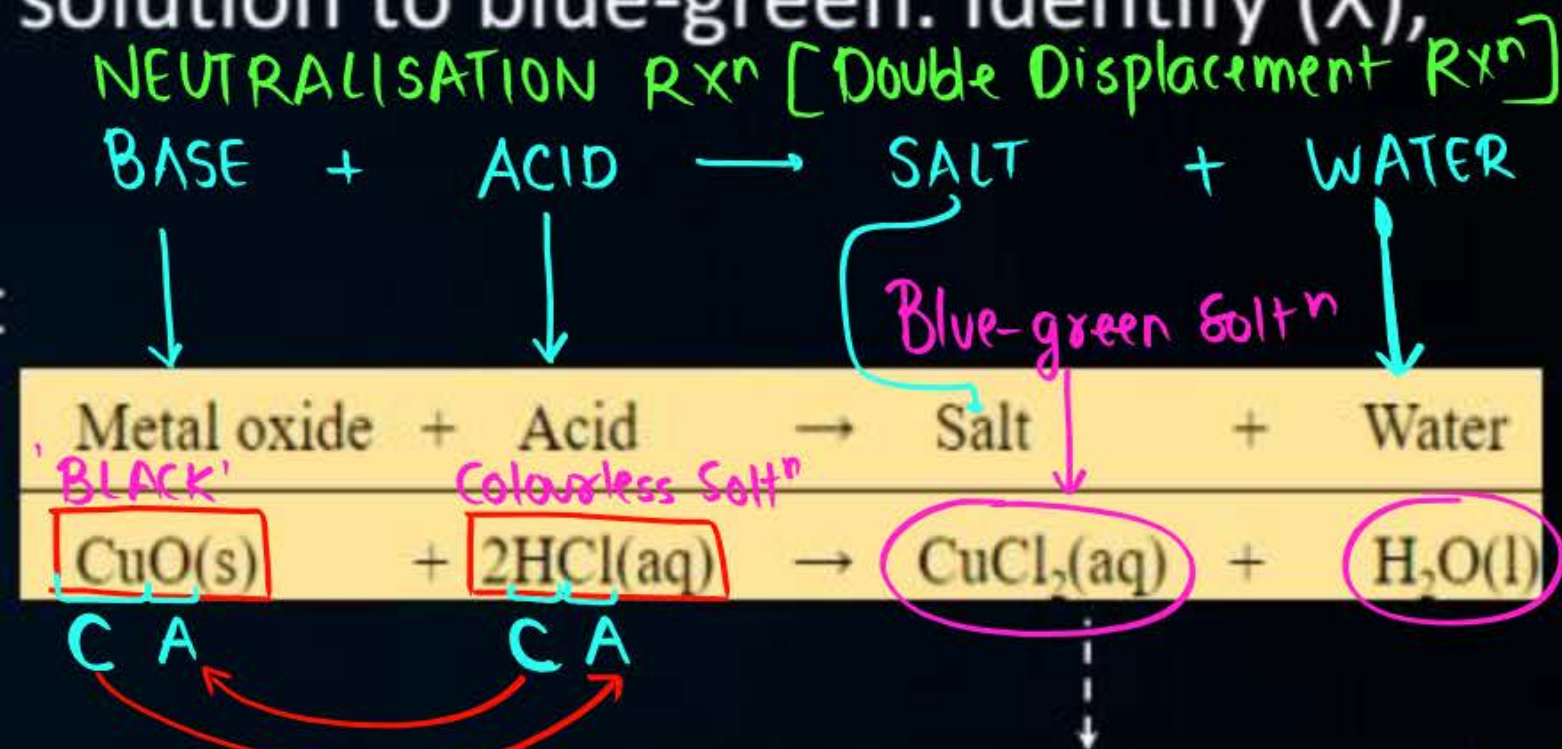
A black metal oxide (X) reacts with dilute hydrochloric acid to form another compound (Y) that turns the colour of the solution to blue-green. Identify (X), (Y) and the type of the reaction.

A (X): PbO , (Y): PbCl_2 , Double displacement

B (X): Cu_2O , (Y): CuCl_2 , Neutralisation

C (X): CuO , (Y): CuCl_2 , Neutralisation

D (X): CaO , (Y): CaCl_2 , Neutralisation



Some metal oxides, metal hydroxides and ammonium hydroxide are basic in nature.



Bit More on Acids

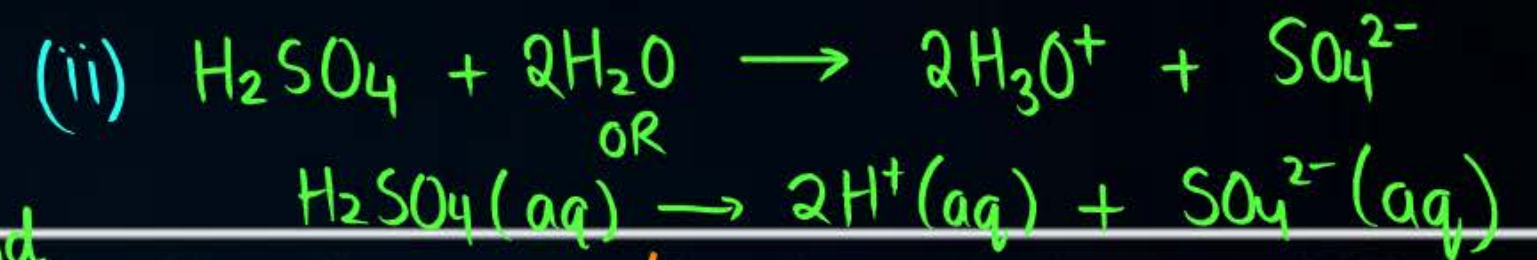
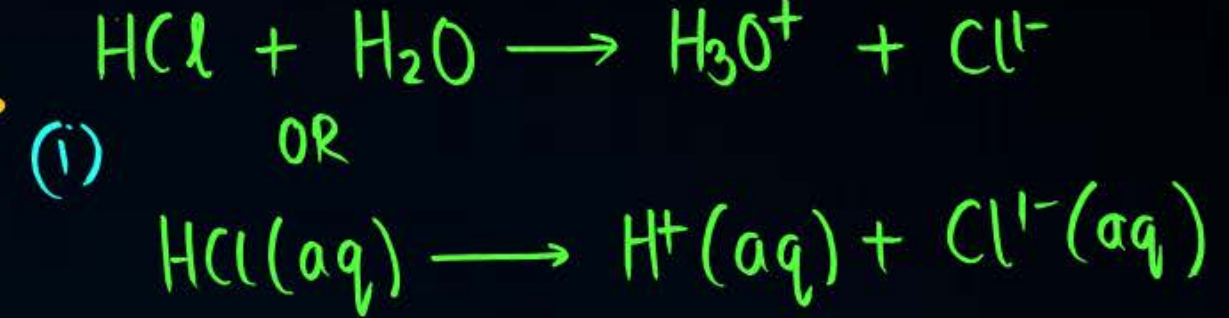
aye bhaiya♡



Yes or No



Concept II



and

Acids release H^+ ions in water but do they have an independent existence?

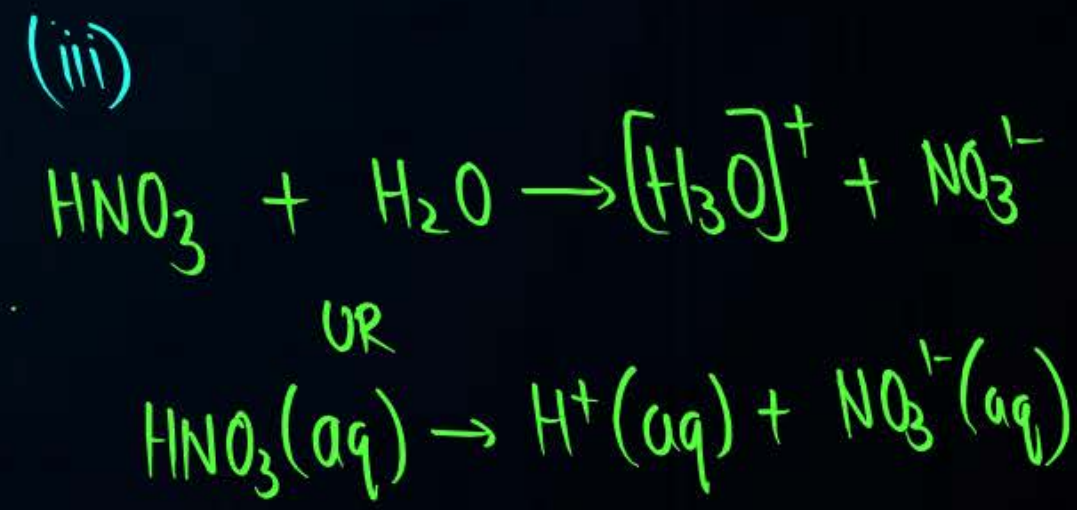
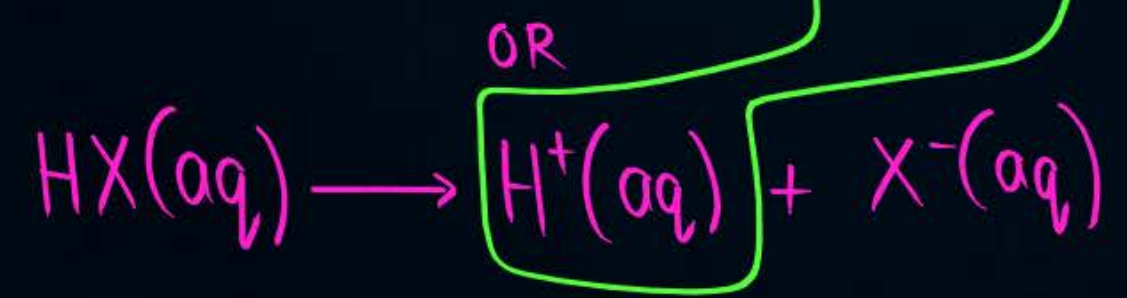
A. Yes

B. No



↓
आकेला रहेगा

Concept I





Yes or No



Acids release (H^+) ions in water but do they have an independent existence?

- A. Yes
- B. No

H^+ अकेला क्यों नहीं रहता।

Concept
III

	proton no. of e^+	electron no. of e^-	neutron no. of e^0
H	1	1	0
H^+	1	0	0

just a 'proton'

(high charge density so attracted towards electrons of oxygen of water)

Attaches with H_2O to form H_3O^+

Unstable and highly reactive

- Bare positive charge
- Extremely small size



Yes or No



Does acid shows their acidic character without water?

A. Yes

☒ B. No

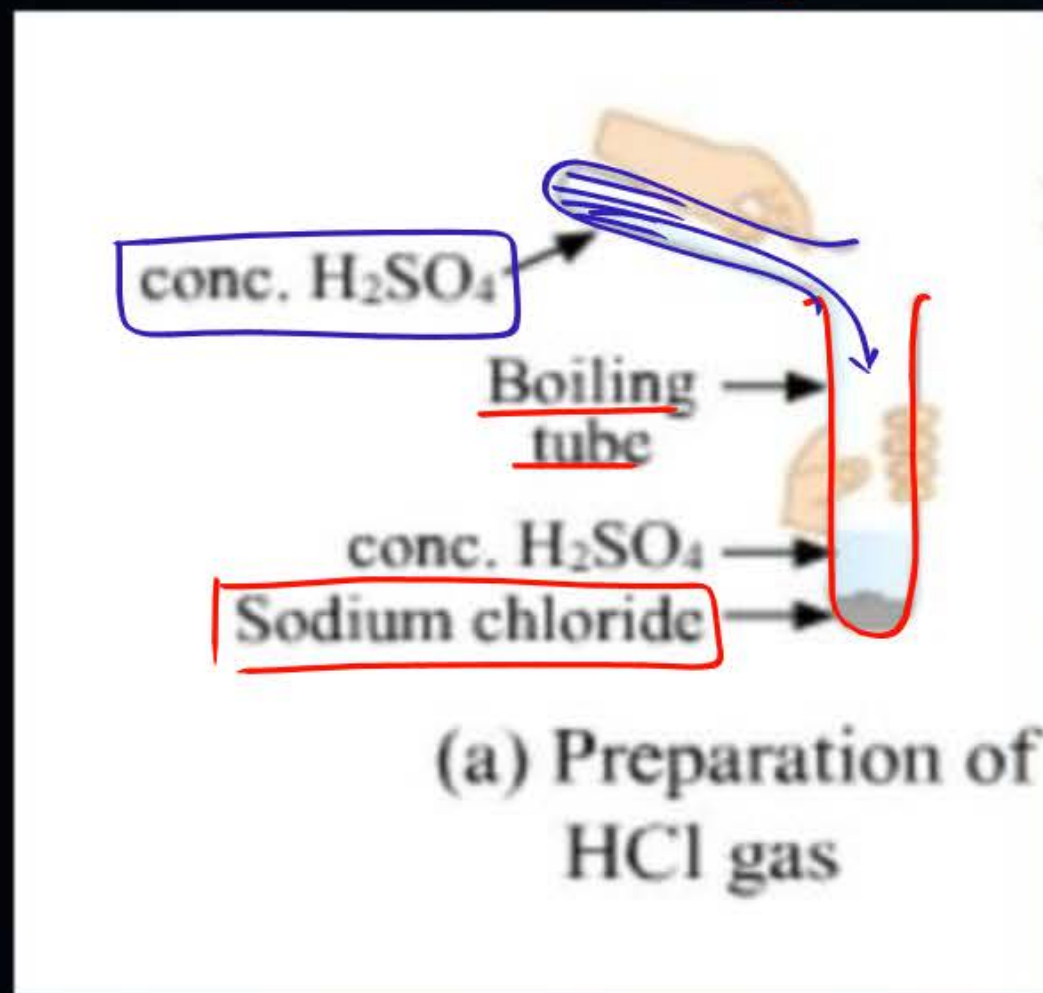
Acidic character of acids \rightarrow because of $H^+(aq)$ or $[H_3O]^+$ ions

\downarrow
(forms when acid interacts with water)

Let's prove

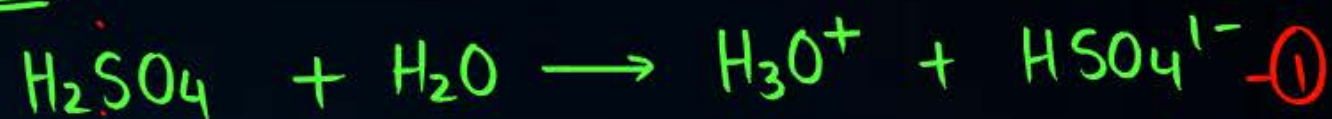
↓
(acids show their
acidic character in H_2O)

Role of Water in Dissociation of Acid



STEP I

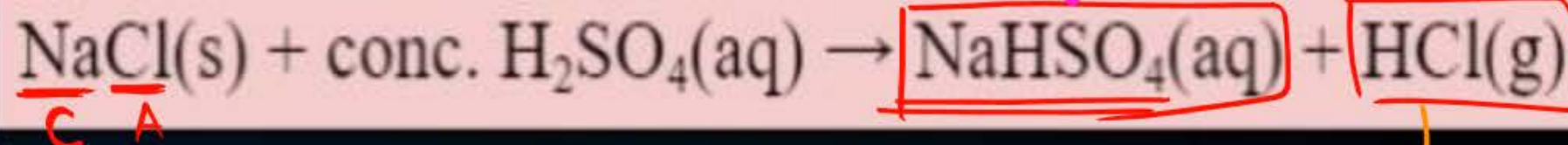
Extra



'NCERT'

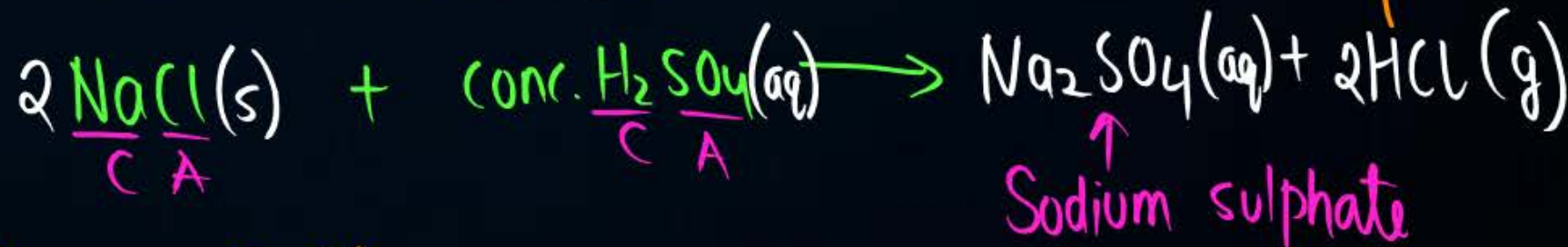
Less than $200^\circ C$

↓ Sodium hydrogen sulphate $\text{---} \textcircled{1}$



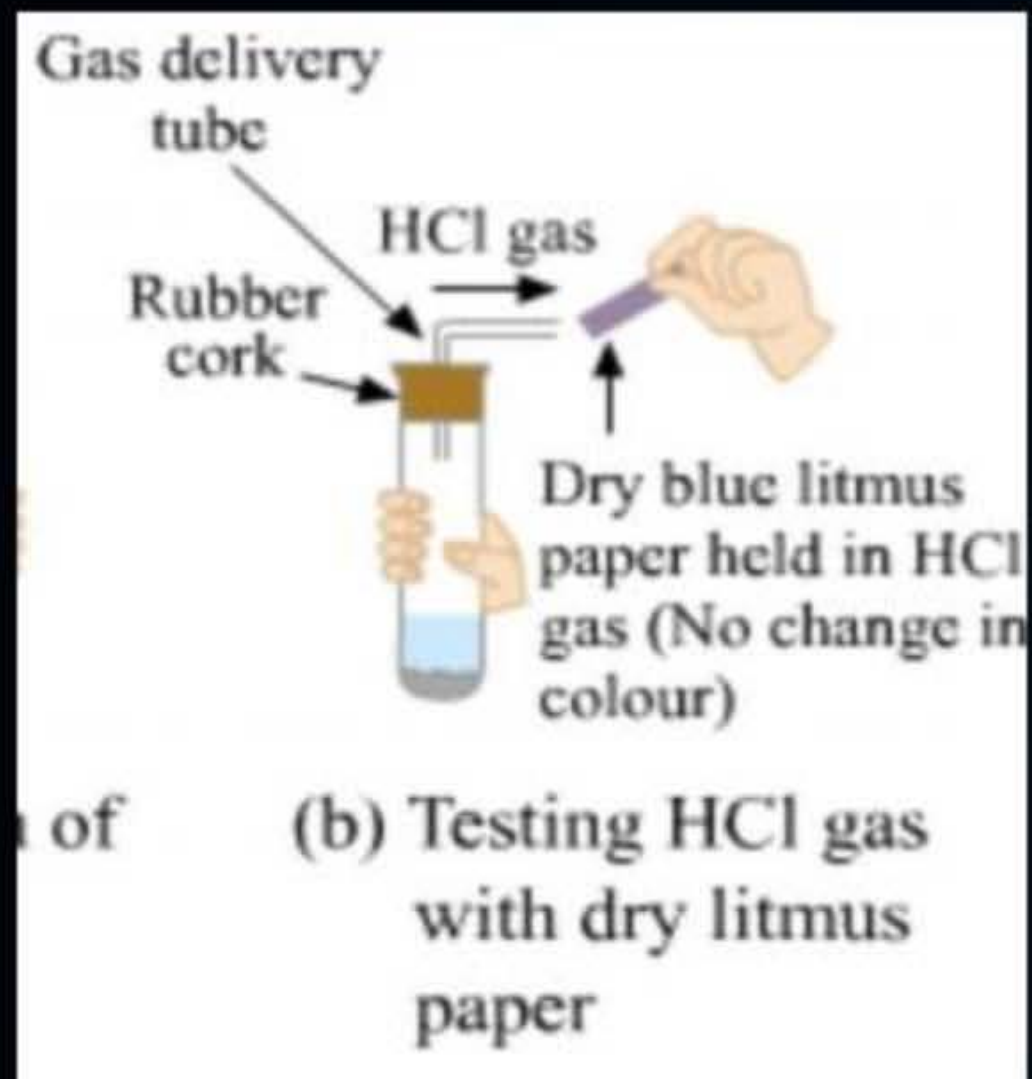
More than $200^\circ C$

Hydrogen chloride gas



$HCl(g) \rightarrow$ Hydrogen chloride gas

Role of Water in Dissociation of Acid



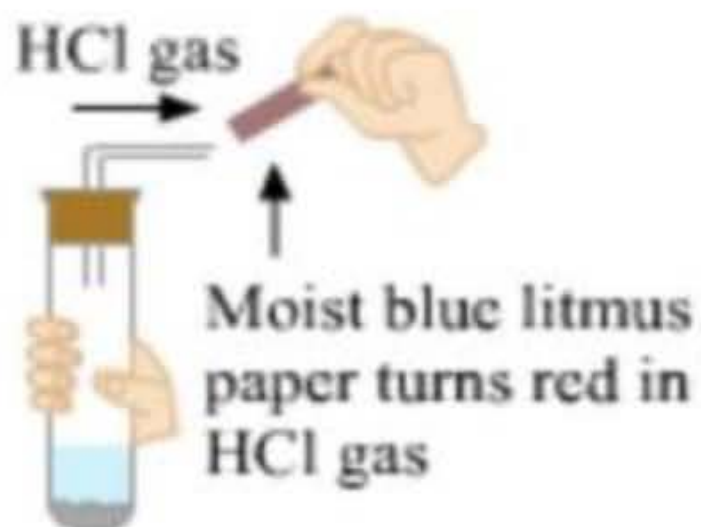
STEP II

$\text{HCl(g)} \rightarrow$ won't behave as acid

no water
सूखा

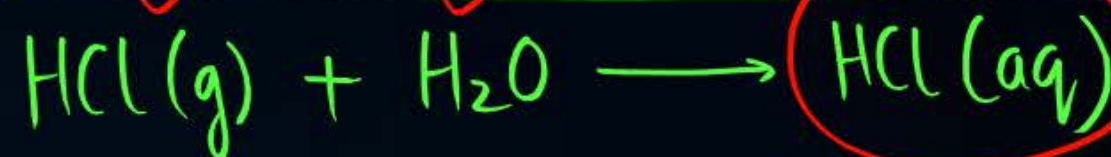
Dry blue litmus paper does not show any change in colour when brought near the mouth of the test tube.

Role of Water in Dissociation of Acid

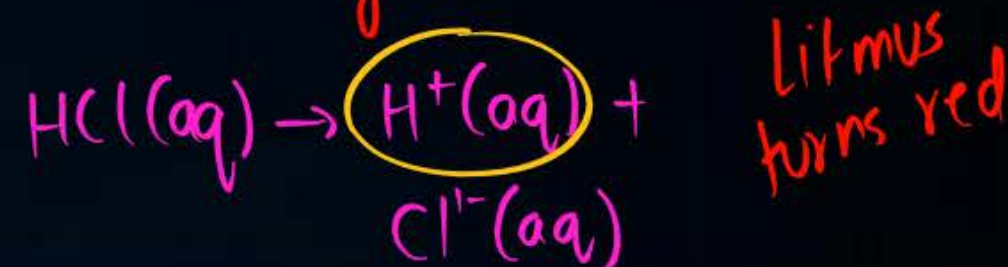


(c) Testing HCl gas with moist (wet) paper

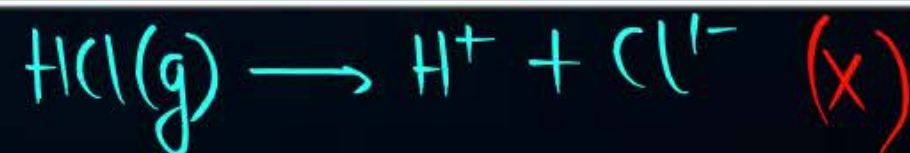
STEP III



Hydrochloric acid



Wet blue litmus paper turns red, when brought near the mouth of the test tube, indicating the presence of an acid, which in this case is HCl.



KYA BOLTI PUBLIC



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***Insaniyat Ka Gyaan
Jo Banaye Behtar Insan***





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Let's meet tomorrow on PW Foundation Channel to cover 'Chemical Reactions and Equations' in One Shot.

- **NCERT Theory + Activities**
 - **NCERT Exemplar**
 - **NCERT Intext + Exercise**
 - **Competency Focused Questions**
- All in one go!***

SUNIL BHAIYA IS ALWAYS THERE FOR YOU.

#sbsathhai (✓)
#pwsathhai (✓)



**THANK
YOU**

