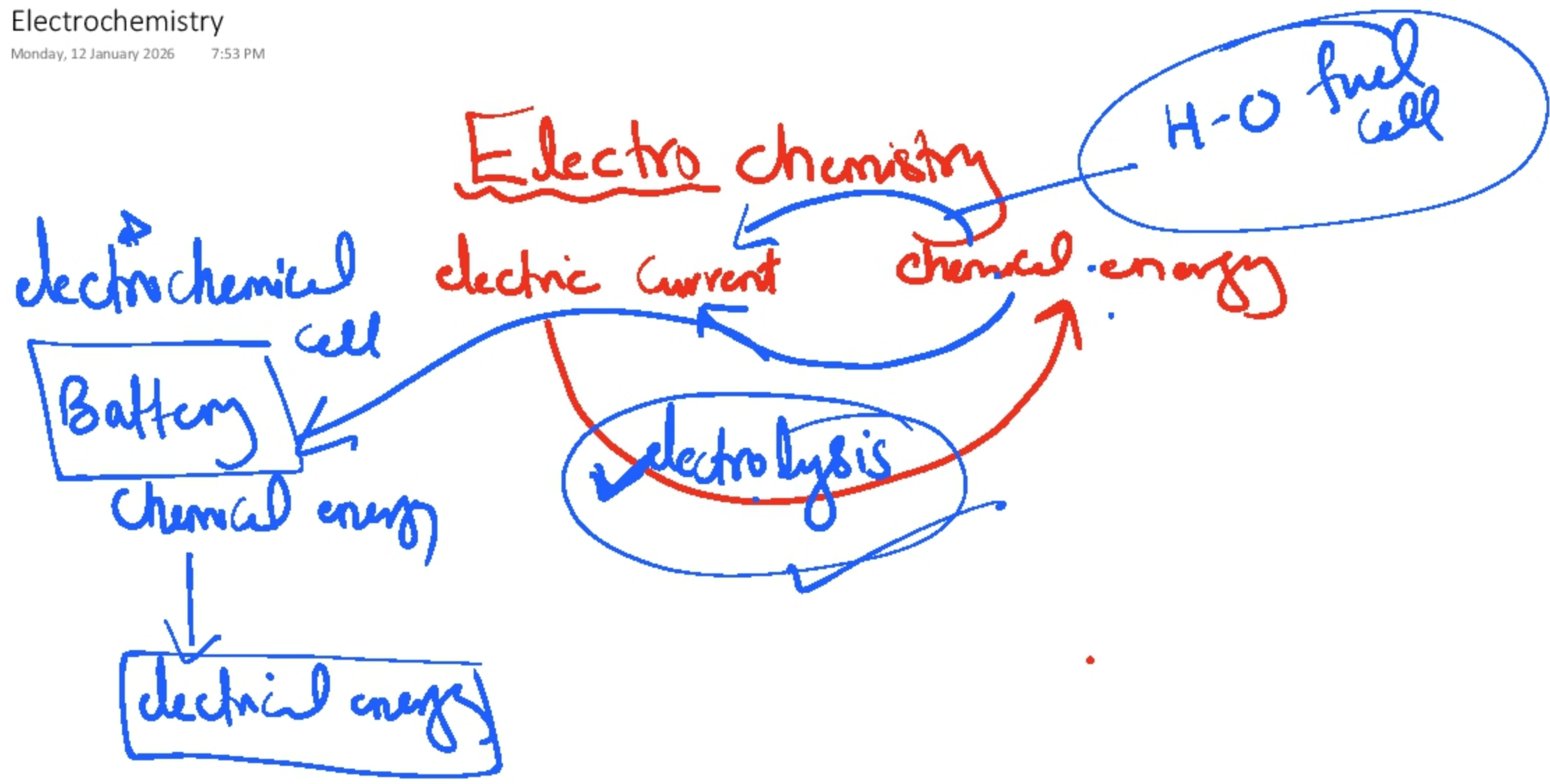




Interconversion between electrical energy and chemical energy is called electrochemistry

Electrolysis (2)

electrical breakdown
Current

Breakdown of ionic compound / Acids with the help of electric current (1)

in electrolytic cell



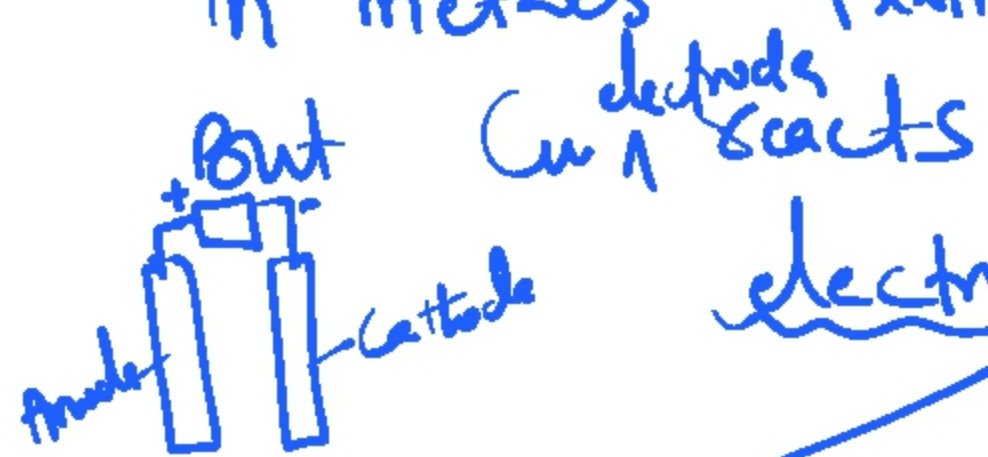
Electrodes

is a solid conductor usually metal or graphite through which electric current can pass.

Why?

- (1) Good conductor (2) Inert (unreactive)

In metals Platinum is Inert



Electrode Types

Anode (+)

oxidation takes place

Cathode (-)

Reduction takes place

Don't PANIC

Positive Anode negative is Cathode

Electrolyte / electrolytic solutions (Ionic compound Acids/Bases)

An electrolyte is substance that conducts electricity when it is molten or dissolved in H_2O because it contains free ions.

ORS

$ConH_2SO_4$

in car batteries

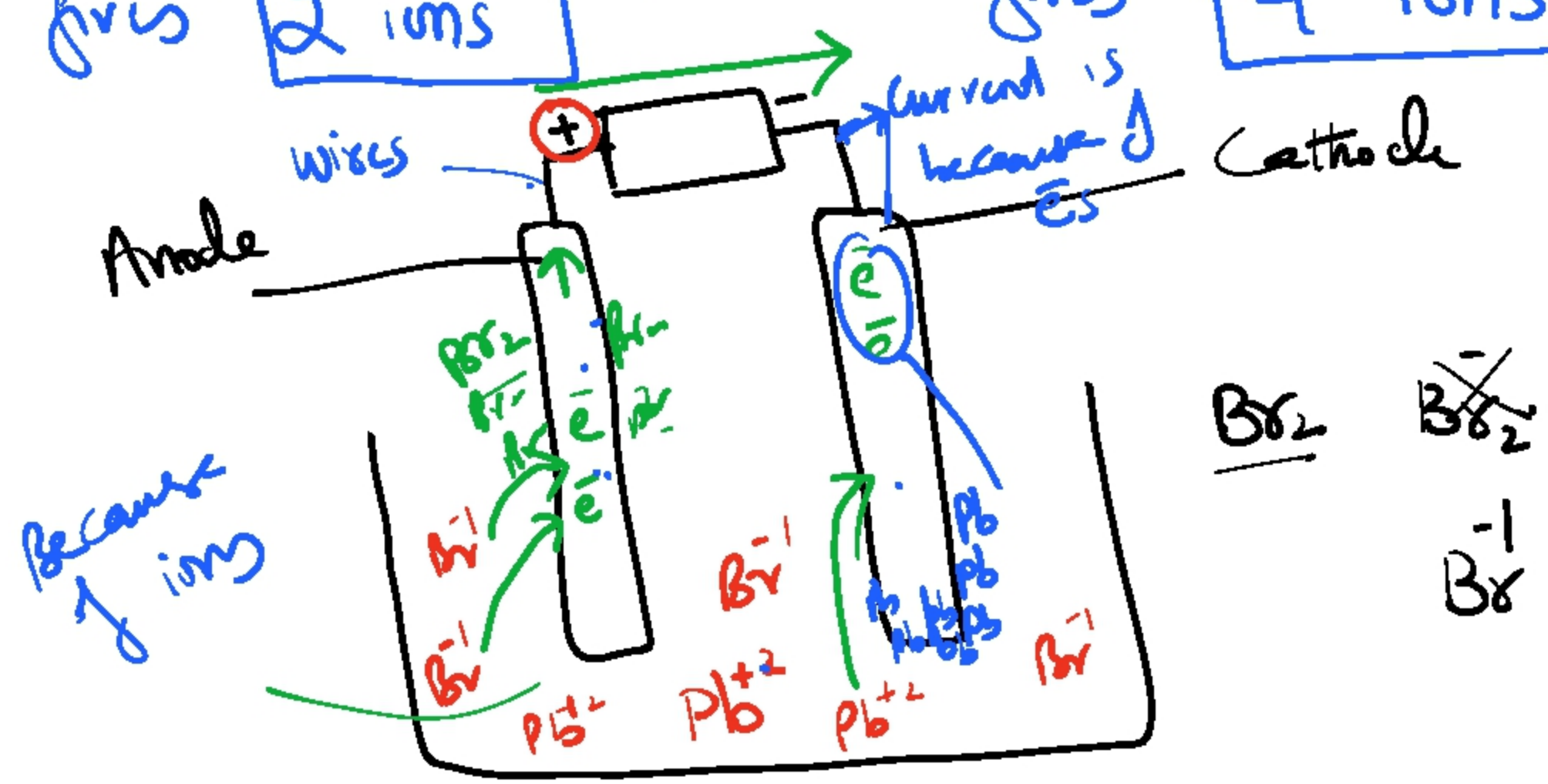
Electrolysis types

✓ Molten electrolyte
NaCl

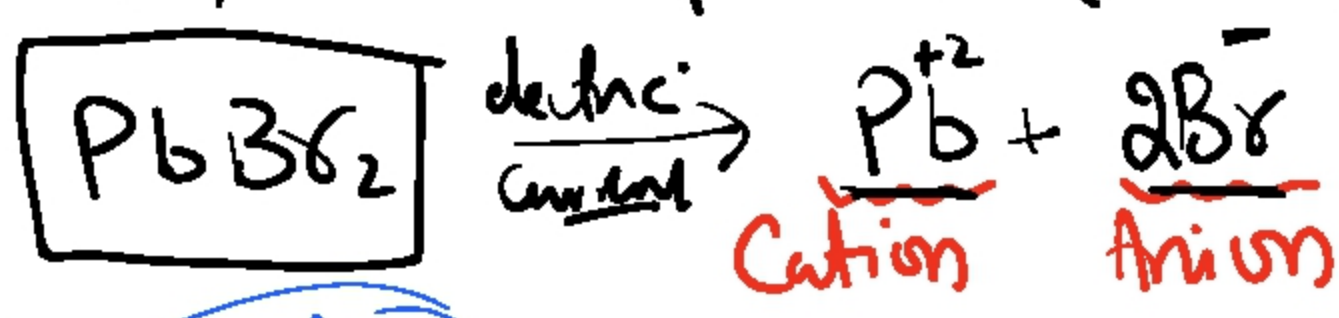
Aqueous electrolyte
AgNO₃ NaCl

Breaking molten electrolyte
gives 2 ions

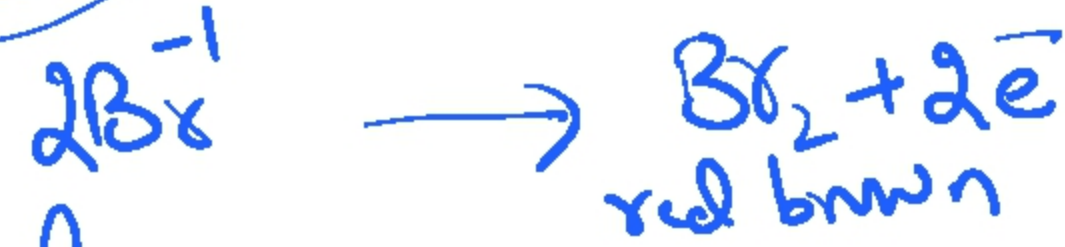
Breaking Aqueous electrolyte
gives 4 ions



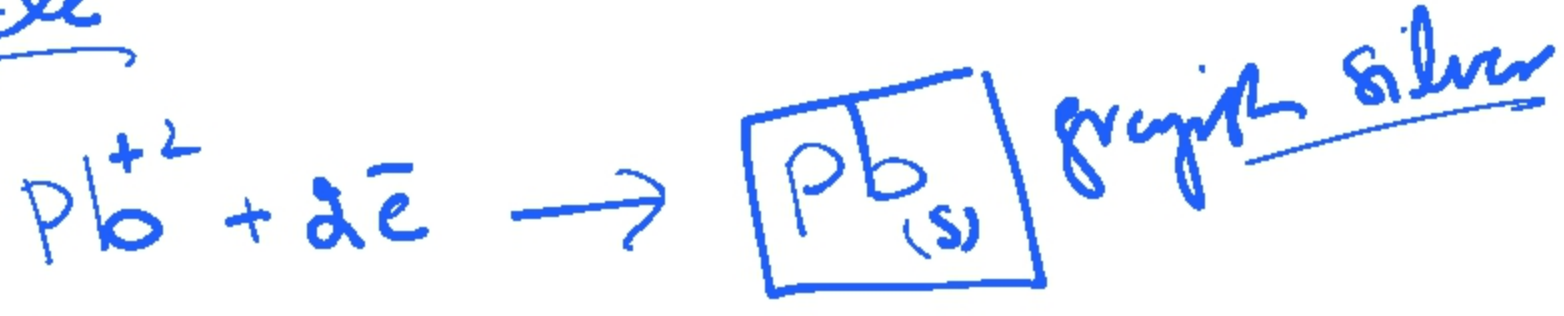
Lead(II) Bromide PbBr_2 (Molten)



At Anode



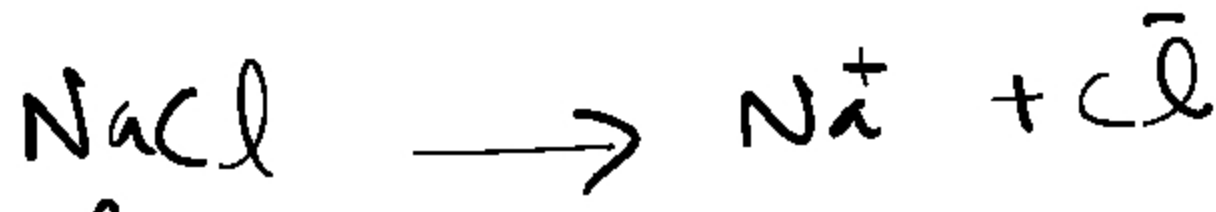
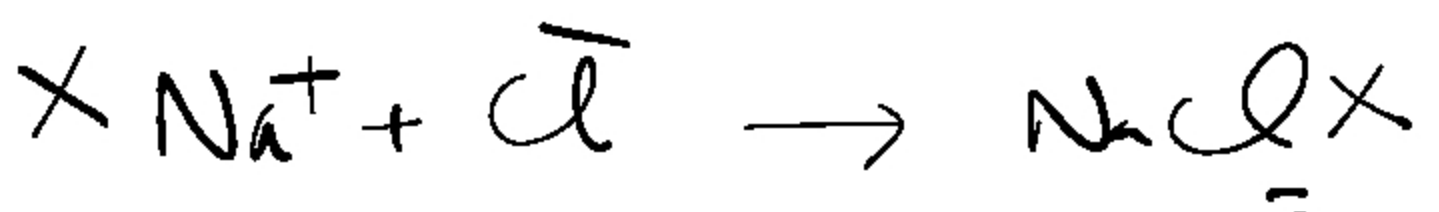
At Cathode



Observation

Molten NaCl

At Anode
At Cathode



At Anode

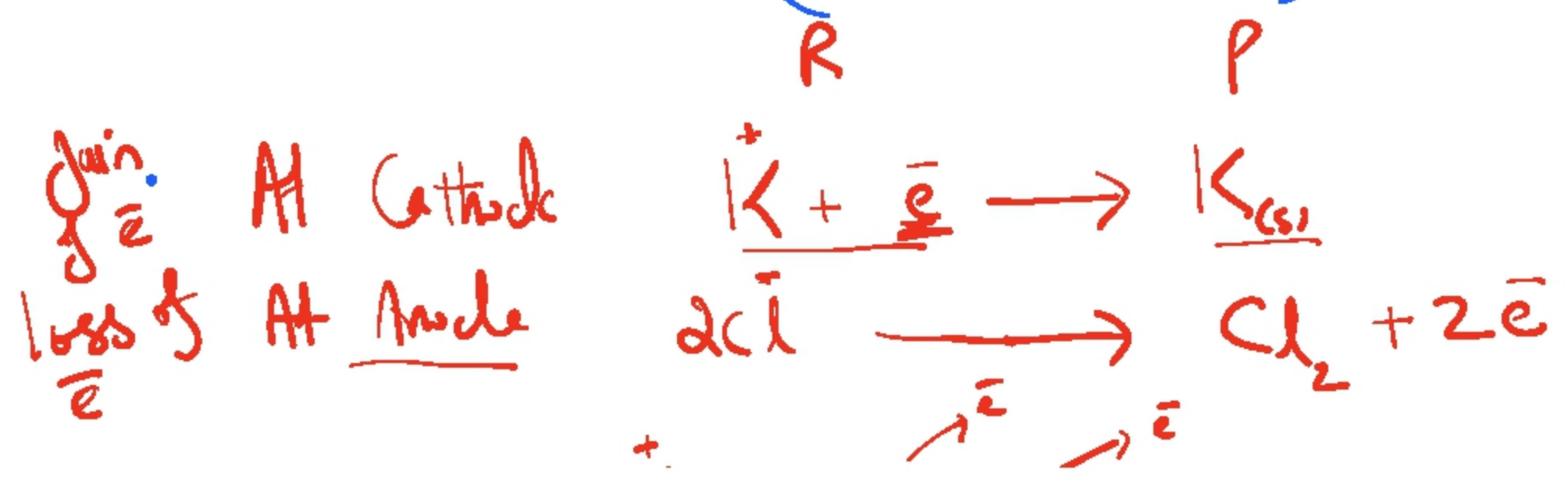


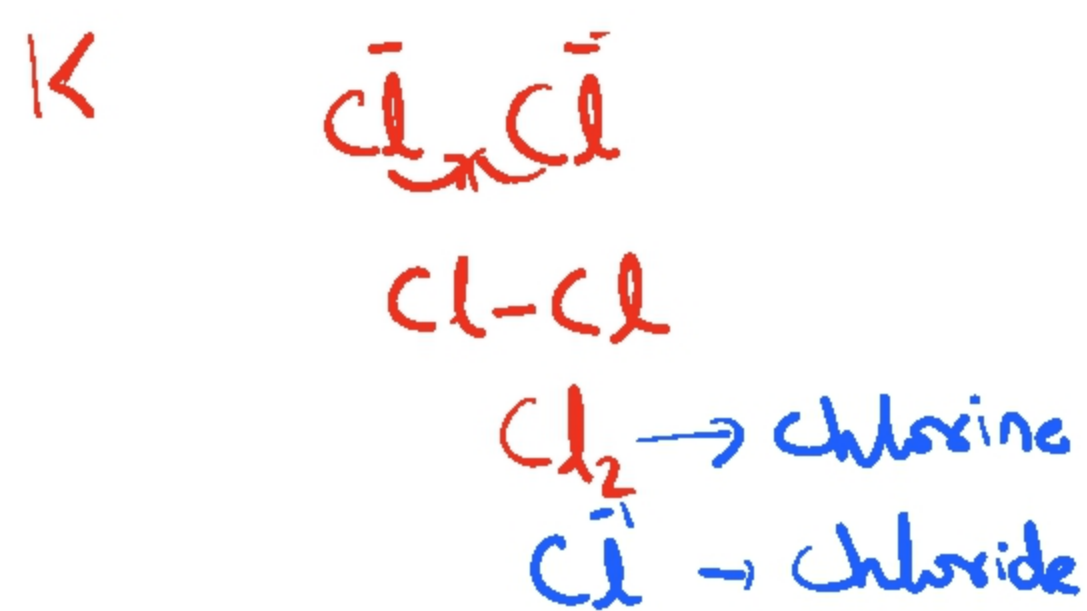
At Cathode



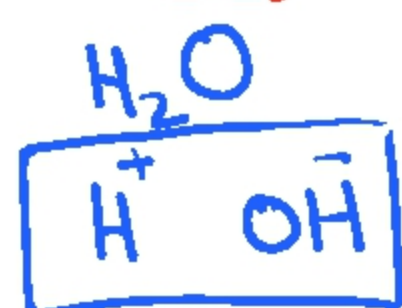
H.W

Draw electrolytic cell, label it and write down reactions at Cathode and Anode. (KCl molten)



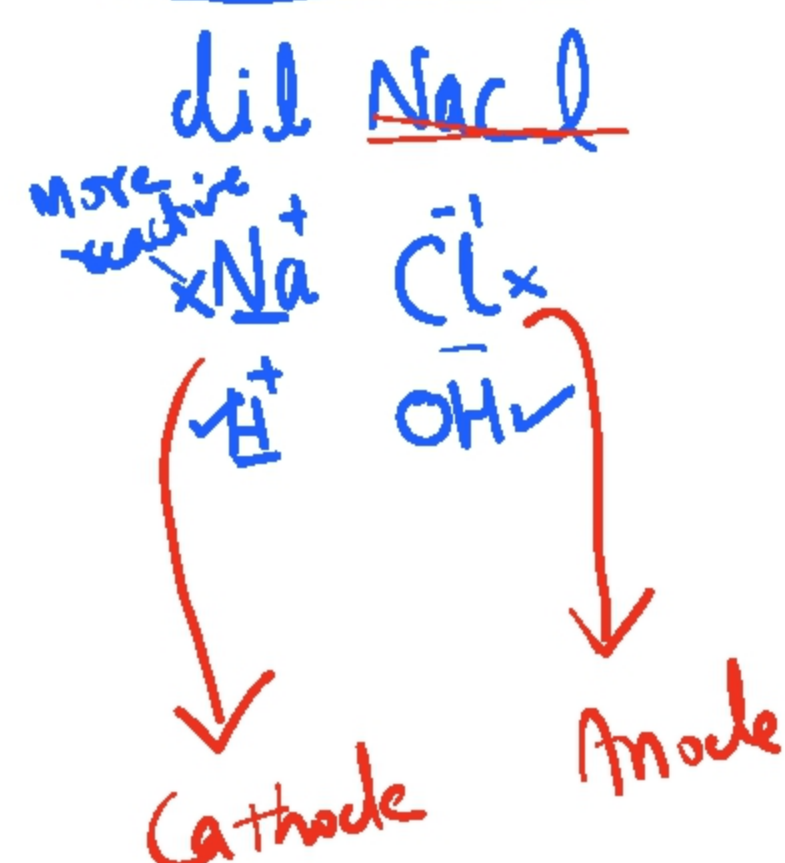


Molten NaI

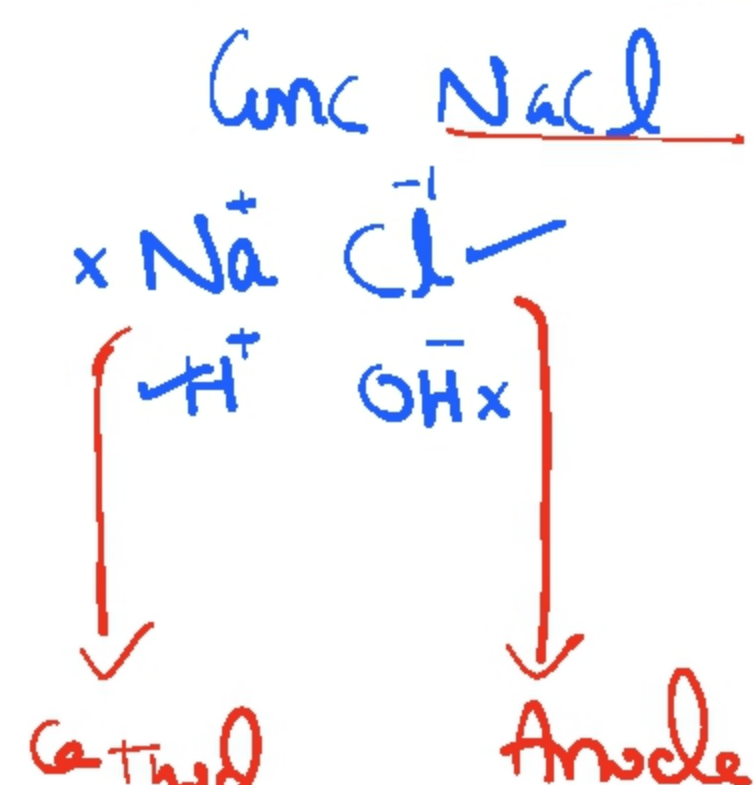


Aqueous Solution Electrolysis

Dilute Solution



Concentrated Solution

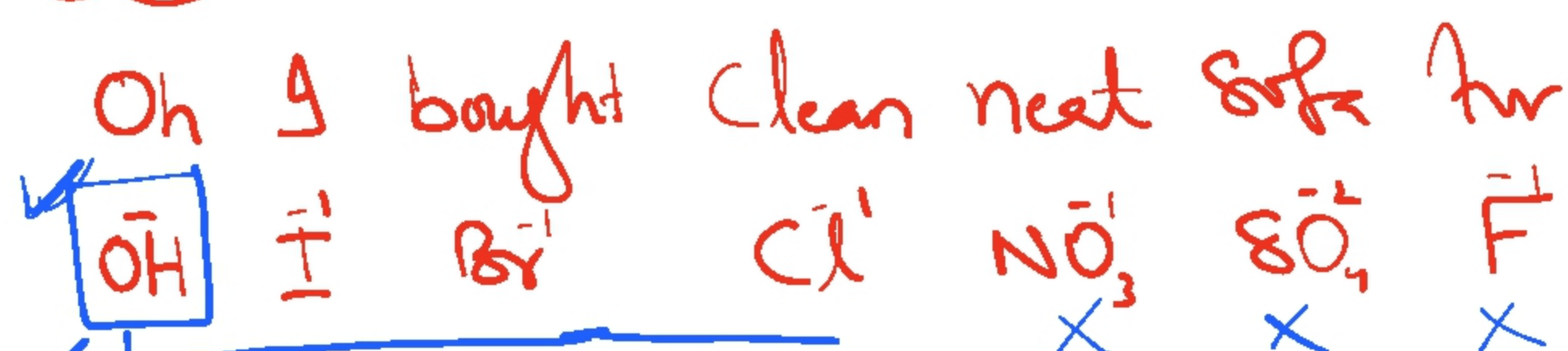


✓ Rule for Cathode (dilute / concentrated)

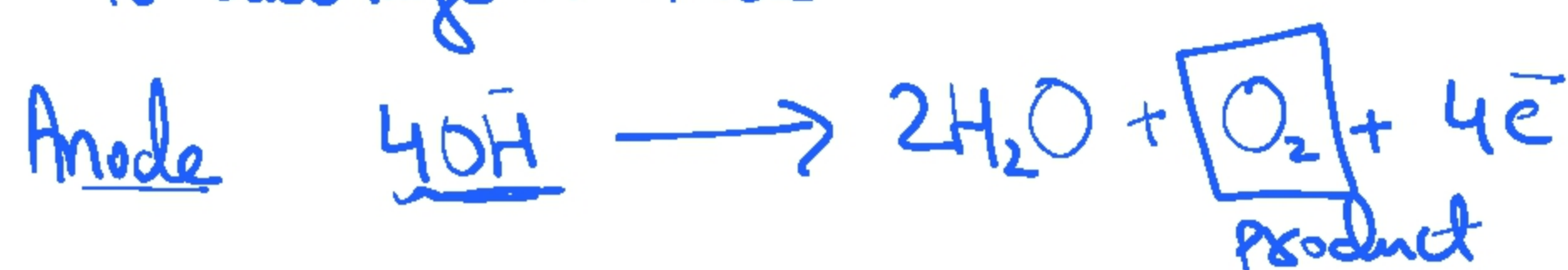
less reactive ions will go to Cathode



Rule for Anode (Dilute)



High chance
to discharge at Anode



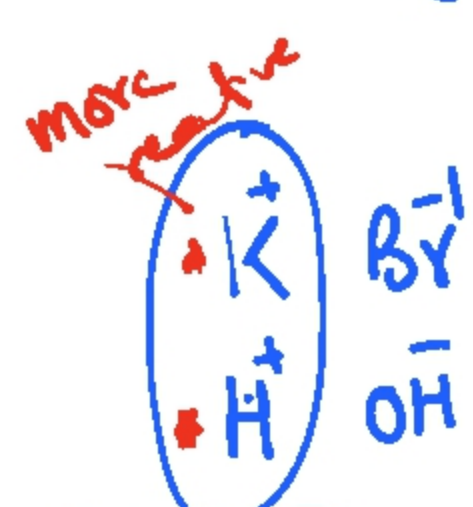
(3) Anode Rule (concentrated)

$\text{Cl}^-, \text{Br}^-, \text{I}^-$ Concentrated NaCl

Halides will be given priority to get
discharge at Anode

Electrolysis of Aqueous KBr (dilute)

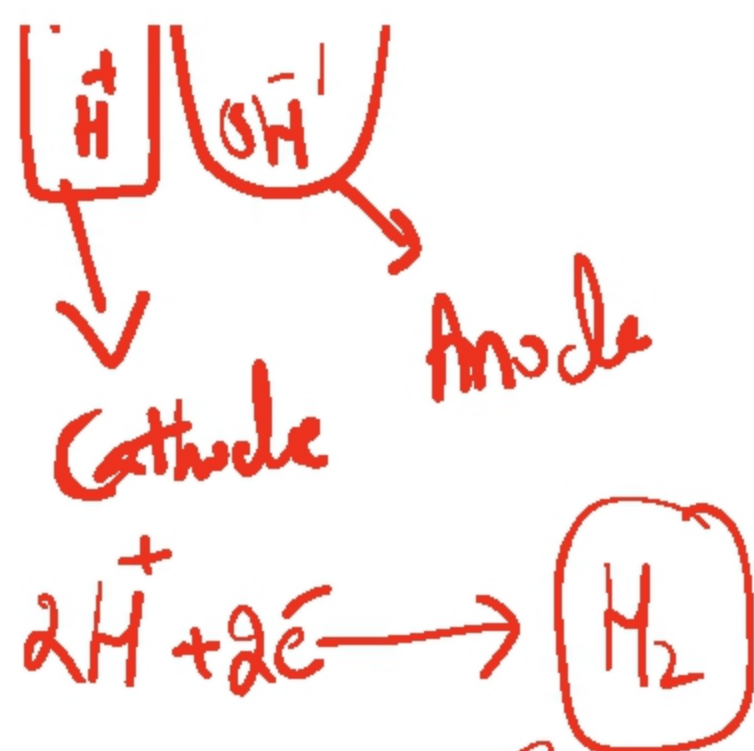
* Aqueous KBr (concentrated)



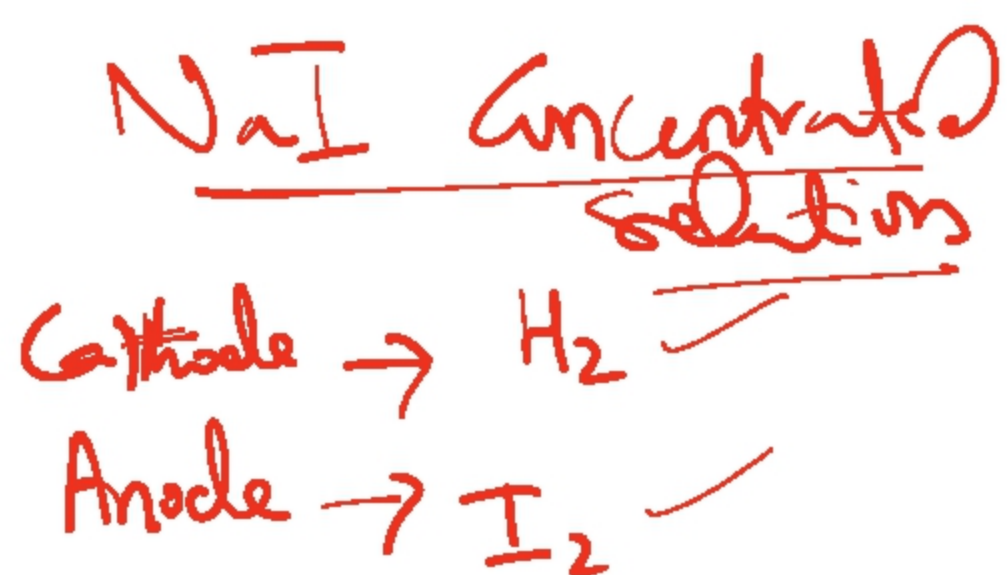
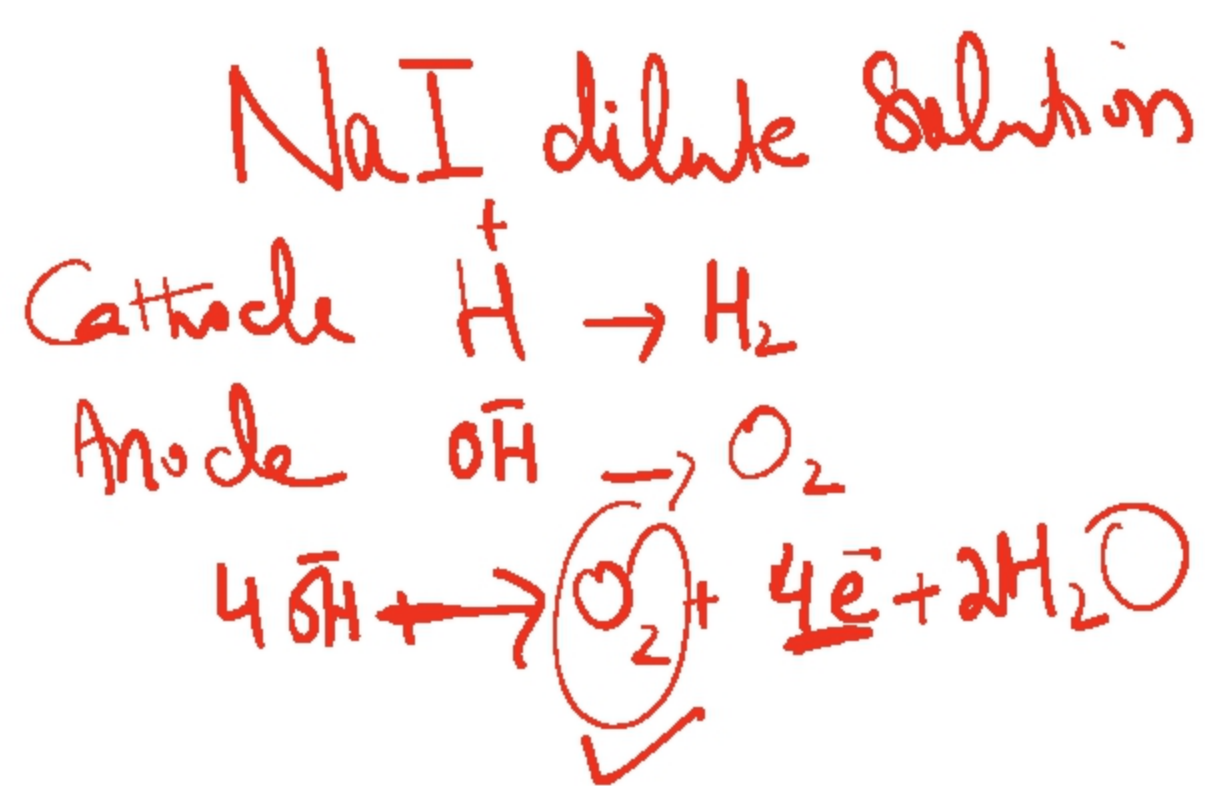
dilute KBr

Product at Anode _____

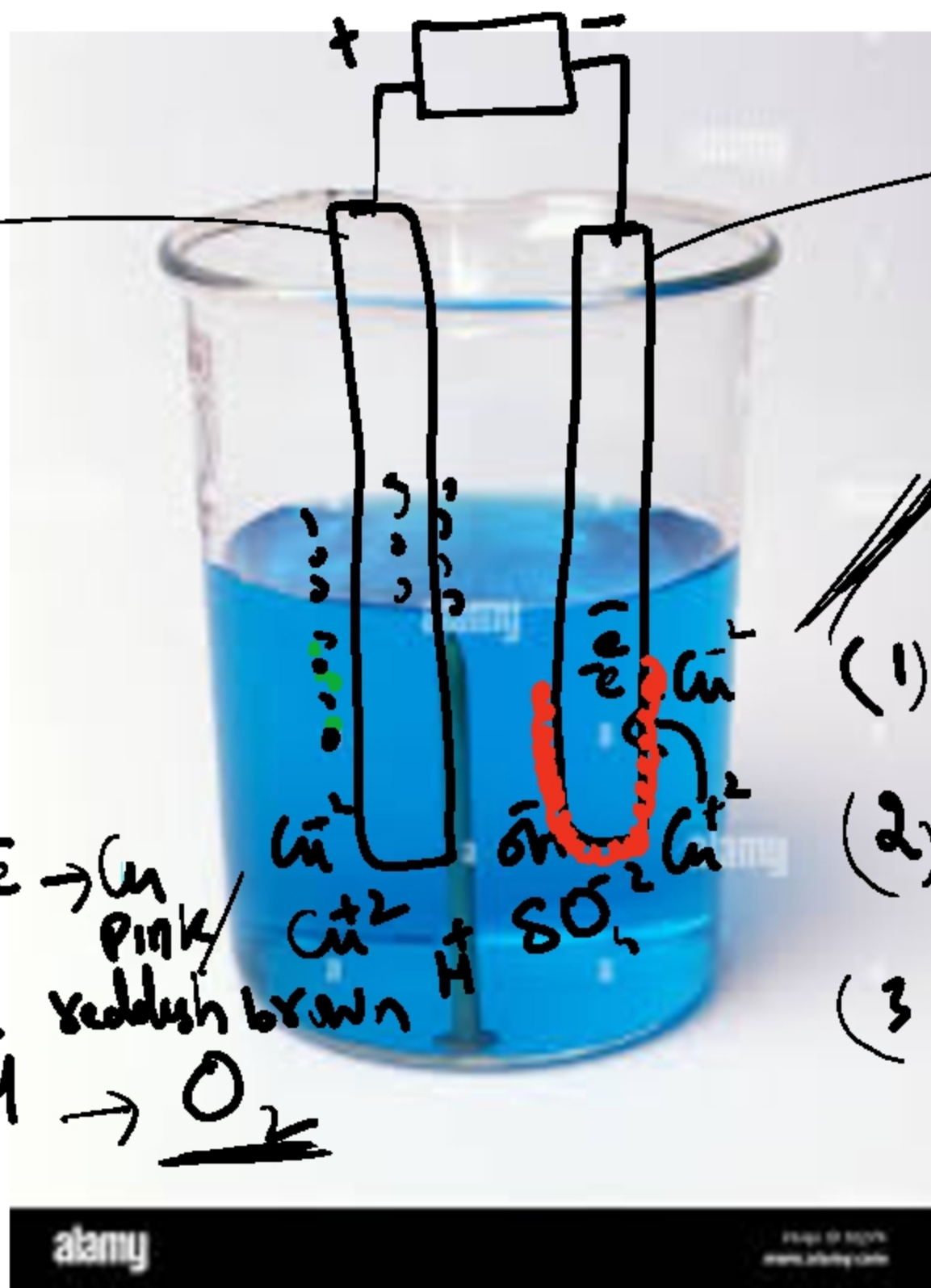
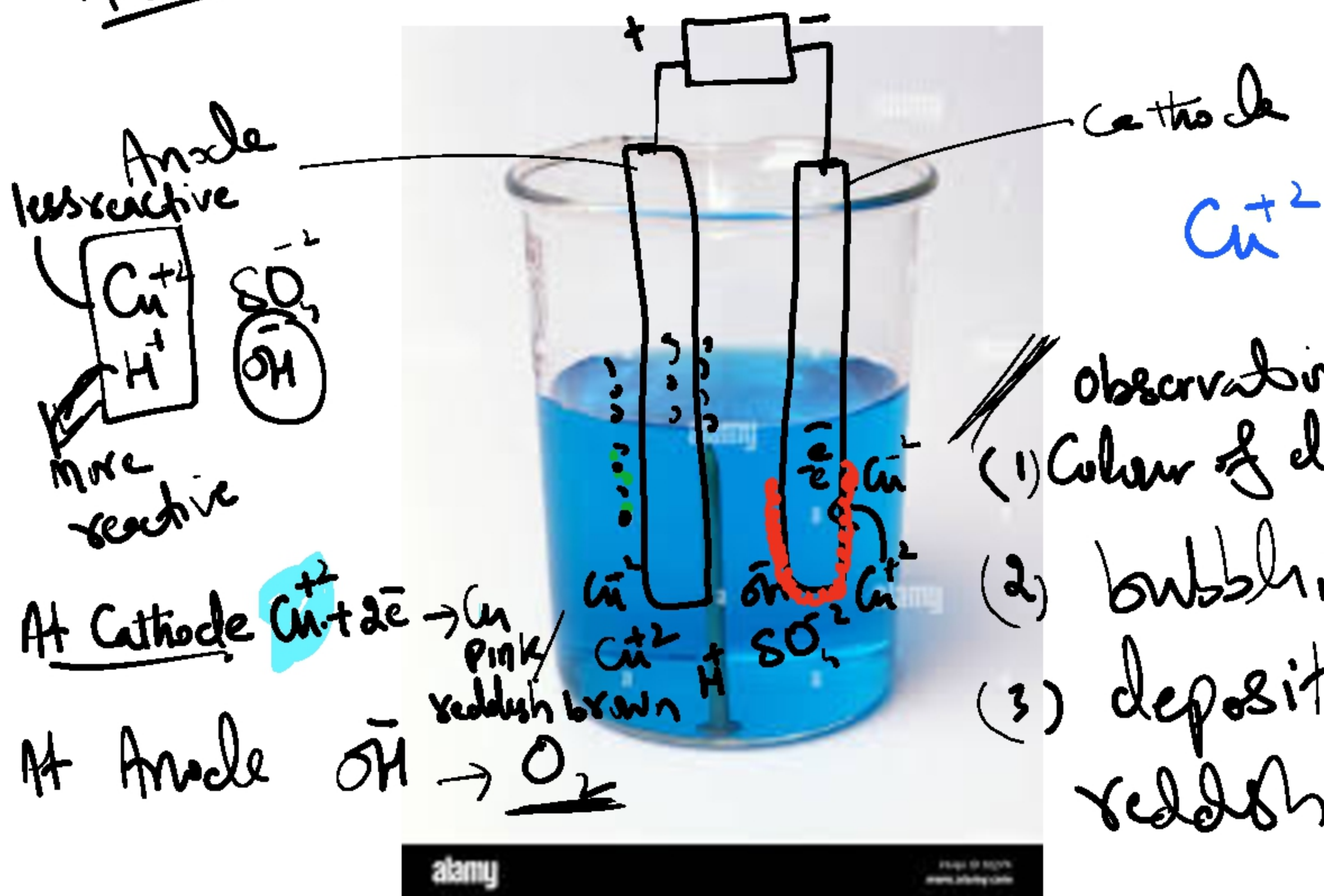
Product at Cathode _____



Concentrated KBr
 write products at Cathode & Anode

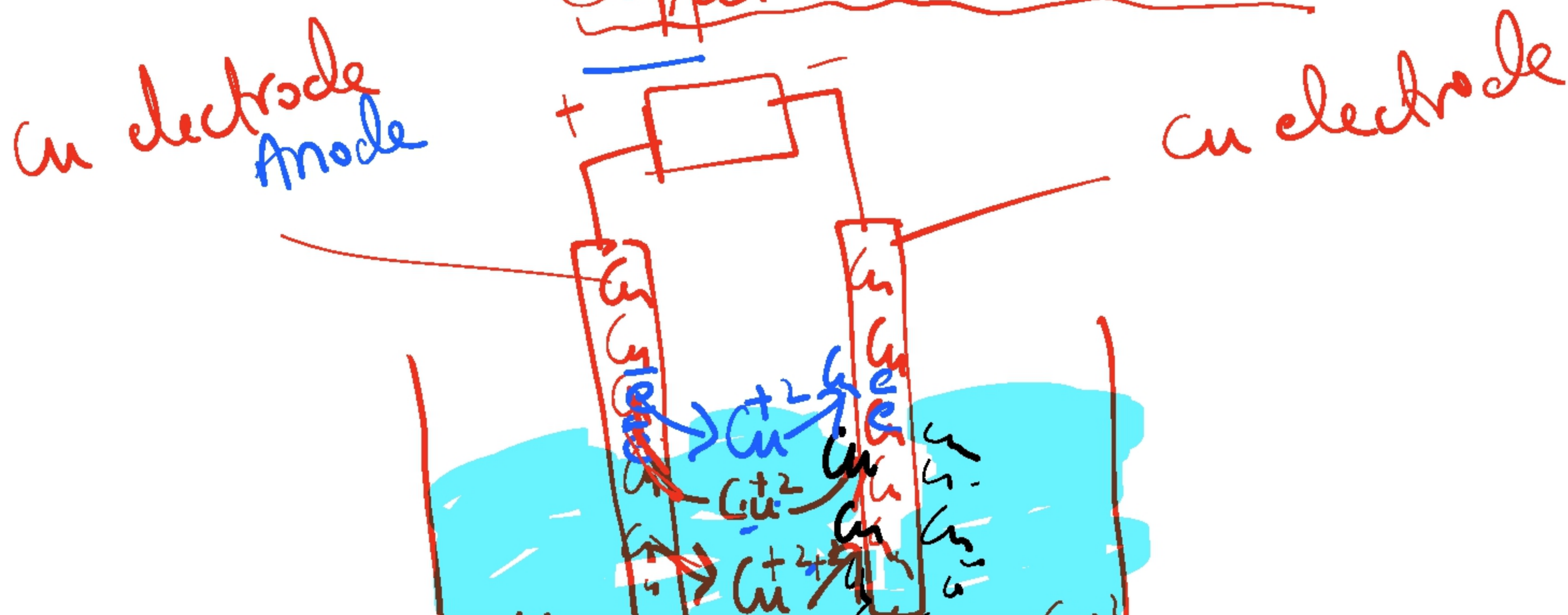


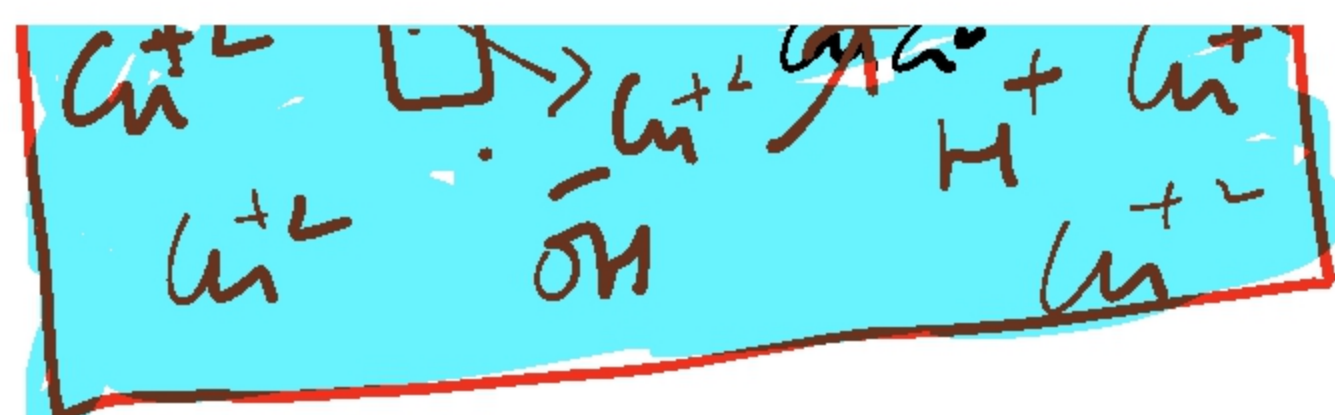
Aqueous Copper(II) Sulphate CuSO_4 (Blue) using
 Inert electrodes



- Observations
- (1) Colour of electrolyte fade away
 - (2) bubbling at Anode
 - (3) deposition of Pink/reddish brown colour at Cathode

Electrolysis of CuSO_4 using
 Copper electrodes (electroplating)





Observation

At Anode



(1) electrolyte colour will not fade.

At Cathode



(2) Size of Anode decreases
(3) Cathode size will increase

Electroplating

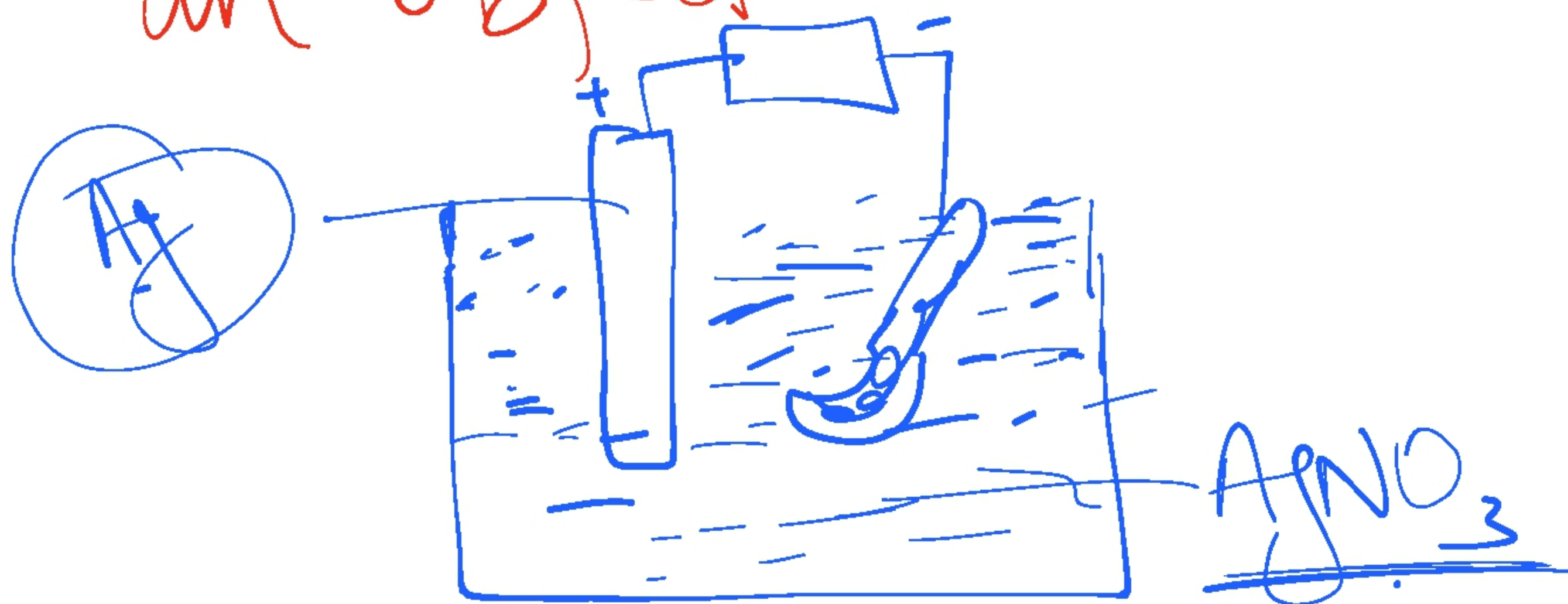
Anode

Metal you want to electroplate it on some object

Cathode

object

electrolyte will always be the solution of metal that can be deposited on an object



(1) To prevent from rust

... ..