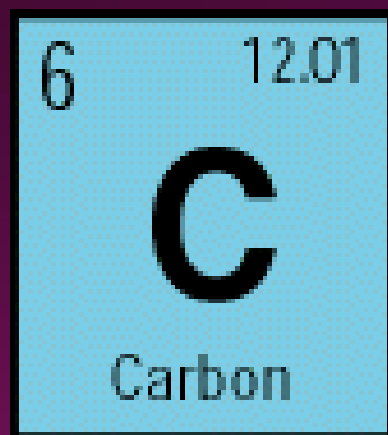




SAFALTA CLASSTM

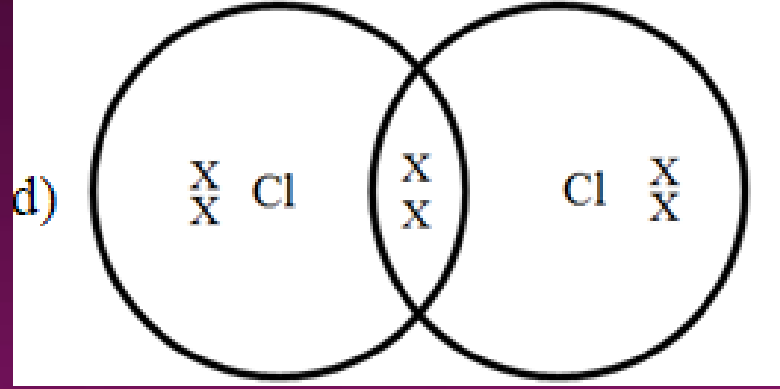
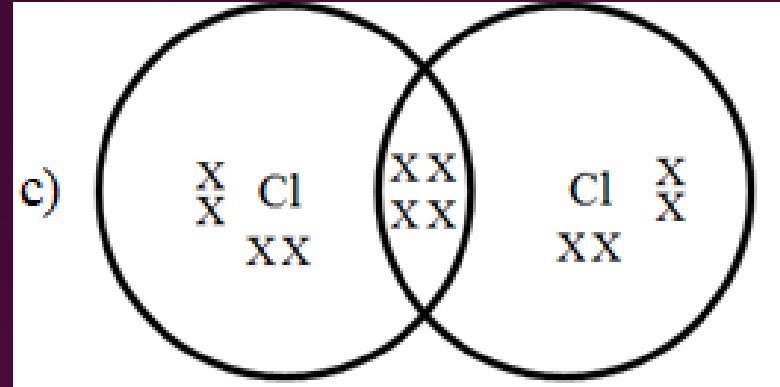
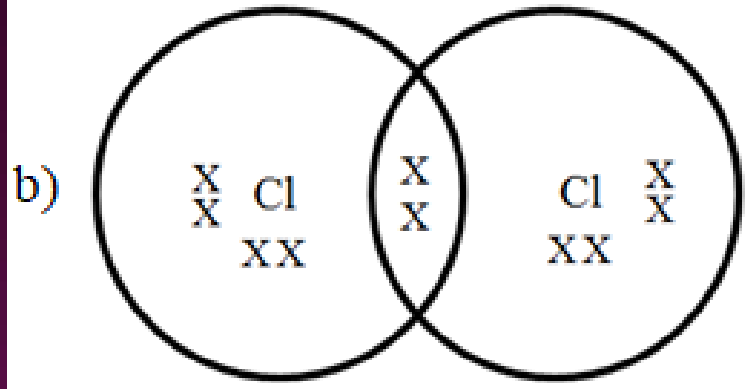
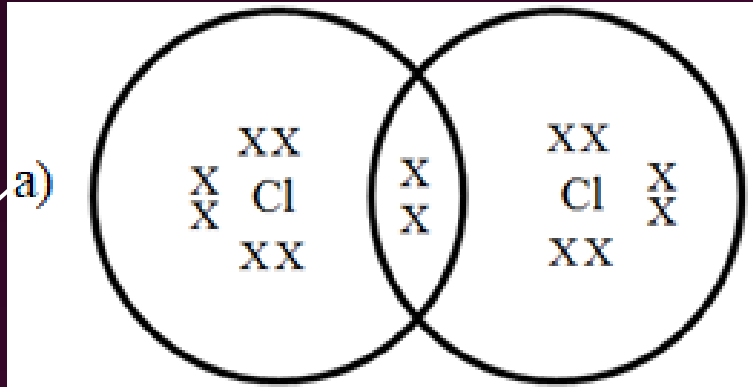
An Initiative by **अमरउजाला**

CARBON AND ITS COMPOUNDS



1. Which of the following structures correctly represents the electron dot structure of a chlorine molecule?

2, 8, 7, 17



2. While cooking, if the bottom of the vessel is getting blackened on the outside, it means that:

a) The food is not cooked completely

b) The fuel is not burning completely

c) The fuel is wet

d) The fuel is burning completely

3. Cation is formed when:

a) Atom gains electrons

b) Atom loses electrons ✓

c) Proton is lost by the atom ✗

d) Atom shares electrons ✗

4. The I.U.P.A.C name of CH₃CH₂CH=CH₂ is?

a) 3-Butene

b) Prop-1-ene

c) But-1-ene ✓

d) Butyne

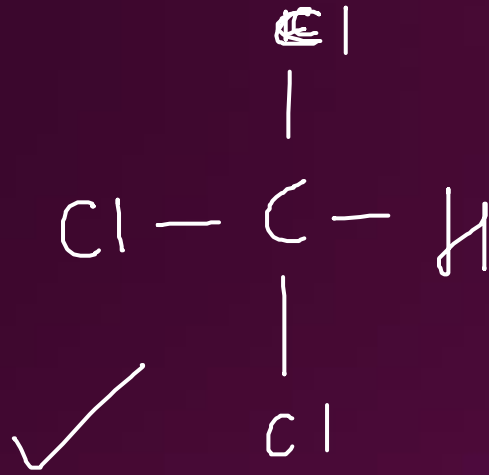
5. Which of the following compounds of carbon does not consist of
ions?

a) CHCl_3 ✓

b) CaCO_3

c) NaHCO_3

d) Ca_2C



6. The property of self-linkage among identical atoms to form long chain compounds is known as:

a) Catenation ✓

b) Isomerisation

c) Superposition

d) Halogenation

8. Which of the following statements about graphite and diamond is true?

- a) They have the same crystal structure
- b) They have the same degree of hardness
- c) They have the same electrical conductivity
- d) They can undergo the same chemical reactions



9. How many number of carbon atoms are joined in a spherical molecule of buckminsterfullerene?

a) 30

b) 60

c) 90

d) 120

10. Which of the followings is the major constituent of the liquefied petroleum gas?

a) Methane

b) Ethane

c) Propane

d) Butane ✓

CHEMICAL

➤ REACTIONS

Organic (कार्बनिक)

Hydrocarbons

H, C

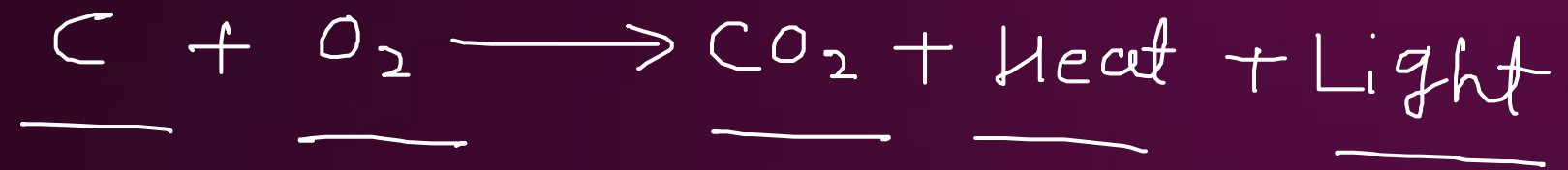
Inorganic (अकार्बनिक)

Carbide \rightarrow mtc

Oxide - CO_2

Carbonate $\rightarrow \text{CO}_3^-$

Bicarbonate $\rightarrow \text{HCO}_3^-$



COMBUSTION REACTION



C=1

H=4

O=4

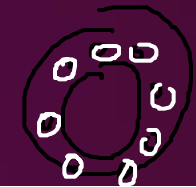
=

C=1

H=4

O=4

(4E-1)



• Carbon and its compounds are used as fuels because they burn in air releasing lot of heat energy.

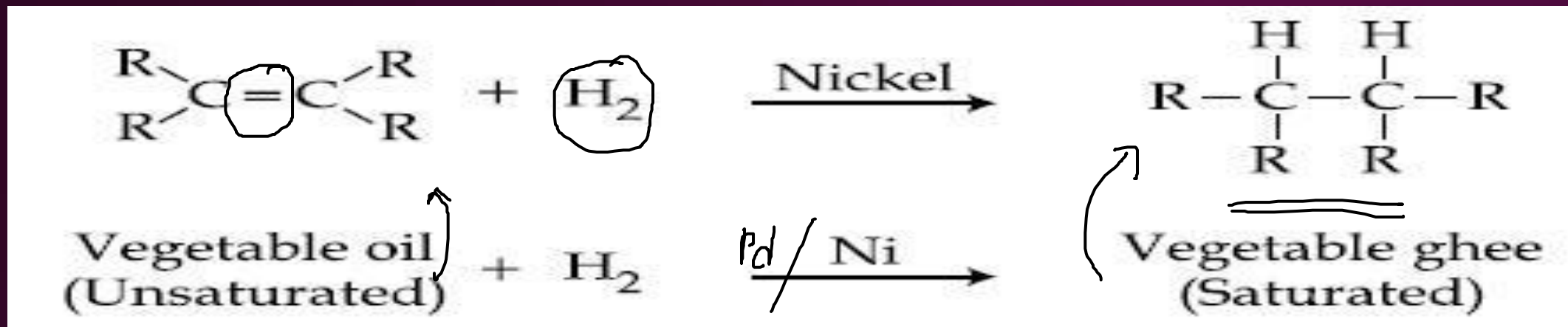
• Saturated hydrocarbon generally burn in air with blue and non-sooty flame.



O₂ → Blue
O₂ ⇒ sooty

• Unsaturated hydrocarbon burns in air with yellow sooty flame because percentage of carbon is higher than saturated hydrocarbon which does not get completely oxidized in air.

ADDITION REACTION



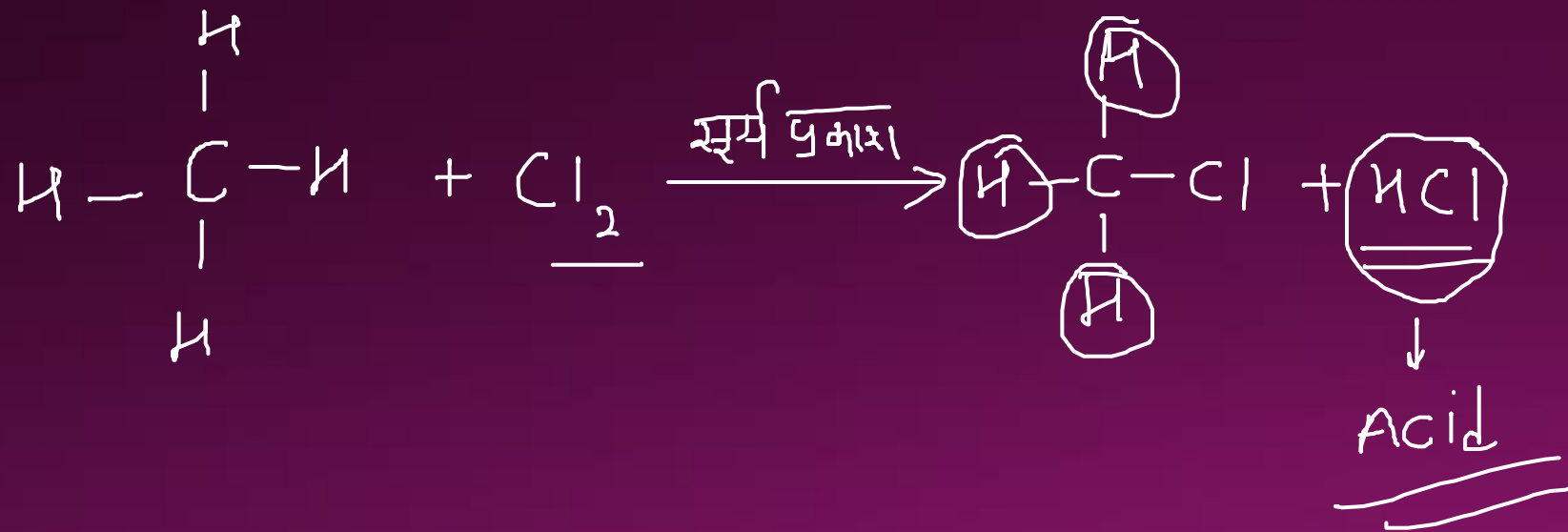
- Unsaturated hydrocarbon and hydrogen in the presence of crystals palladium or nickel.

- HYDROGENATION. (हाइड्रोजनीकरण)

SUBSTITUTION (विक्रिया)

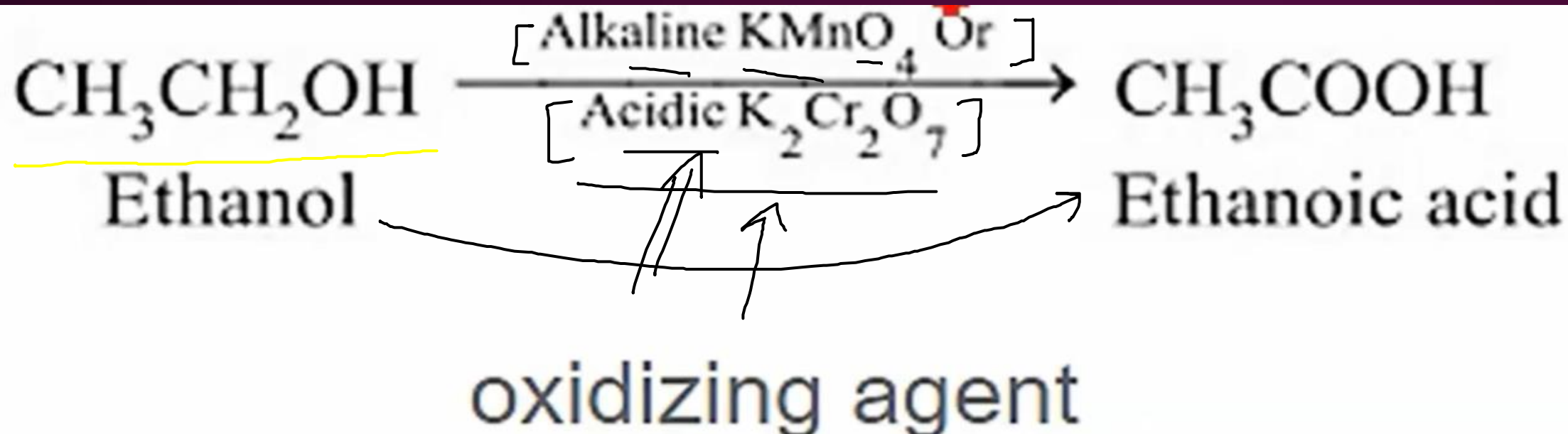


Substitution reaction:



OXIDATION REACTION

अभिक्रमण अभिक्रमण



I) PHYSICAL PROPERTIES DIFFERENCES :

Ethanol :

It has specific smell.

It has burning taste.

It does not freeze in winters.

Ethanoic Acid :

It has Vinegar like smell.

It is sour in taste.

It freezes in winters.

*
=



⇒ मद्य अंश अंश → 30 - 45%

⇒ Strong Beer → 8%

⇒ Pure Ethanol → Lethal
(जानलेख)

अल्पनांद

-114°C

156K

उच्चनांद

-78°C

351K

⇒

II) CHEMICAL PROPERTIES DIFFERENCES :

Ethanol :

It does not react with NaHCO_3 .

It burns with blue flame.

It does not affect blue litmus.

Ethanoic Acid :

It gives CO_2 with NaHCO_3

It does not burn with blue flame.

It turns blue litmus red.

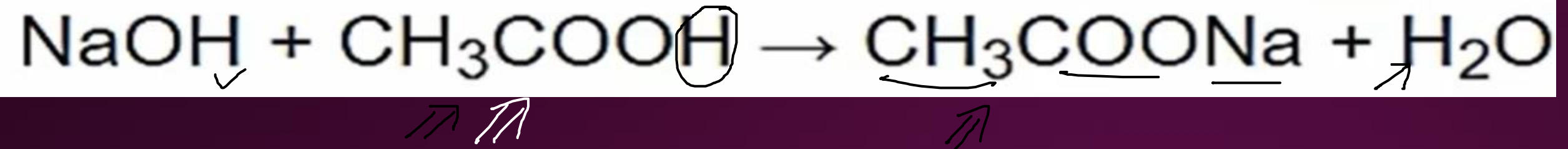
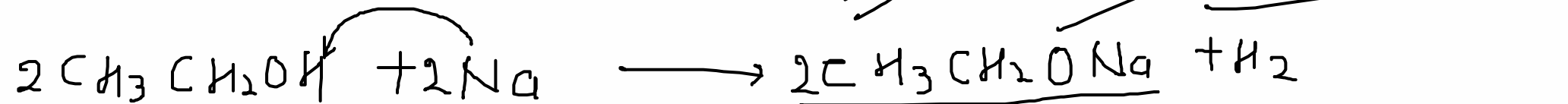
Tonic

Cough Syrup

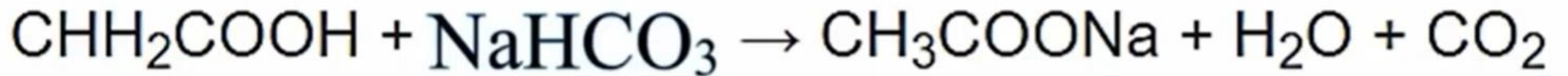
Tincture Iodine

* Alcohol \rightarrow Good Solvent
पदार्थ

(ii) Reaction with base

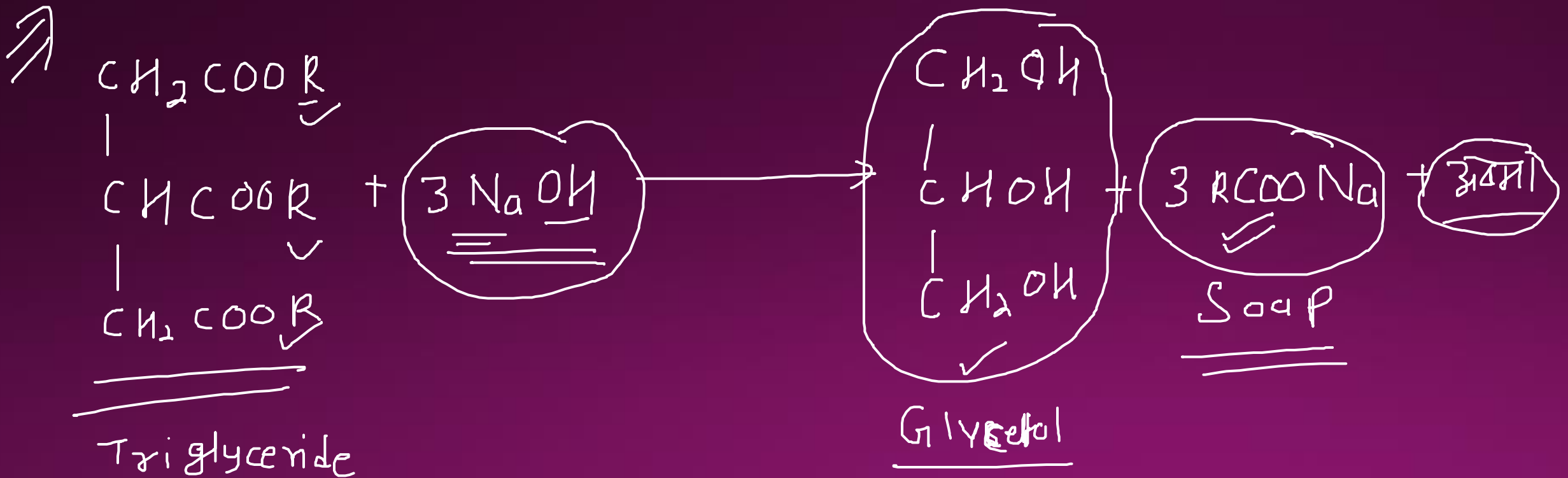


(iii) Reaction with carbonates and hydrogen carbonates :



Saponification

- **Saponification** is a process by which triglycerides are reacted with sodium or potassium hydroxide (lye) to produce glycerol and a fatty acid salt called "soap." The triglycerides are most often animal fats or vegetable oils. When sodium hydroxide is used, a hard soap is produced.

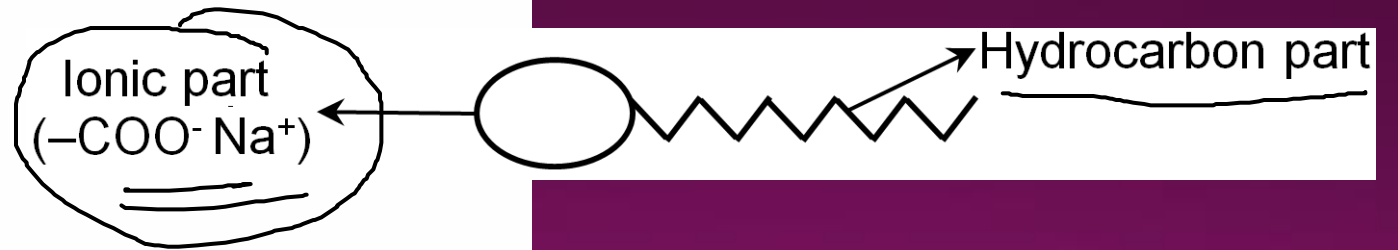


Soaps and Detergents :

- Soaps : Soaps are sodium or potassium salts of long chain acid carboxylic acids.
- example: $C_{17}H_{35}COONa$

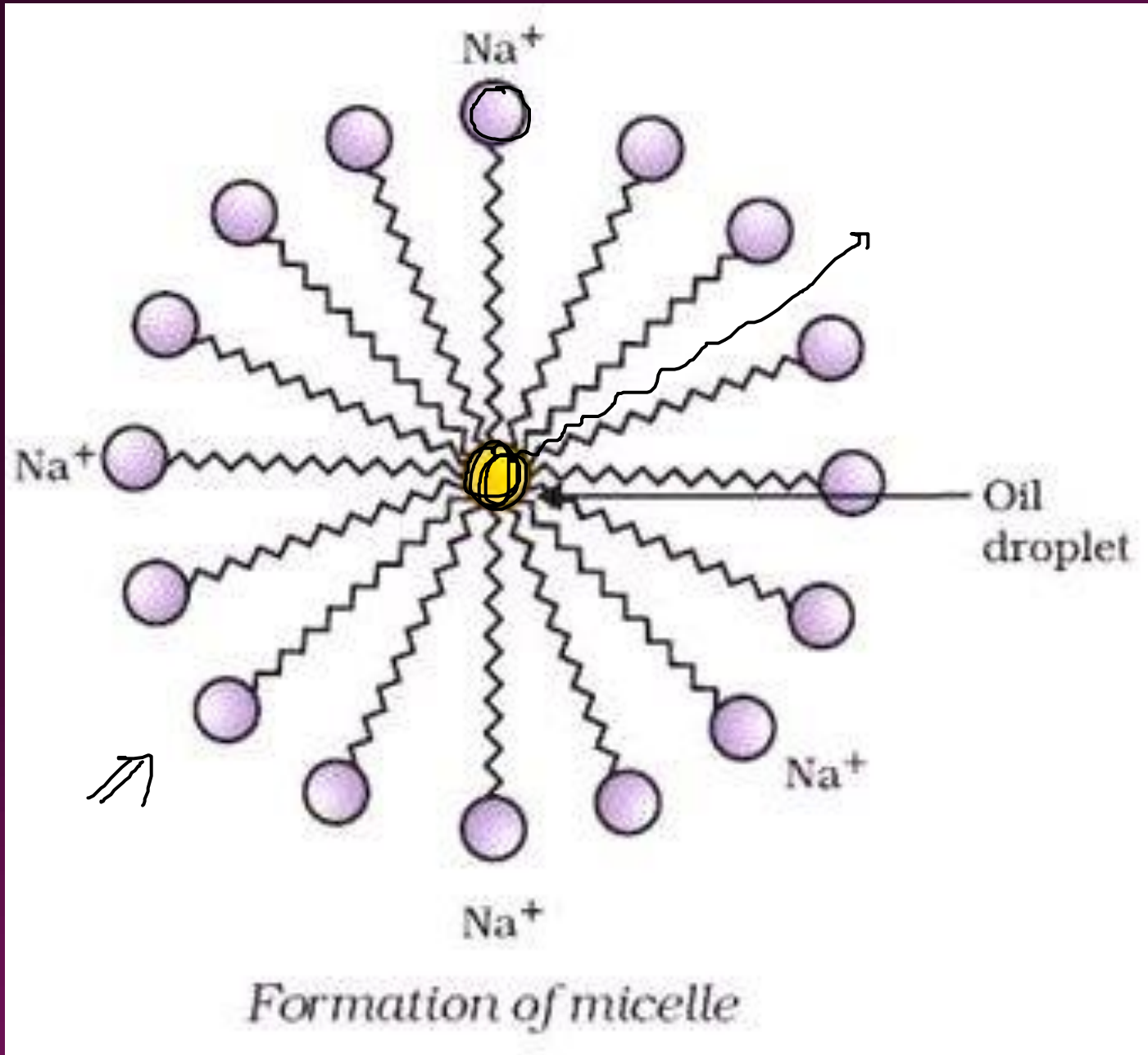
- Soaps are effective only in soft water.

Soap molecule has:



(i) Ionic (hydrophilic) part

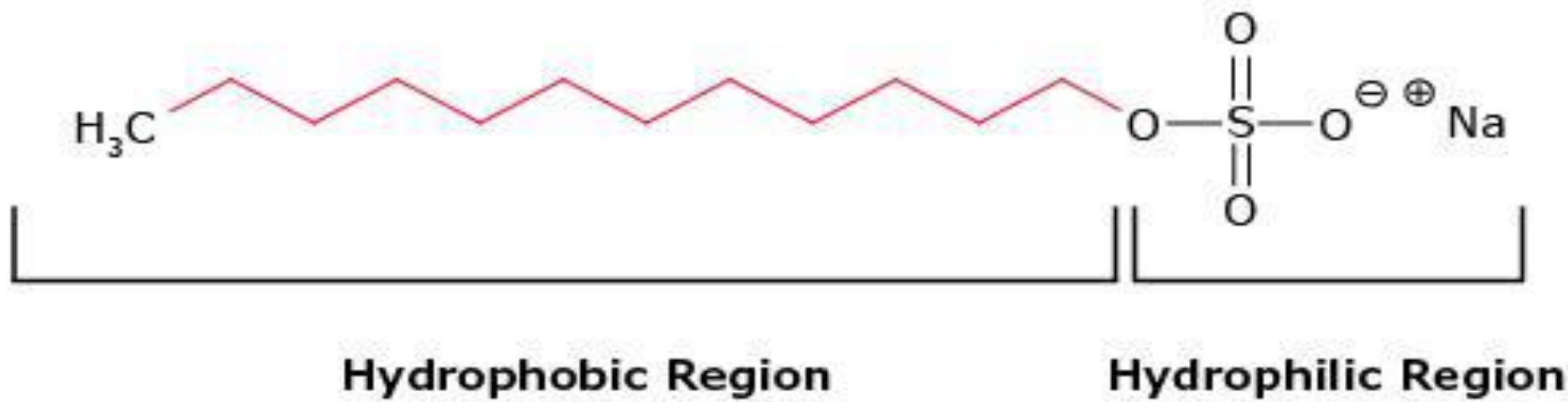
(ii) Long hydrocarbon chain (hydrophobic) part



DETERGENTS

- Detergents are a class of surfactants with cleaning properties when diluted in water.
- Most detergents are alkylbenzenesulfonates.
- Detergents are classified according to the electrical charge they carry as anionic, cationic, or non-ionic.
- While detergents are used for cleaning, they also find use as fuel additives and biological reagents.





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