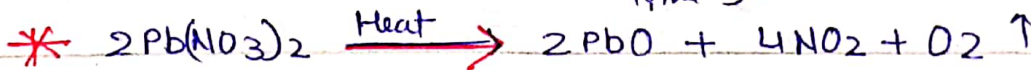
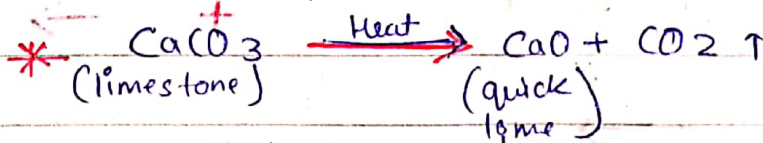
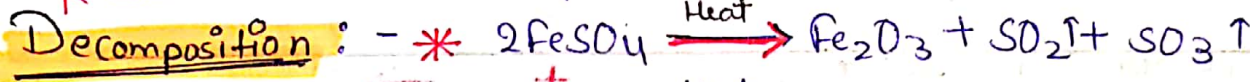
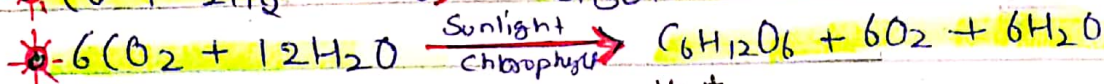
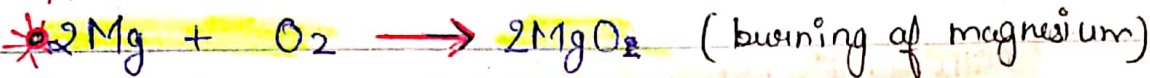
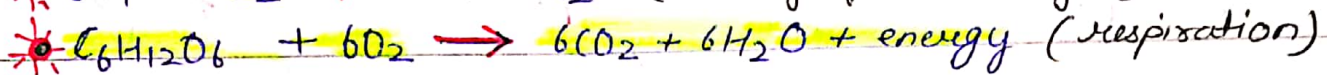
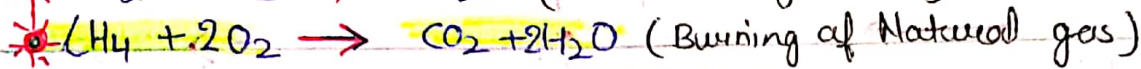
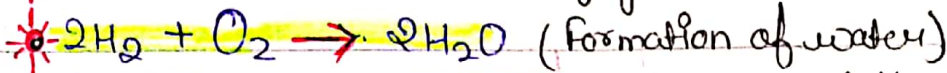
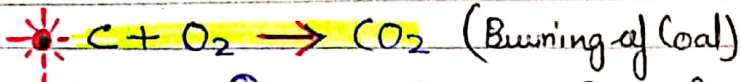
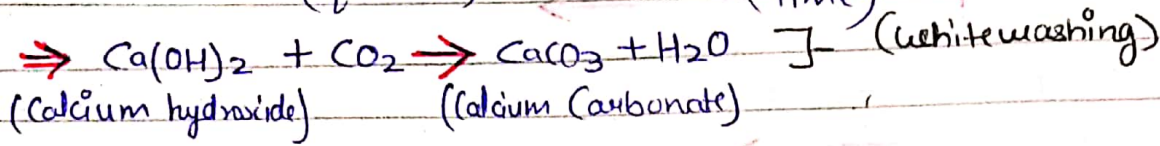
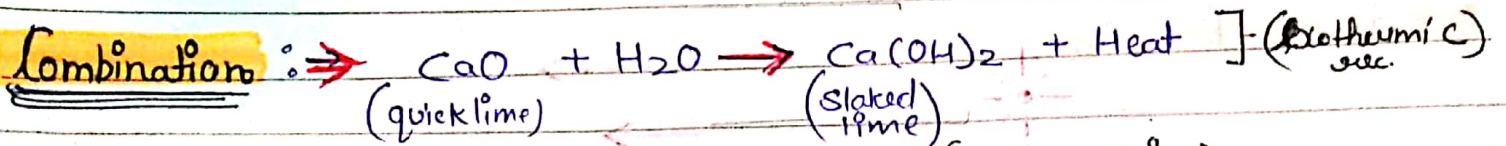
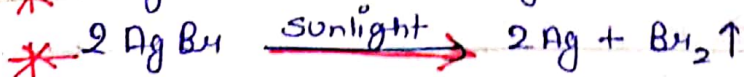
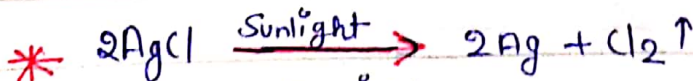
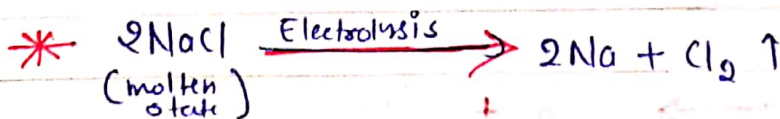
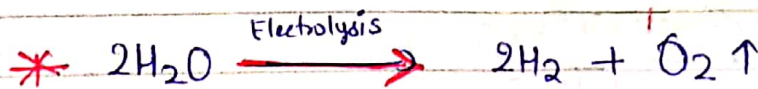


# CHEMISTRY

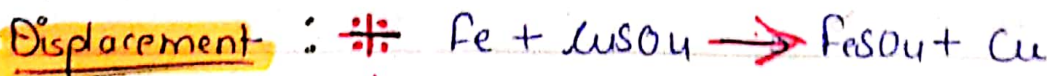
## Types of Reaction :-



} endothermic reaction

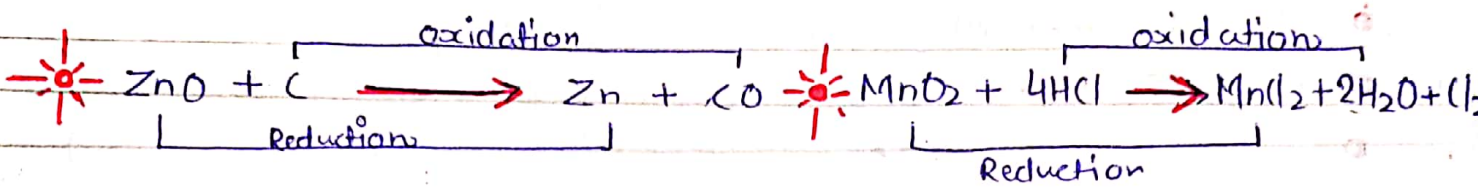
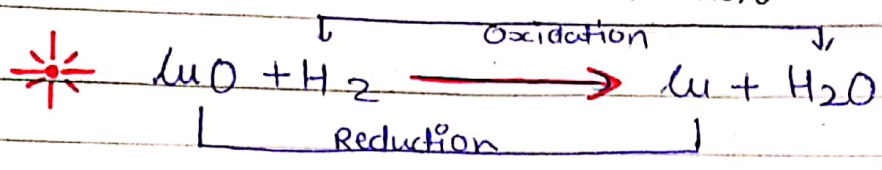
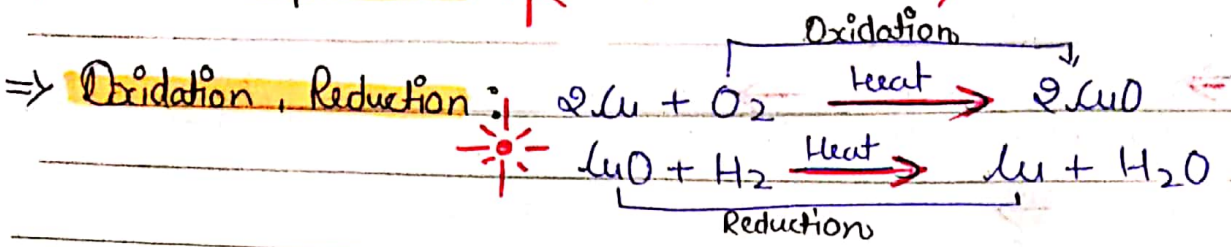
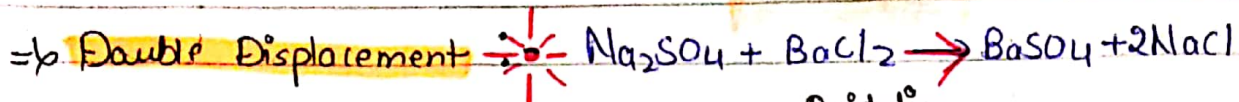


|   |        |
|---|--------|
|   | High   |
|   | K      |
| R | Na     |
| E | Ca     |
| A | Mg     |
| C | Al     |
| T | Zn     |
| I | Fe     |
| V | Sn     |
| I | Pb     |
| T | H      |
| I | Cu     |
| T | Hg     |
| Y | Ag     |
|   | Au Low |

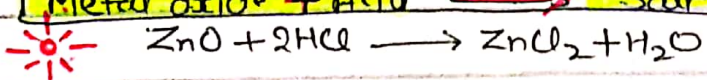
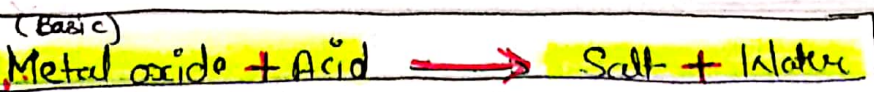
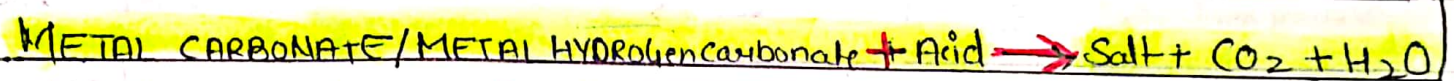
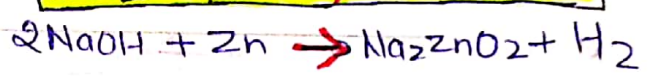
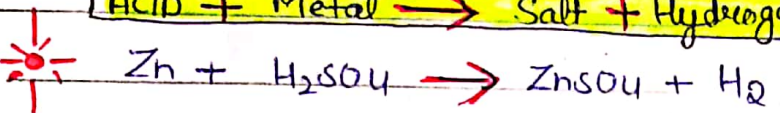
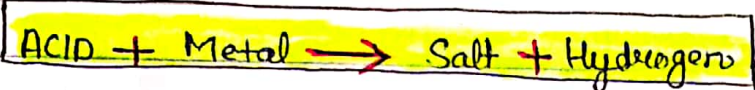




2NaCl  
uses



**ACID, BASE AND SALTS**

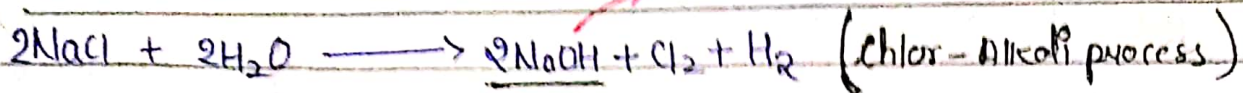


- PH**
- i) Gastric juices  $\rightarrow$  1-2
  - ii) Lemon juice  $\rightarrow$  2-3
  - iii) Pure water, blood  $\rightarrow$  7-14
  - iv) Milk of magnesia  $\rightarrow$  10
  - v) Sodium Hydroxide  $\rightarrow$  14
  - vi) sponge of human body  $\rightarrow$  7.0 to 7.8
  - vii) Stair water  $\rightarrow$  5.6
  - mouth  $\rightarrow$  5.5



## SODIUM HYDROXIDE

(Caustic Soda)



### Uses $\rightarrow$ NaOH

- $\rightarrow$  De-greasing metal
- Soaps and detergents
- paper making
- artificial fibres

### Cl<sub>2</sub>

- $\rightarrow$  Water treatment
- swimming pool
- PVC, disinfectants
- CFCs, pesticides
- making bleaching powder

### H<sub>2</sub>

- $\rightarrow$  Fuels, margarine
- ammonia
- free fertilizers

## Bleaching Powder

(Staked lime)



Its

- Uses  $\rightarrow$
- for bleaching cotton and linen in textile industry
  - bleaching wood pulp and bleaching washed clothes
  - oxidising agent in chemical industries.
  - to make water free from germs.

## BAKING SODA



- Uses  $\rightarrow$
- for making tasty crispy pakoras.
  - making baking powder
  - Ingredient in antacids
  - Soda-acid fire extinguisher.

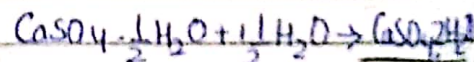
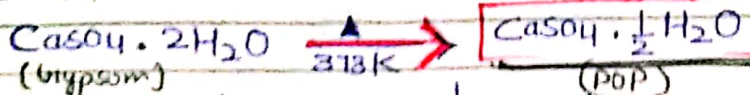


## WASHING SODA



- Uses  $\rightarrow$
- removing permanent hardness of water.
  - used in glass, soap and paper industry.
  - as a cleaning agent for domestic purpose.
  - manufacturing sodium compound such as borax.

## Plaster of Paris (POP)



- Uses  $\rightarrow$
- plaster for supporting fractured bones
  - making toys
  - for decoration
  - for making surface smooth



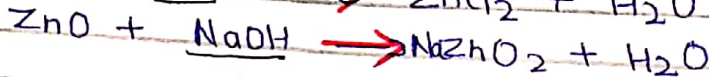
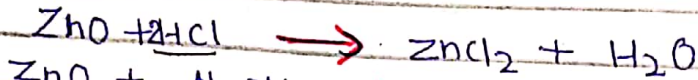
# METAL AND Non-METALS

## Chemical properties of metal :-

**Metal + Oxygen  $\rightarrow$  Metal oxide** basic in nature

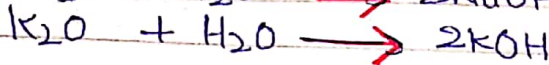
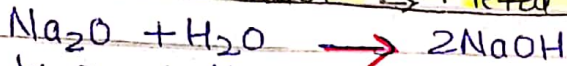


**Non-metallic Oxide is Acidic in Nature.**

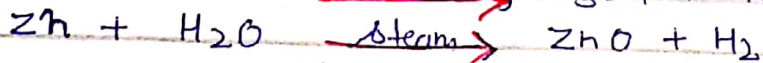
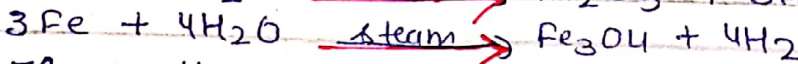
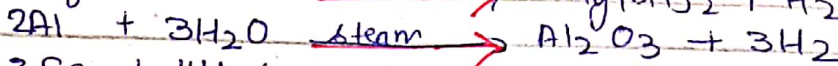
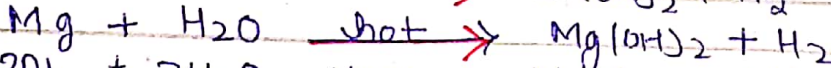
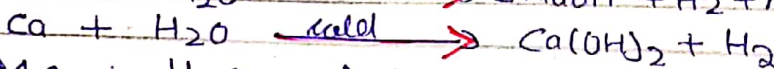
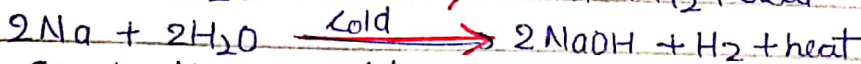
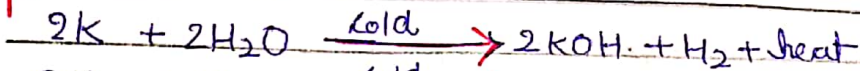


Aluminium oxide and zinc oxide are called Amphoteric oxides because they react with both acids and bases.

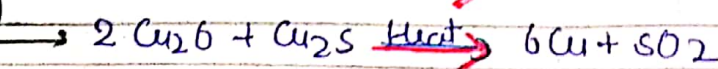
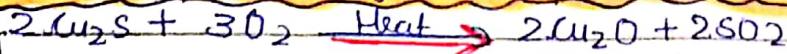
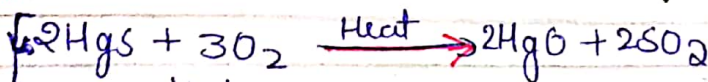
**Metal oxide + Water  $\rightarrow$  Metal hydroxide**



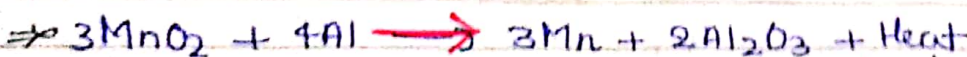
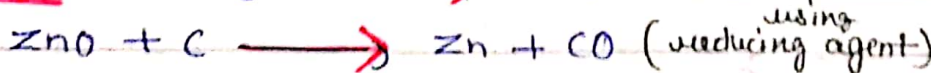
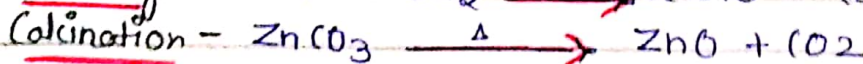
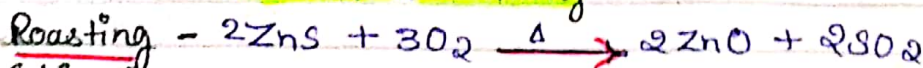
**Metal + Water  $\rightarrow$  Metal hydroxide + H<sub>2</sub>**



## Extracting Metal of low reactivity from ore



## middle reactivity



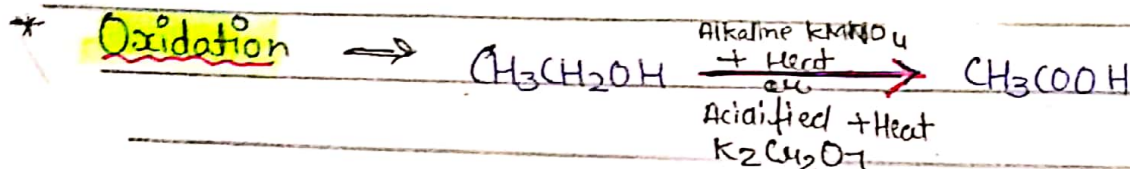
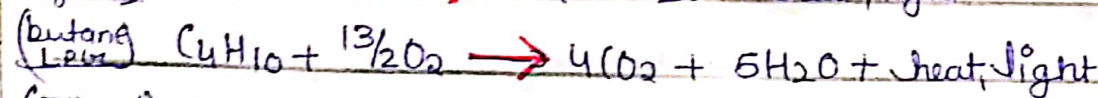
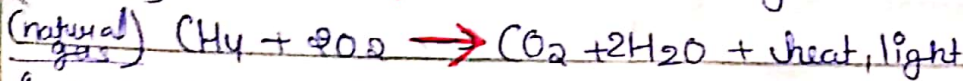
Reaction of Iron oxide with aluminium is used to join railway tracks and cracked machine parts called Thermit Process.



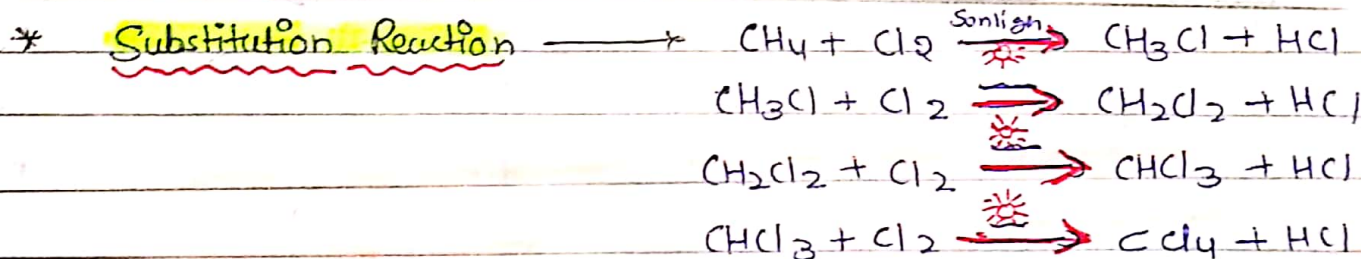
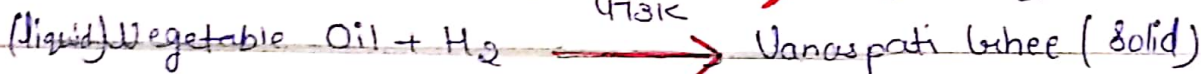
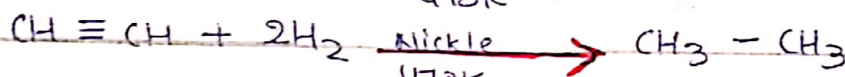
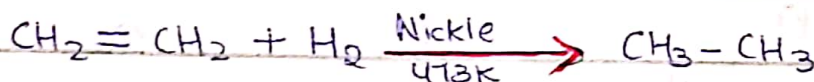
# CARBON AND COMPOUNDS

## Chemical Reaction of CARBON Compounds

### \* Combustion - (burning)

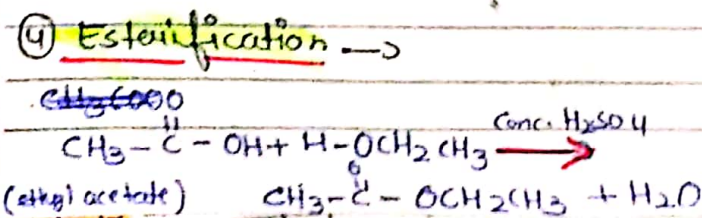
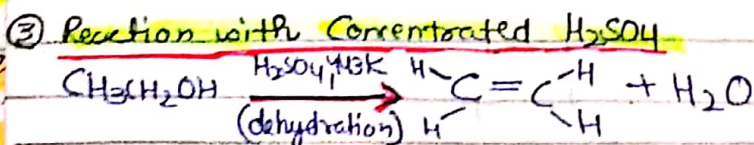
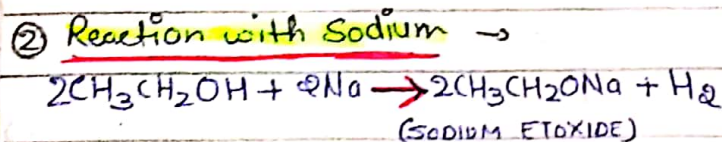
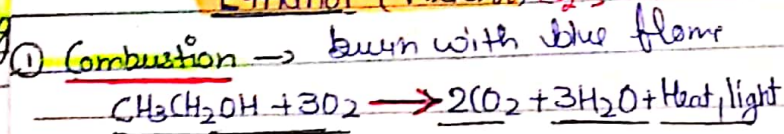


### \* Addition Reaction

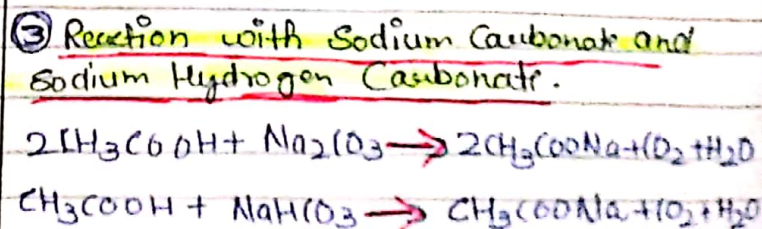
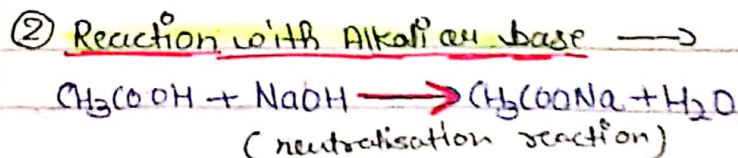
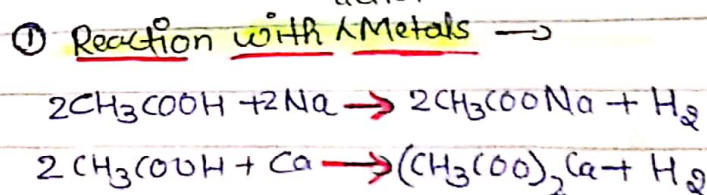


## REACTION OF Ethanol AND Ethanoic Acid

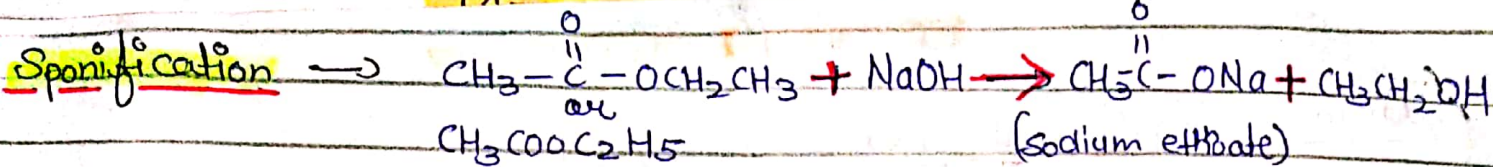
### Ethanol (Alcohol) ( $C_2H_5OH$ )



### Ethanoic Acid ( $CH_3COOH$ )





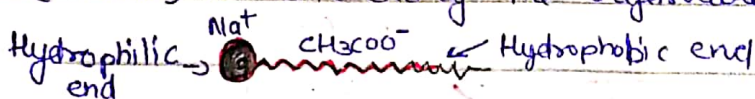


Soaps :- are sodium or potassium salts of long chain carboxylic acid.

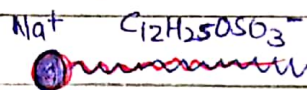
Eg. Stearic Acid ( $\text{C}_{17}\text{H}_{35}\text{COOH}$ ), Oleic Acid ( $\text{C}_{17}\text{H}_{33}\text{COOH}$ )

Preparation of Soaps :- When an oil or fat is treated with sodium hydroxide solution, it gets converted to sodium salt of the acid (soap) and glycerol. The reaction is called saponification.

Detergent  $\rightarrow$  detergents are sodium salt of Sulphonic acids i.e. detergent contain a sulphonic acid group ( $-\text{SO}_3\text{H}$ ) instead of carboxylic acid group ( $-\text{COOH}$ ) on one end of the hydrocarbon.



Soap molecule ( $\text{CH}_3\text{COONa}$ )



Detergent molecule ( $\text{C}_{12}\text{H}_{25}\text{OSO}_3\text{Na}$ )

Cleansing Action of Soap and Detergent  $\rightarrow$  When soap or detergent is dissolved in water, the molecules gather together in clusters, called micelles. The tail stick inwards and head outwards.

In cleansing, the hydrocarbon tail attaches itself to oily dirt. When water is agitated, the oily dirt tends to lift off from the dirty surface and dissociate into fragments. This gives an opportunity to other tail to stick to it. The solution now contain small globules of oil surrounded by detergent molecule. The negatively charged heads present in water prevent the small globules from coming together and form aggregates. Thus the oily dirt is removed from the object.

Hardness of Water :- Hardness of water is due to the presence of calcium and magnesium salts in water.

Scum Formation :-

