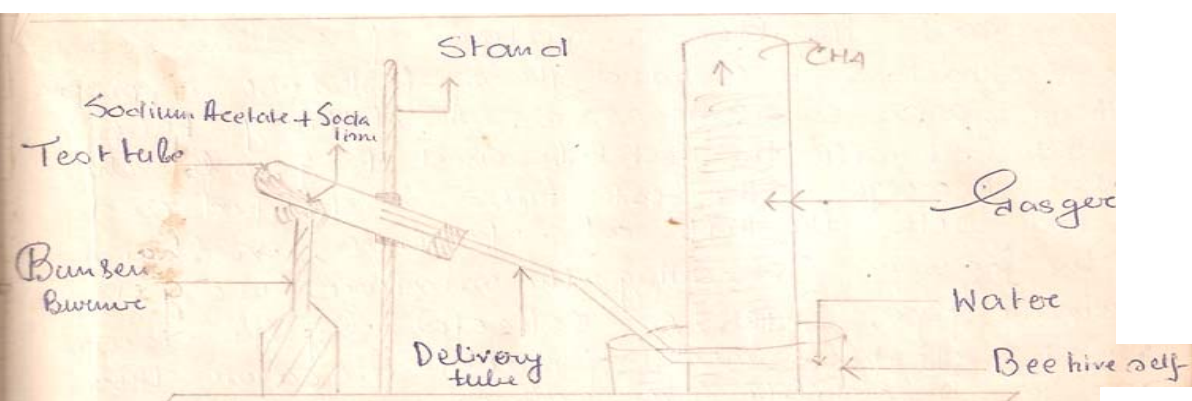
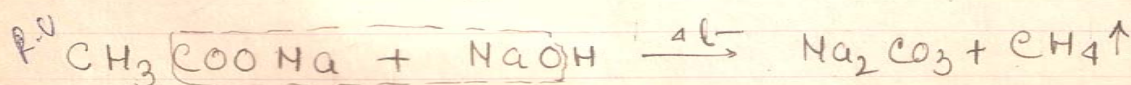
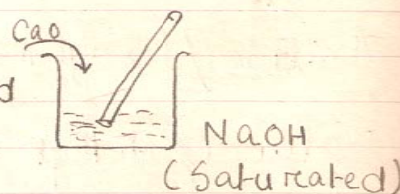
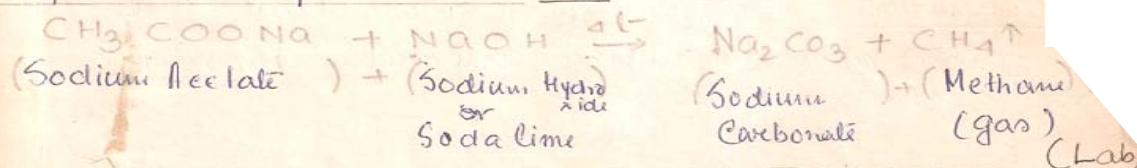


Preparation of Methane:- When a mixture of Sodium Acetate and Soda lime is heated in a test tube we get Methane.

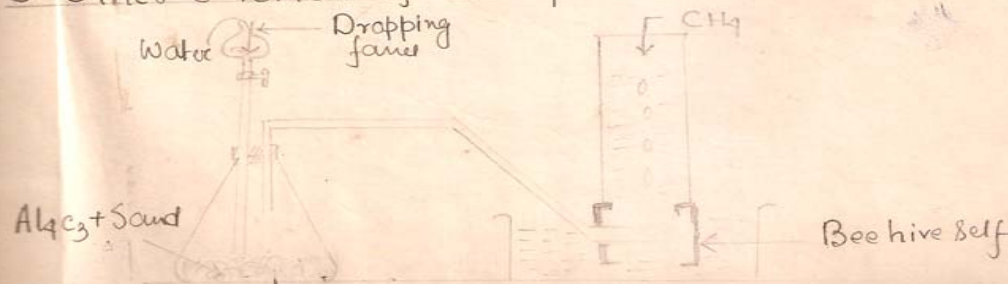
Soda lime  $\rightarrow$  Pastymass is called Sodlime. It is a mixture of  $\text{NaOH}$  and  $\text{Ca}(\text{OH})_2$



Preparation of Methane in Laboratory.

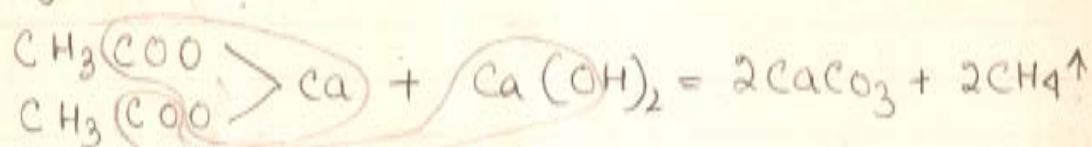


③ Other Method Of Preparation Methane.





When Calcium Acetate is heated with Sodalime we get Methane. (R.U)



**Procedure** → In a hard glass test tube a mixture of Sodium Acetate and Sodalime in the ratio 3:1, is taken. It is fitted with a delivery tube which is leading to a water trough. The test tube is clamped and heated with the help of a Burner, as shown in the figure. On heating the mixture first slowly Methane gas is formed. This gas is collected by the down ward displacement of water, as the gas is insoluble in water.

**Precaution** → The hard glass test tube should be fitted in a slanting towards the right as in the figure.

When Aluminium Carbide is treated with water at room temperature, we get Methane at once.

In a conical <sup>flask</sup> about 25 gms of Aluminium Carbide is taken. It is added with a little sand to retard (slow) the reaction. It is fitted with a delivery tube which is connected to a gas jar through beehive stop as shown in the figure. On adding water drop by drop Methane gas is formed which



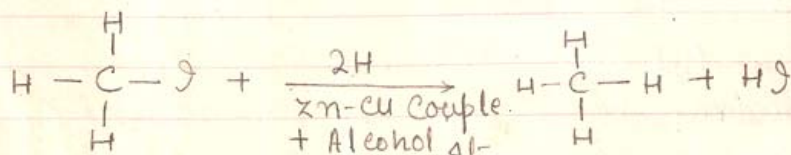
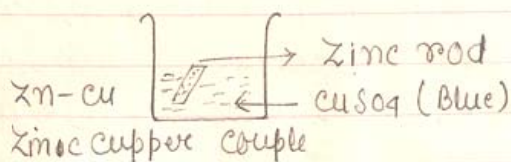


is collected by the downward displacement of water.

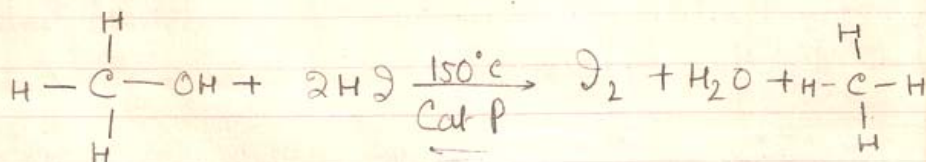


W.H

④ When Methyl Iodide/Methyl halide is boiled with Zinc copper couple and Alcohol we get Methane.



⑤ When Methyl Alcohol is boiled with  $\text{HI}$  at  $150^\circ\text{C}$  in the presence of a little red Phosphorus (P) we get Methane.



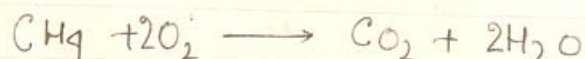
### PHYSICAL PROPERTIES

It is a colourless odourless and tasteless gas, insoluble in water, lighter than air, not poisonous, soluble in Alcohol, Acetone and ether.

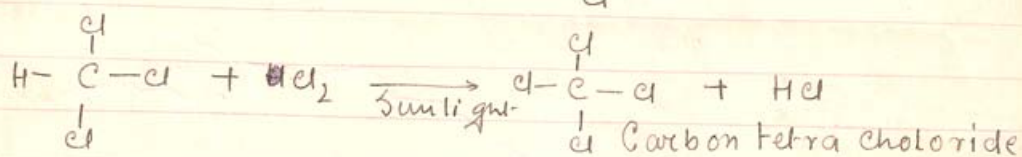
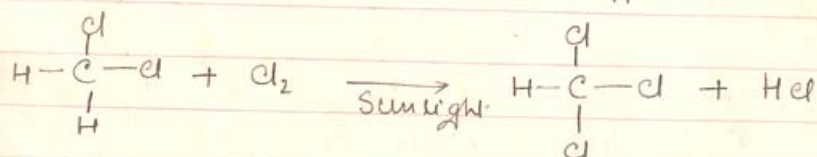
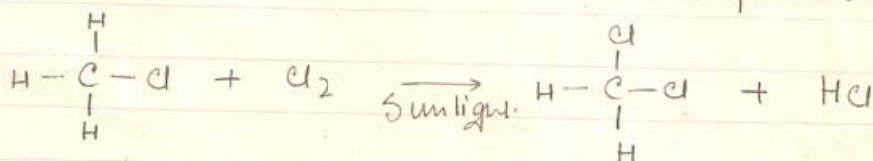
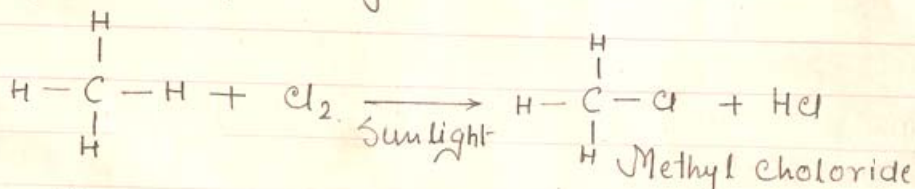


## CHEMICAL PROPERTIES

Oxidation/burning - when Methane gas is burnt - it gives a green light - producing Carbon dioxide and water.

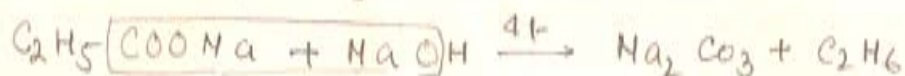


Substitution reaction - When Methane is treated with  $\text{Cl}_2$ , in Sunlight - due to substitution reaction we get the following products.



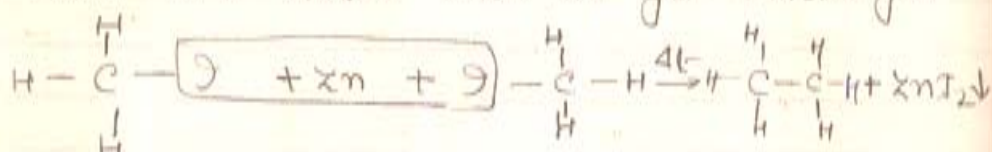


1. Preparation - When Sodium Propionate is heated with sodalime we get Ethane.

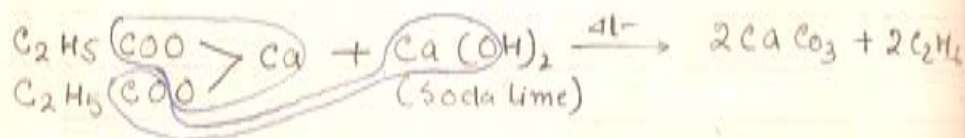


2. Frankland reaction

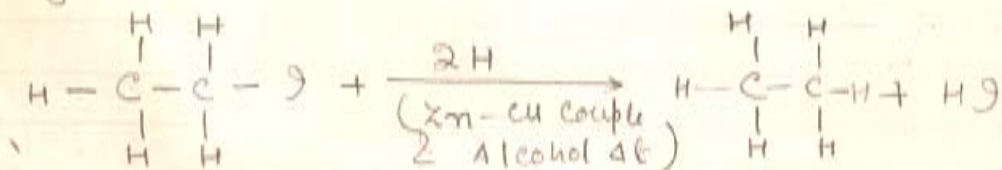
When Methyl Iodide/Methyl halide is heated with zinc dust in a closed vessel we get Ethane gas.



3. When Calcium Propionate is heated with sodalime we get Ethane.



4. When Ethyl Iodide is heated with zinc copper couple and Alcohol, due to nascent hydrogen we get Ethane.



5. When Ethyl Alcohol is treated with H<sub>2</sub> in the presence of red P as a catalyst, due to reduction Ethane is formed.