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Class - 10

Chapter - 4

Carbon and its Compound

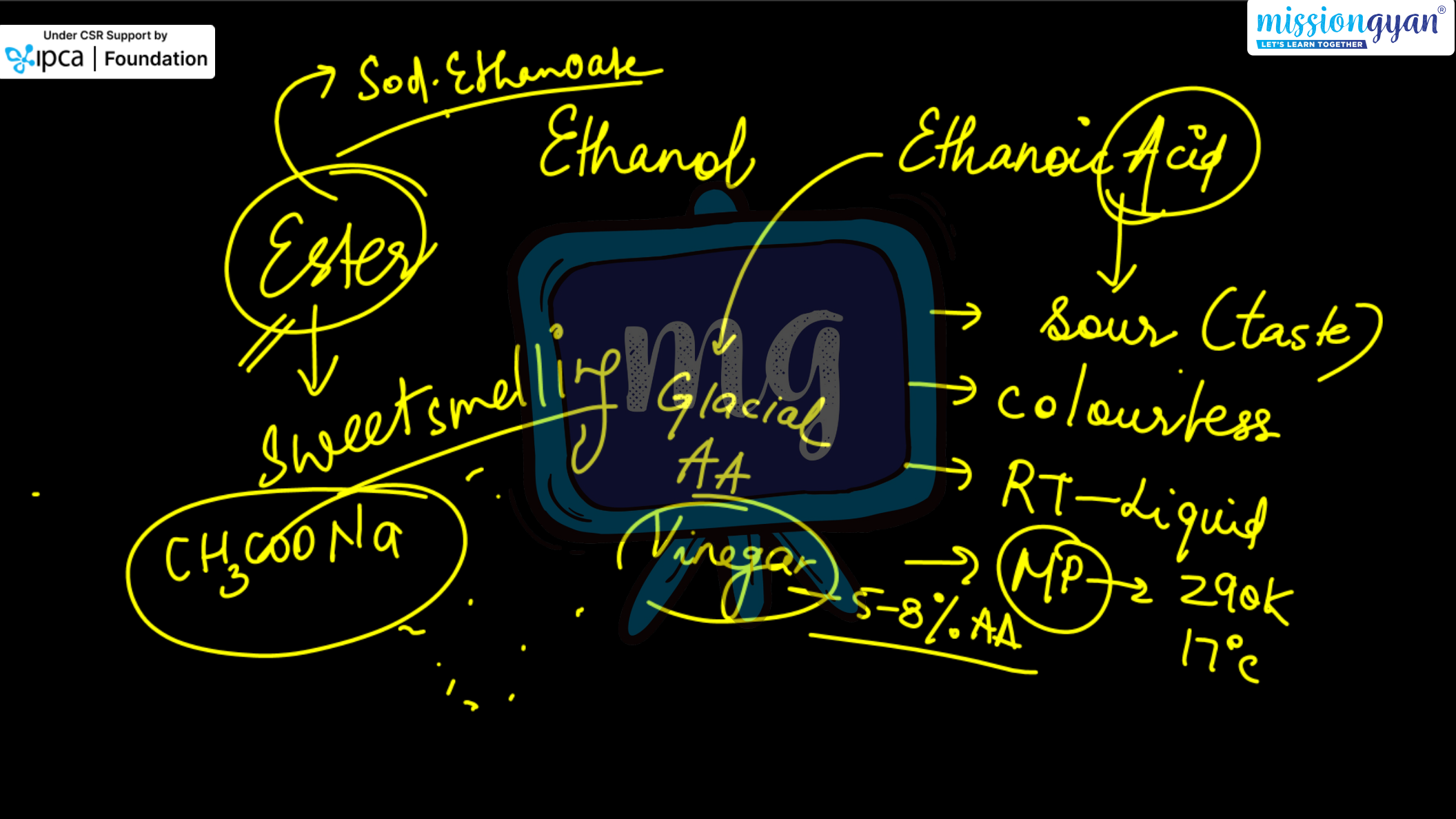
Part-10

Soaps and Detergents

Disha Didi (DD)

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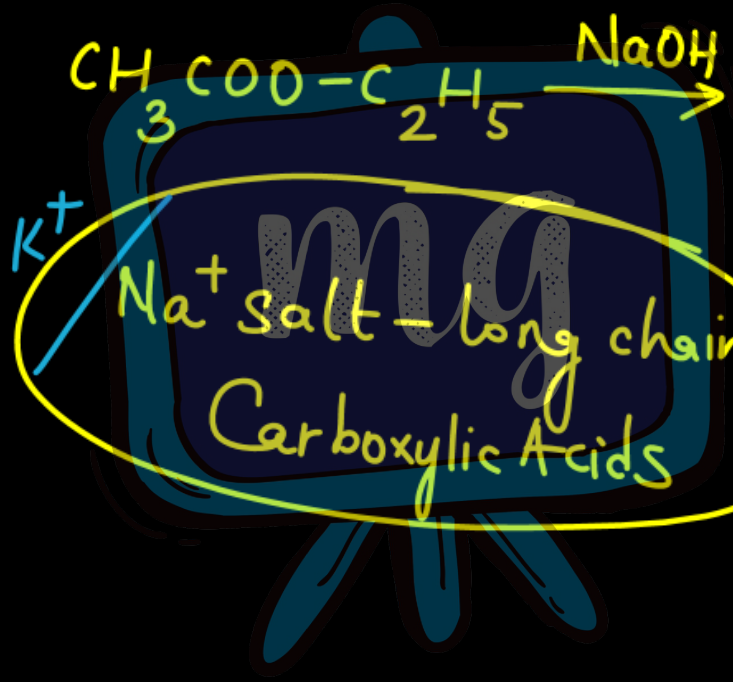
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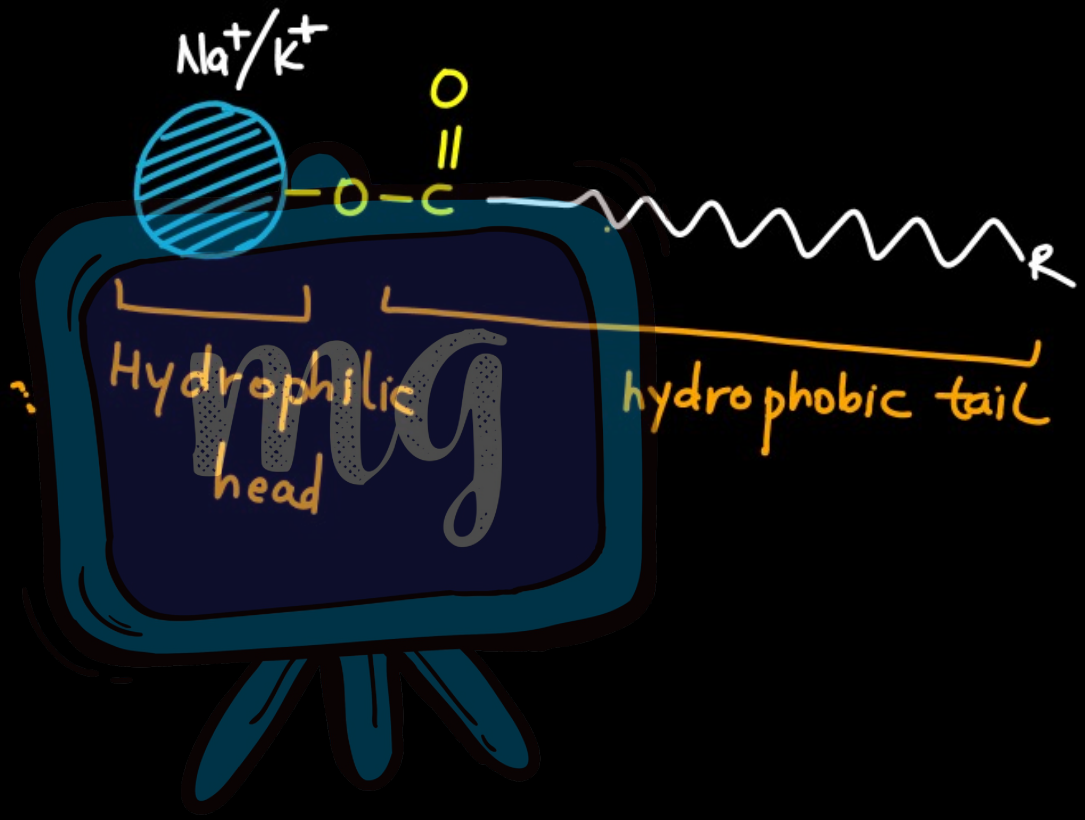
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SOAP



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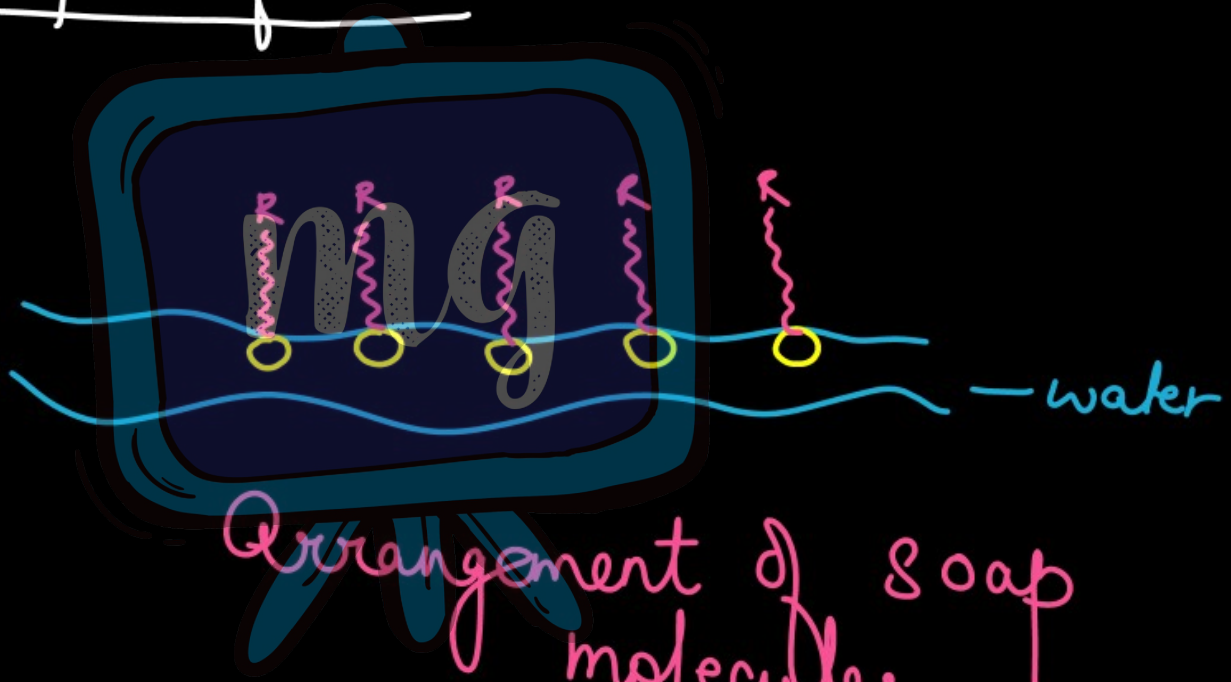
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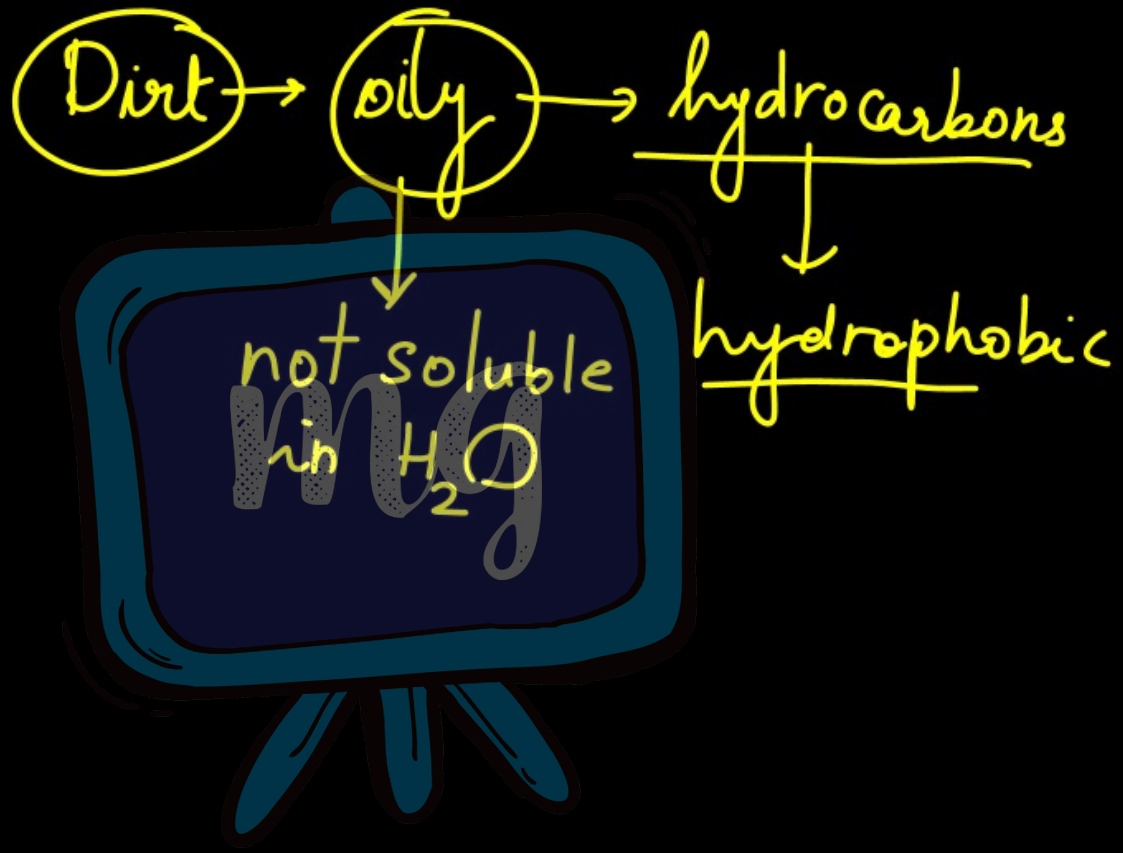
Surface of water :



Arrangement of soap molecules.

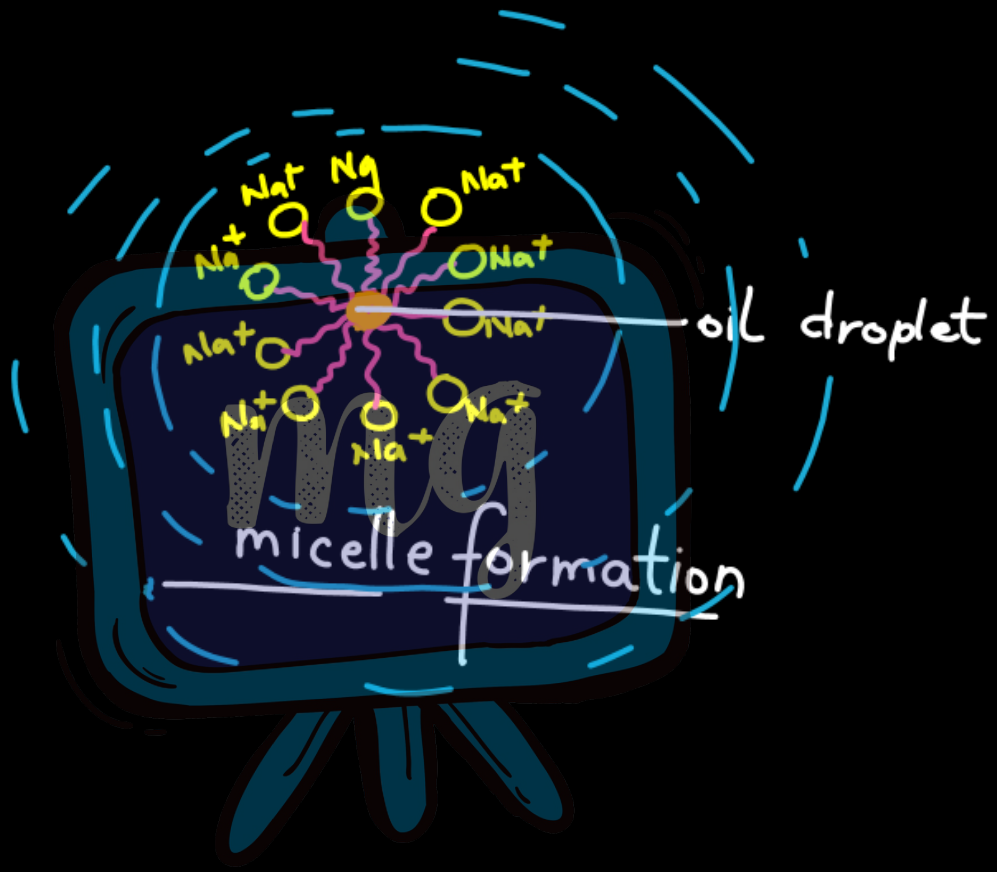
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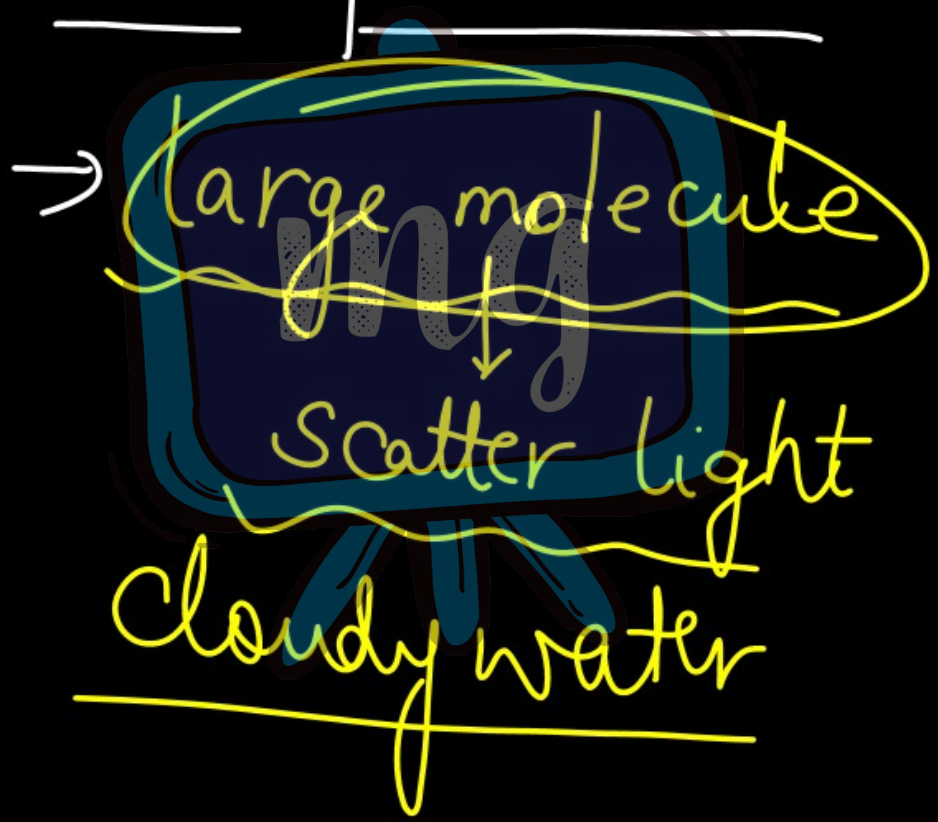
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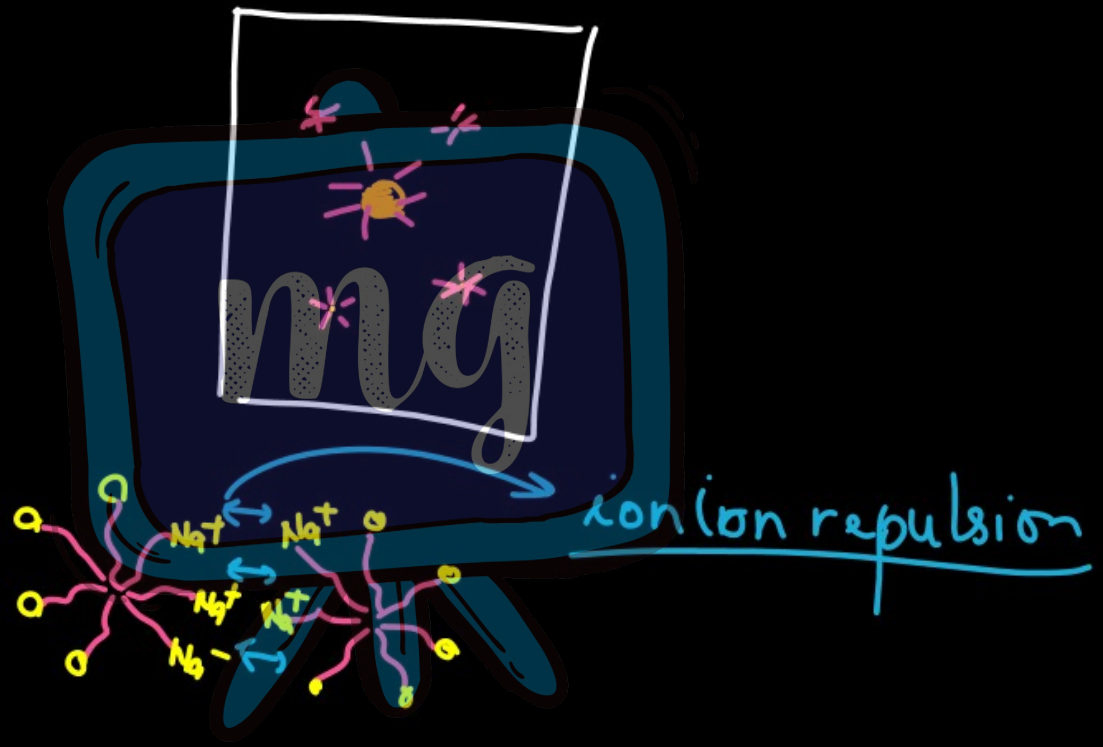
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Soap Molecule



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Soap and Detergent

- Sodium or Potassium salt of long chain carboxylic acid

$C_{17}H_{35}COONa$

- Soap Molecule has

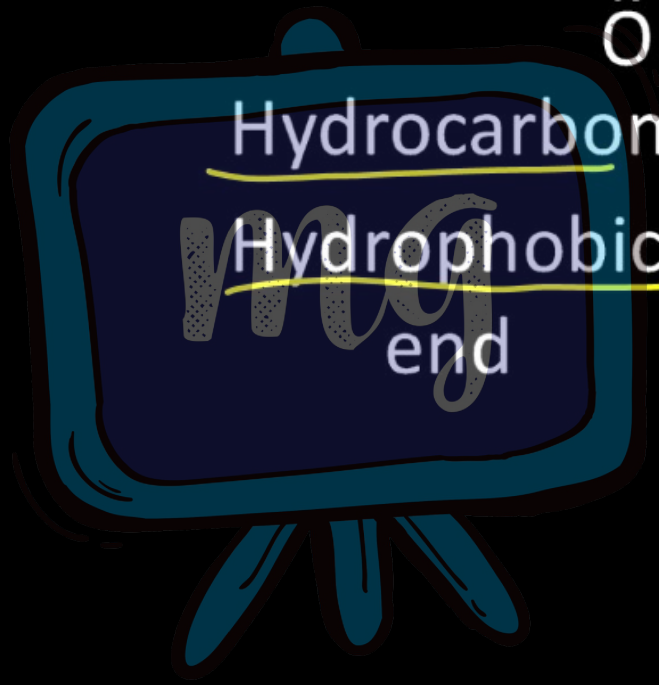
(i) Ionic (hydrophilic) part

(ii) Long hydrocarbon chain (hydrophobic) Part.

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Hydrocarbon end

Hydrophobic end

Ionic

Hydrophilic end

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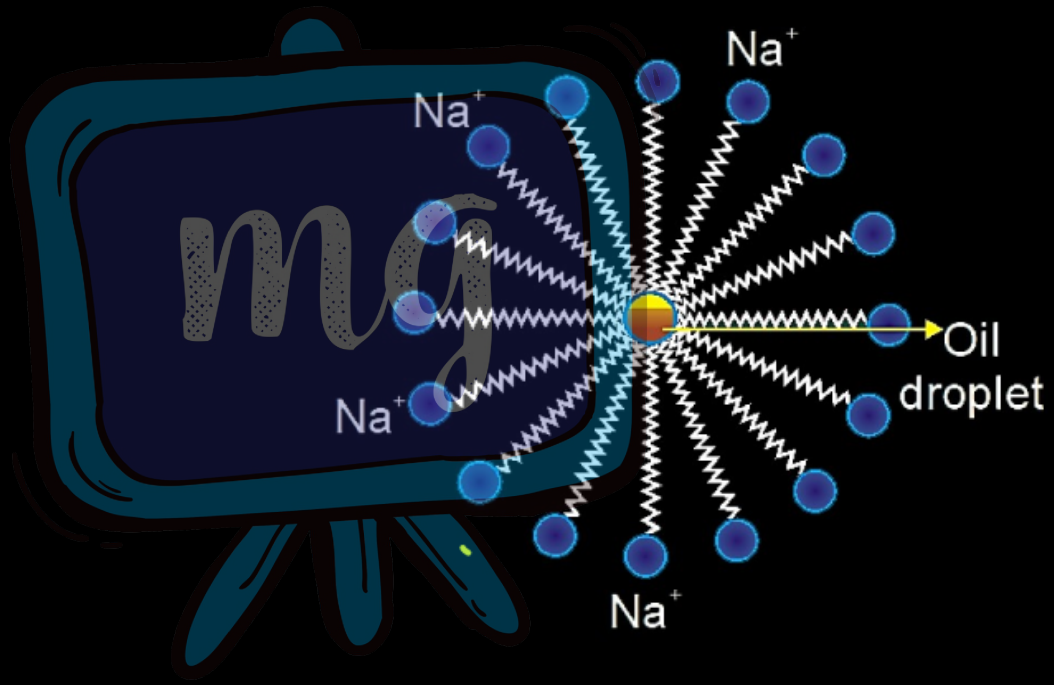
Cleaning Action of Soap

1. Dirt is oily, attaches with hydrophobic end, Not soluble in water.
2. Ionic end is surrounded with water molecule.

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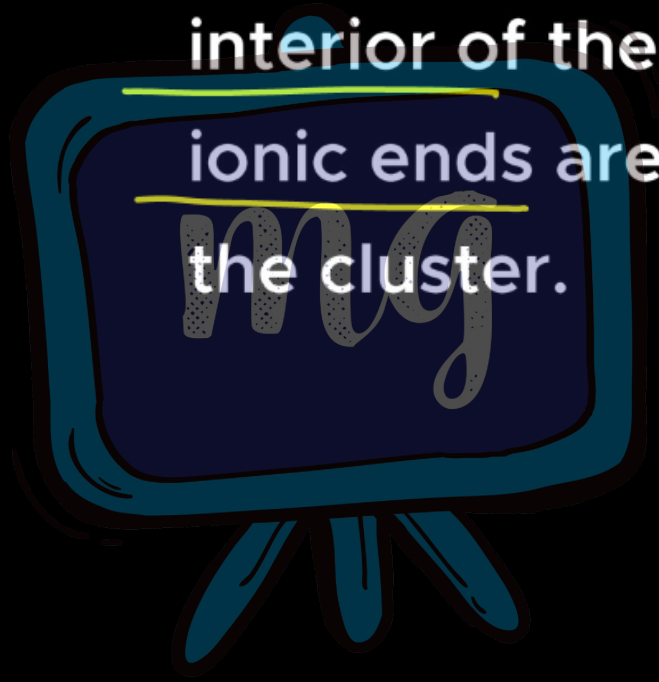
Formation of micelle



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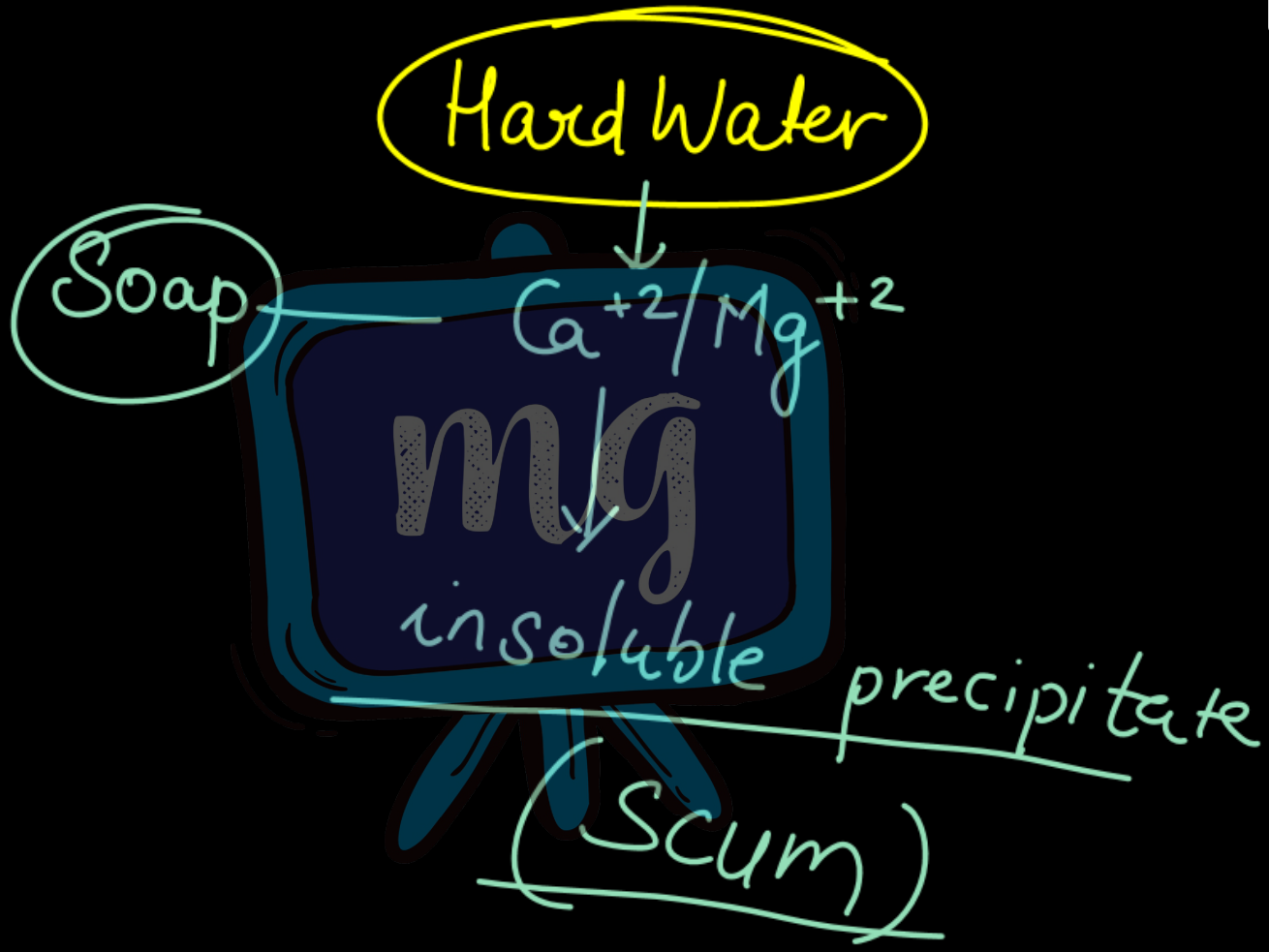
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The hydrophobic tails are in the interior of the cluster and the ionic ends are on the surface of the cluster.



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Detergents :

- Shampoo
- Cleaning agents

: Na^+ salts – sulphonic acid

$NH_4^+ — Cl^- | Br^-$

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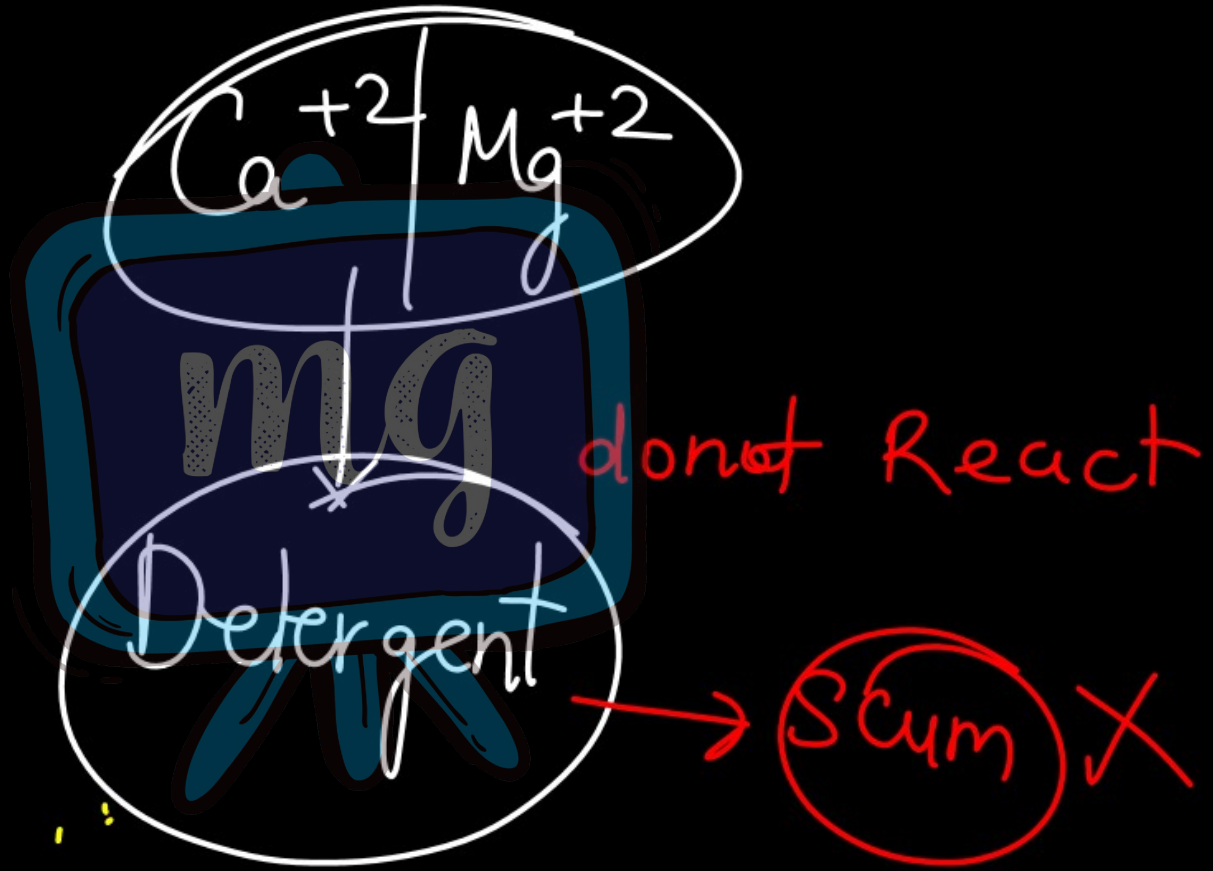
Eg:

- Sodium n-dodecyl Sulphate



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Soap + Hard water → Scum
(calcium & (Insoluble)
Magnesium salt)

Detergents → ammonium or sulphonate salts of long chain of carboxylic acid



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Effective in cleaning in both hard & soft water.



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Q.1 A neutral organic compound A, having molecular formula C_2H_6O, gives acidic compound B on oxidation with potassium-dichromate and sulphuric acid.

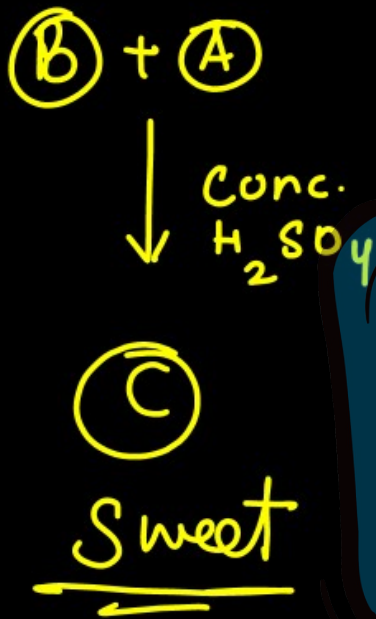
A
C_2H_6O

C_2H_6O (A) → B

∴

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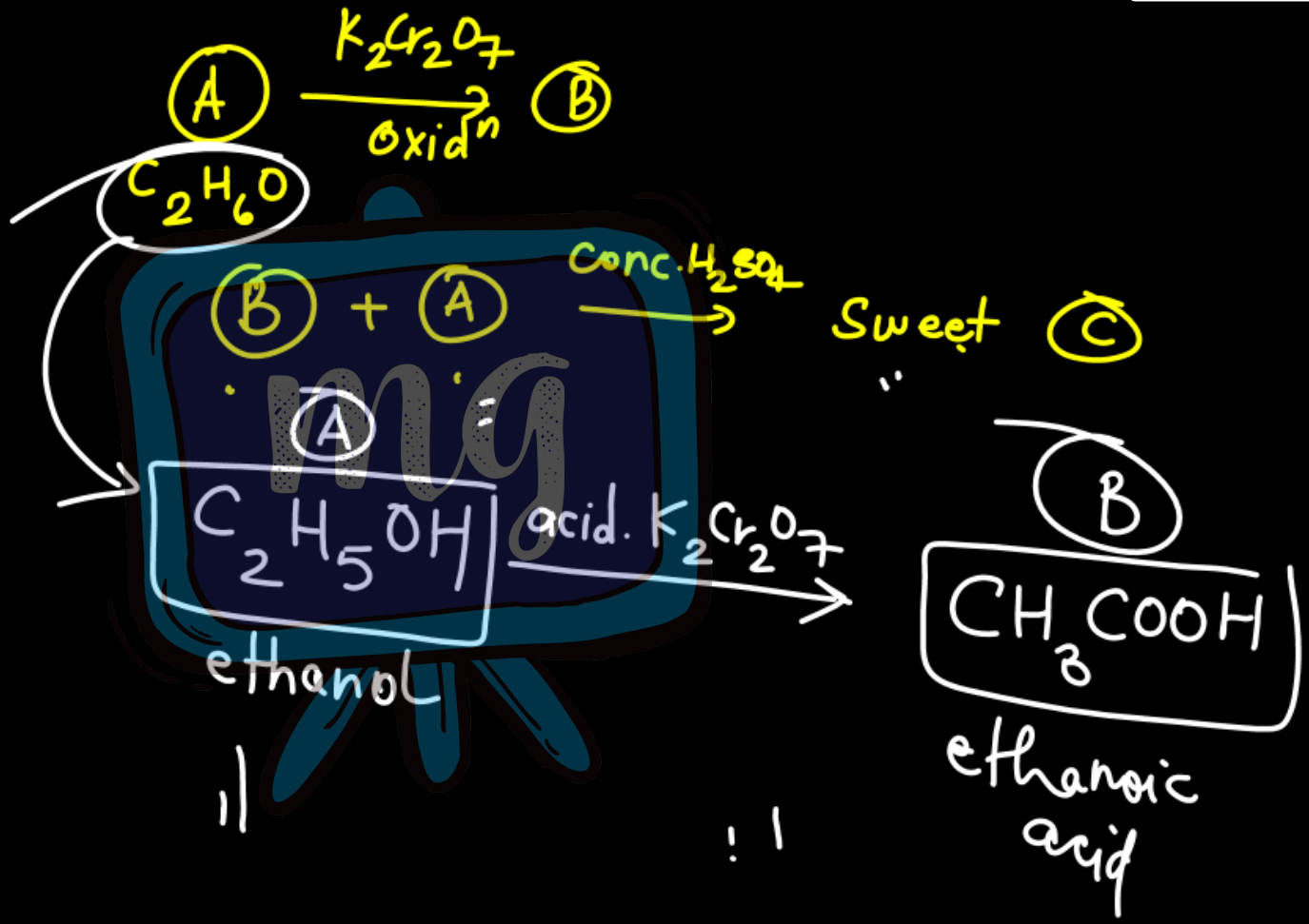
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When B again reacts with A in presence of hot and concentrate H_2SO_4 then a compound C with sweet smell is formed. Identify the A, B and C and write the equations of the reactions ?

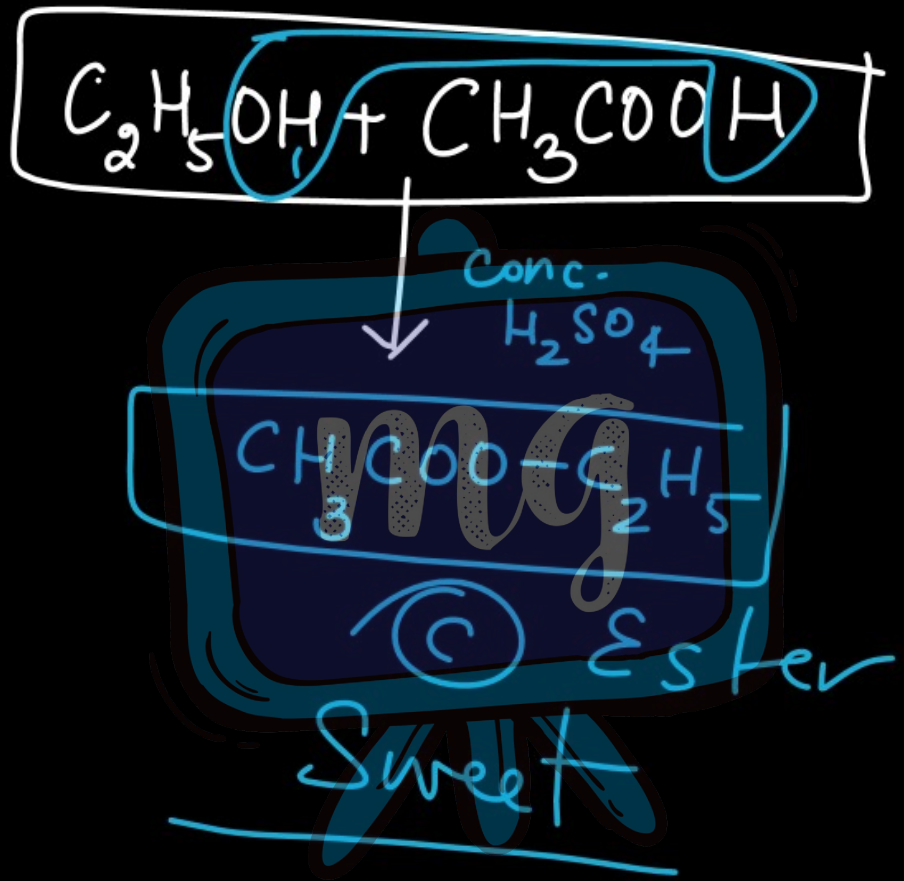
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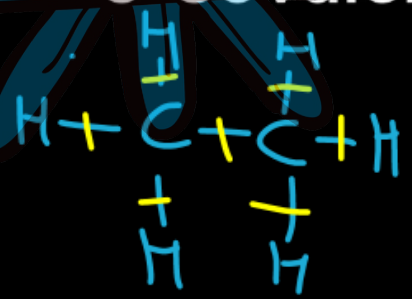
Q.2 Ethane, with the molecular formula C_2H_6 has

(a) 6 Covalent bond

(b) 7 Covalent bond

(c) 8 Covalent bond

(d) 9 Covalent bond



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Q.3 Butanone is four-carbon compound with the functional group.

(a) Carboxylic acid
(b) Aldehyde
(c) Ketone
(d) Alcohol

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Q.4 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

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Q.5 Draw the electron dot structures for 2 — ethanoic acid.

