

## Carbon and its Compounds Important Notes and Results

- ❖ A functional group is an atom or group of atoms in a molecule, which gives its characteristic chemical properties.
- ❖ **Yeast and Fermentation:** Yeasts are single-celled microorganisms, belonging to the class of fungi. The enzymes present in yeasts catalyze many complex organic reactions. Fermentation is conversion of complex organic molecules into simpler molecules by the action of enzymes. E.g. curdling of milk.
- ❖ Ordinary soaps when treated with hard water precipitate as salts of calcium and magnesium. **They appear at the surface of the cloth as sticky grey scum.** Thus, the soaps cannot be used conveniently in hard water.



No. of carbons atoms	IUPAC Name			
	Alcohols	Aldehydes	Ketones	Carboxylic acid
1	Methanol (CH <sub>3</sub> OH)	Methanal (HCHO)	-	Methanoic acid (HCOOH)
2	Ethanol (CH <sub>3</sub> CH <sub>2</sub> OH)	Ethanal (CH <sub>3</sub> CHO)	-	Ethanoic acid (CH <sub>3</sub> COOH)
3	Propanol (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> OH)	Propanal (CH <sub>3</sub> CH <sub>2</sub> CHO)	Propanone (CH <sub>3</sub> COCH <sub>3</sub> )	Propanoic acid (CH <sub>3</sub> CH <sub>2</sub> COOH)
4	Butanol (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH)	Butanal (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CHO)	Butanone (CH <sub>3</sub> COCH <sub>2</sub> CH <sub>3</sub> )	Butanoic acid (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> COOH)
5	Pentanol (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH)	Pentanal (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CHO)	Pentanone (CH <sub>3</sub> COCH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub> )	Pentanoic acid (CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> COOH)

Class of the compound	Functional group	Common Formula	Examples
Alcohols	-OH	R-OH	Ethanol, CH <sub>3</sub> CH <sub>2</sub> OH
Aldehydes	$\begin{array}{c} \text{O} \\    \\ -\text{C}-\text{H} \end{array}$	R-CHO	Acetaldehyde, CH <sub>3</sub> CHO
Ketones	$\begin{array}{c} \text{O} \\    \\ -\text{C}- \end{array}$	R-CO-R	Acetone, CH <sub>3</sub> COCH <sub>3</sub>
Carboxylic acids	$\begin{array}{c} \text{O} \\    \\ -\text{C}-\text{OH} \end{array}$	R-COOH	Acetic acid, CH <sub>3</sub> COOH
Ester	$\begin{array}{c} \text{O} \\    \\ -\text{C}-\text{OR} \end{array}$	R-COOR	Methyl acetate, CH <sub>3</sub> COOCH <sub>3</sub>
Ether	-O-R	R-O-R	Dimethyl ether, CH <sub>3</sub> OCH <sub>3</sub>