

Synthetic application of Ethyl acetoacetate:-

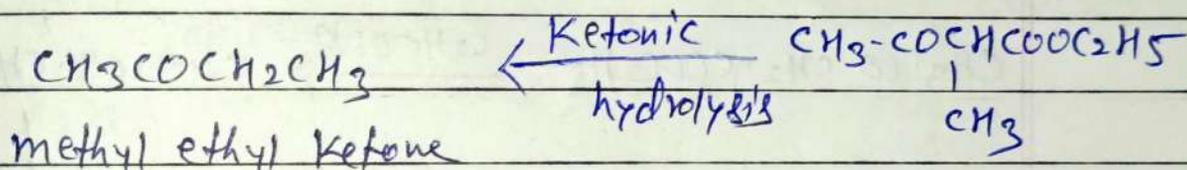
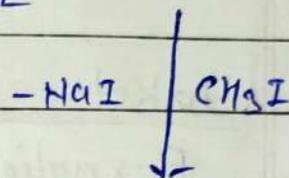
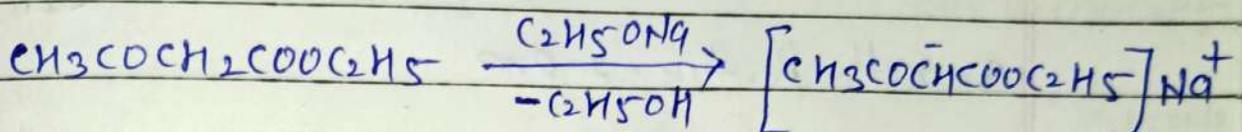
The following types of compounds can be synthesised from acetoacetic ester or its derivatives applying suitable reagents and methods.

- ① Ketones :- The following principles should be adopted for the synthesis of ketones.
 - a. Structure of ketone is written. If it contains $\text{CH}_3\text{CO}-$ gr. i.e. if it is methyl ketone, it can be synthesised from acetoacetic ester.
 - b. The acetone nucleus ($\text{CH}_3\text{CO}-$) is picked out.

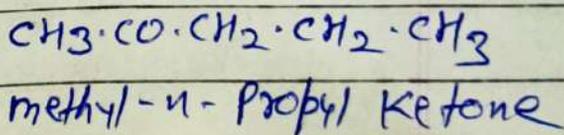
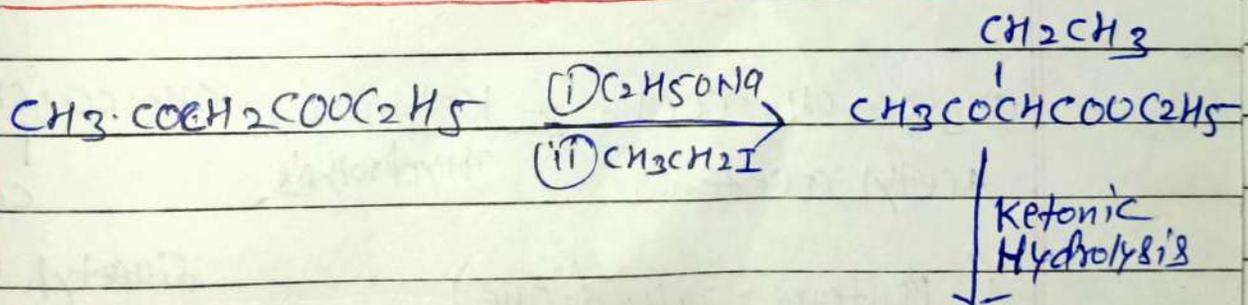
c. The remaining alkyl gr. are introduced step-wise. If these are different, the larger alkyl gr. is introduced first in order to overcome any possible steric effect.

d. Finally, the substituted acetoacetic ester is subjected to ketonic hydrolysis to furnish the desired ketone.

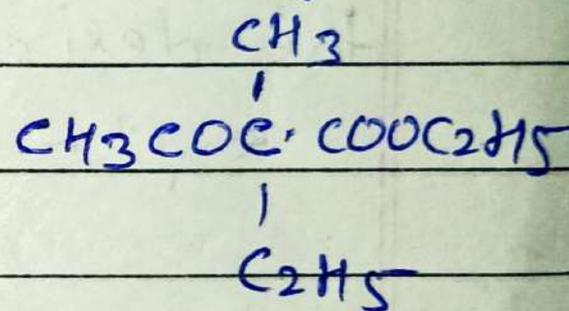
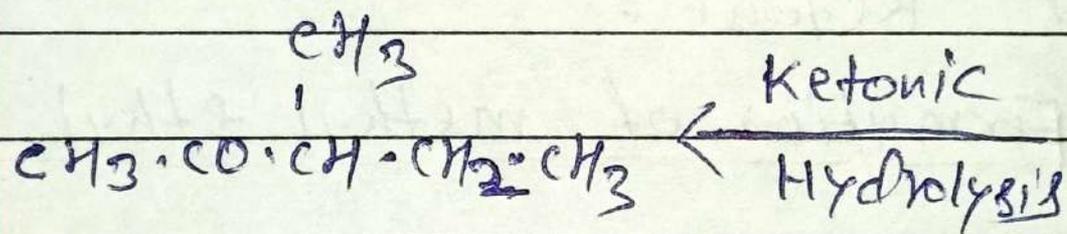
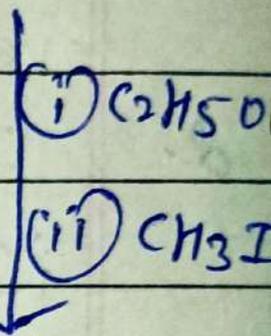
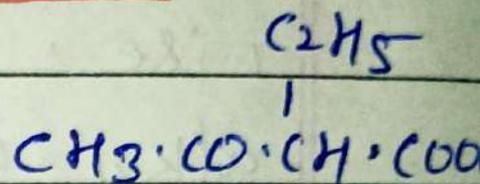
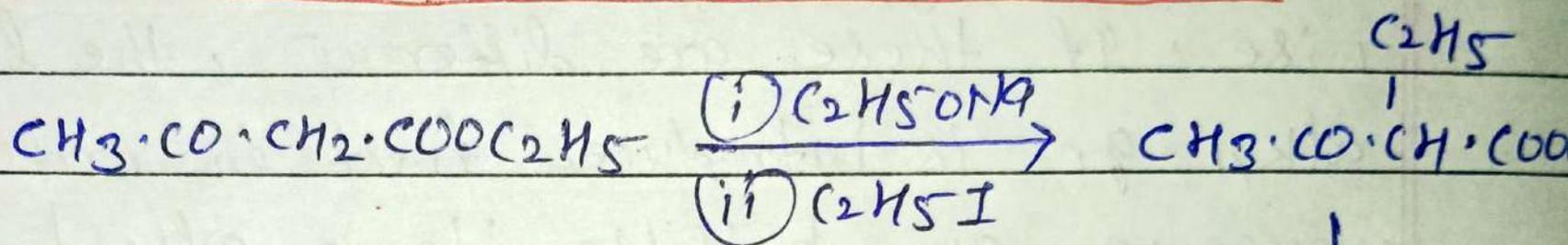
e.g. - Formation of methyl ethyl ketone -



Formation of methyl-n-Propyl ketone ! -



Formation of 3-methyl-pentan-2-one ! —



3-methyl-pentan-2-one