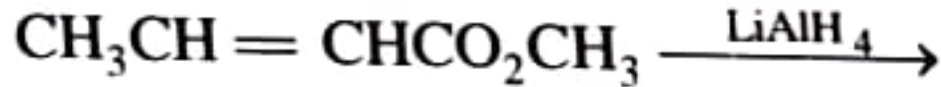


The major product of the following reaction is



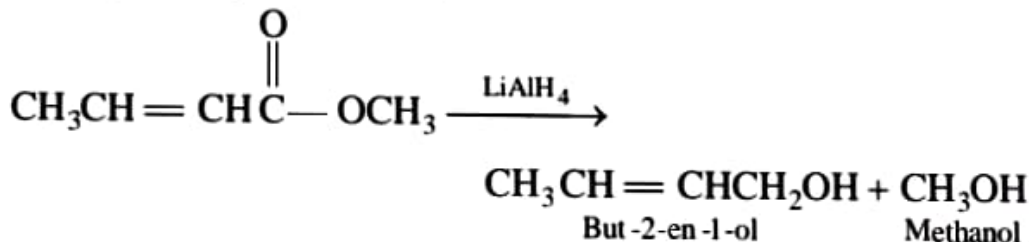
(2019 Main, 9 April)

- (a) $\text{CH}_3\text{CH}=\text{CHCH}_2\text{OH}$ (b) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
(c) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}_2\text{CH}_3$ (d) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$

Key Idea LiAlH_4 reagent is used for the reduction of $-\text{CHO}$,

$\begin{array}{c} \text{O} \\ || \\ -\text{C} \end{array} \text{OCH}_3$. It does not reduce double bonds.

The reaction of an ester with LiAlH_4 produces two alcohols, one corresponding to the acyl portion of the ester and one corresponding to the alkyl portion.



Thus, the major product of the given reactant

$\begin{array}{c} \text{O} \\ || \\ \text{CH}_3\text{CH}=\text{CH}\text{C} \end{array} \text{OCH}_3$ in presence of LiAlH_4 is $\text{CH}_3\text{CH}=\text{CHCH}_2\text{OH}$ and CH_3OH . The reaction proceeds through following mechanism.

Mechanism

