Figure 18.01

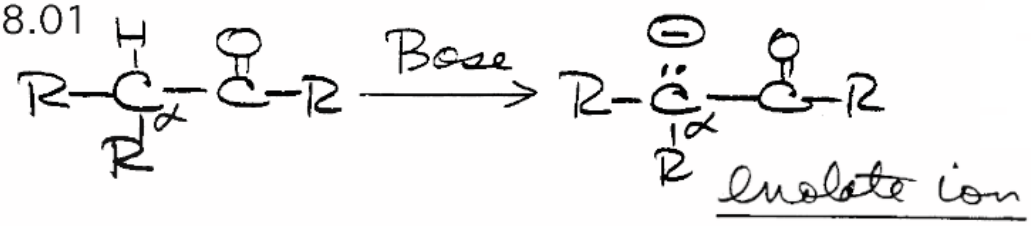


Figure 18.02

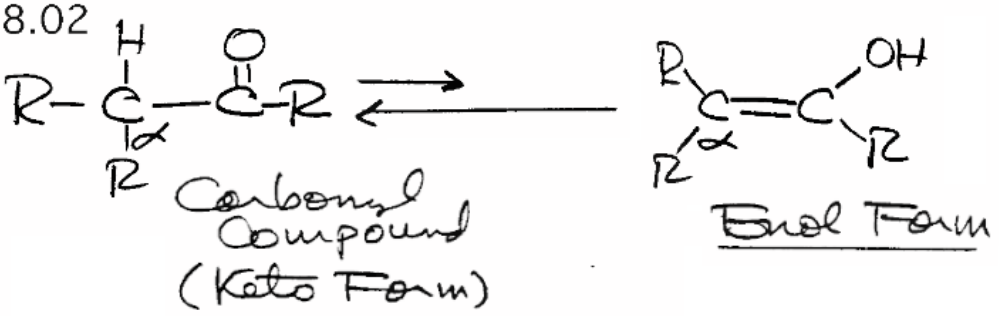


Figure 18.03

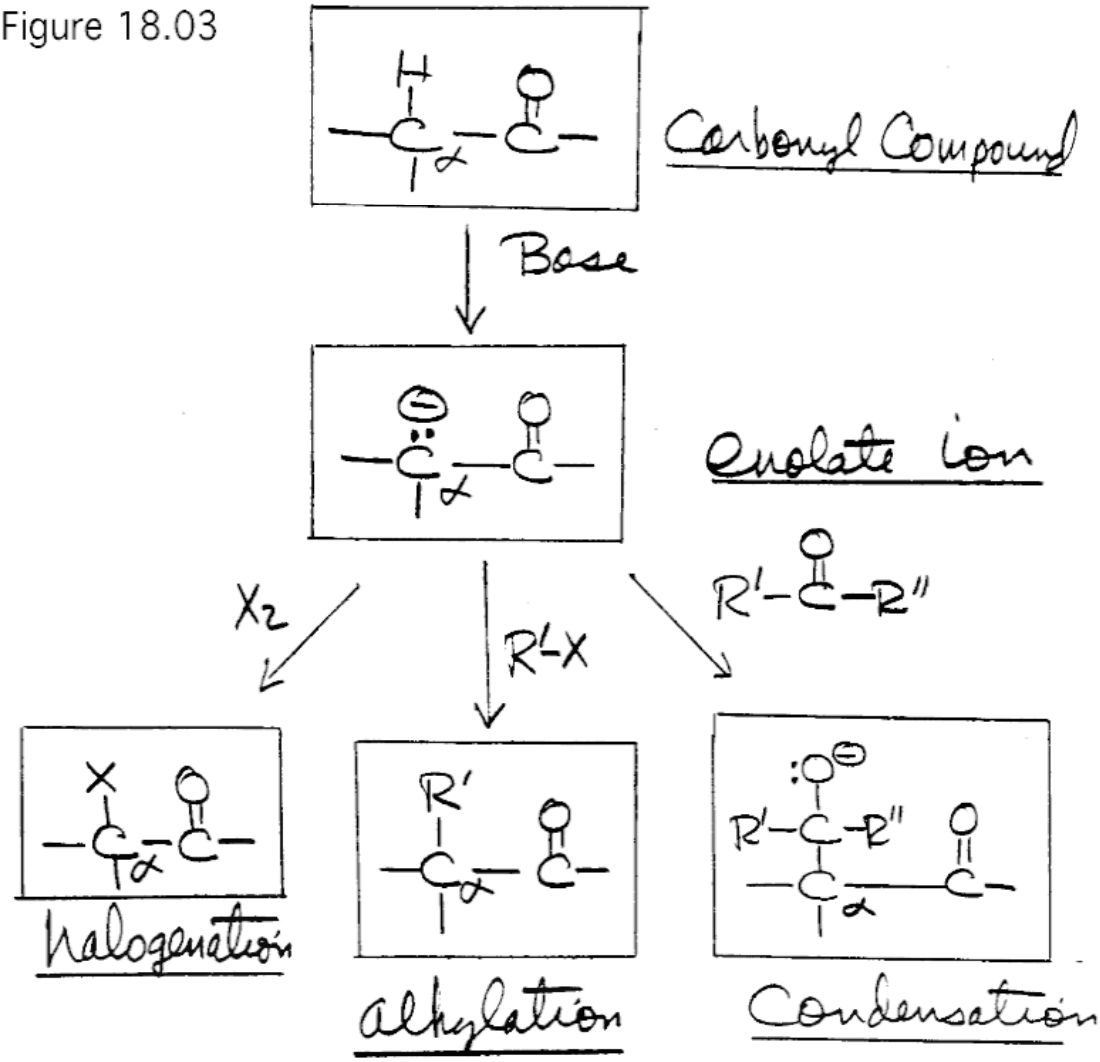
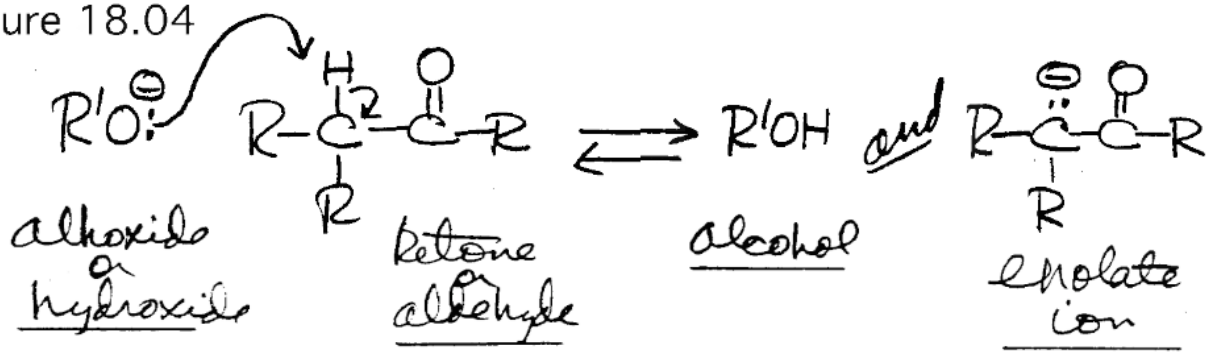


Figure 18.04



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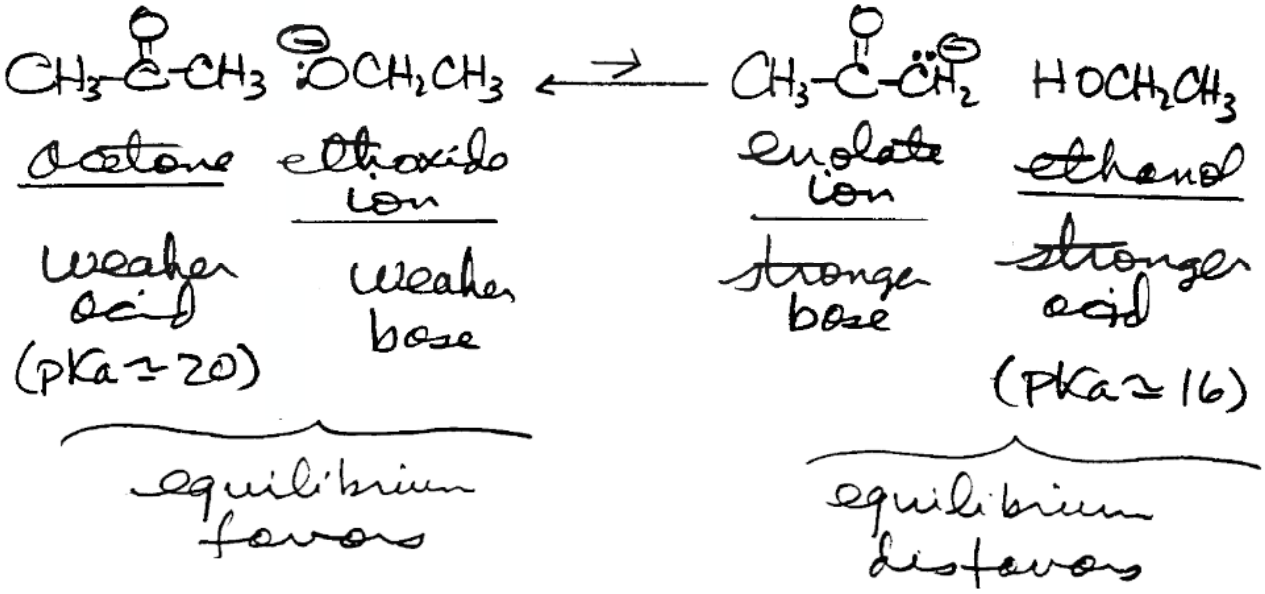


Figure 18.06

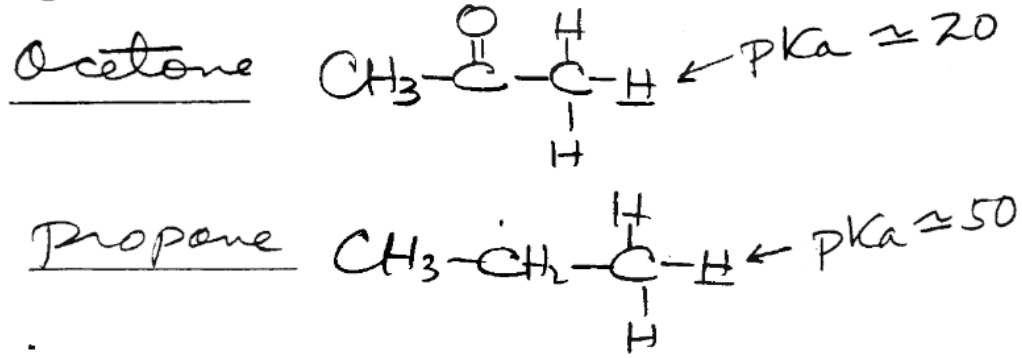


Figure 18.07

Enolate Ion Resonance Structures

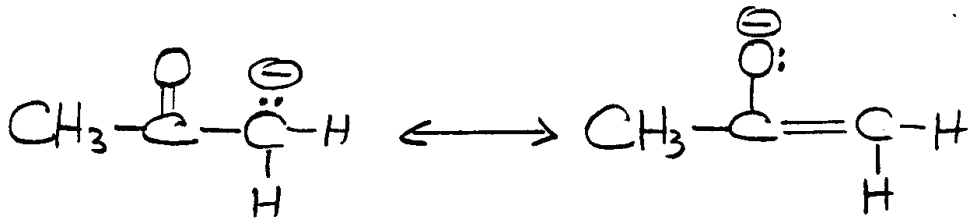


Figure 18.08

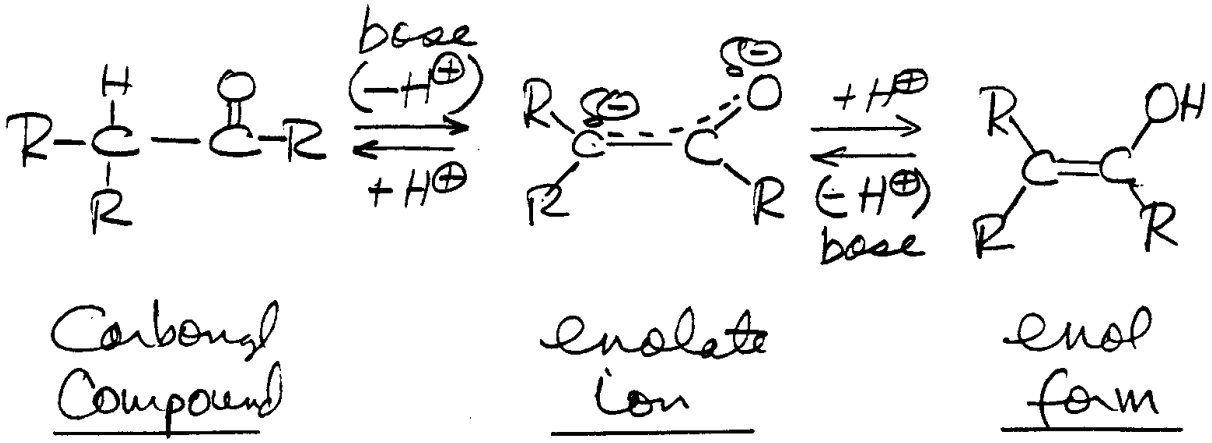


Figure 18.09

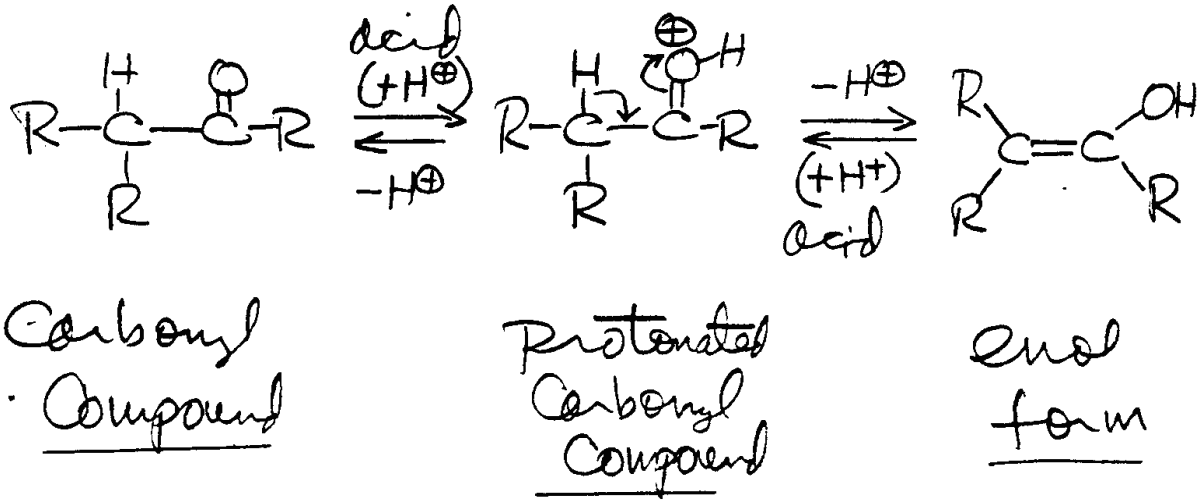
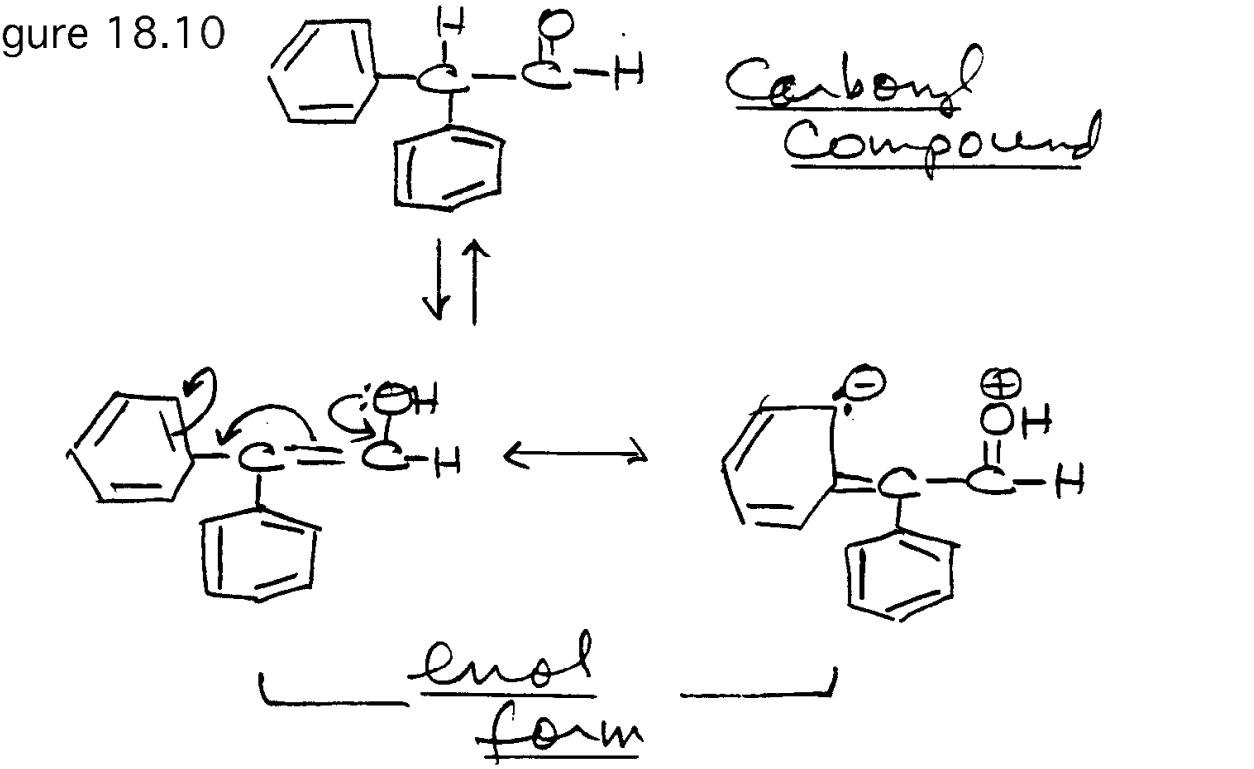


Figure 18.10



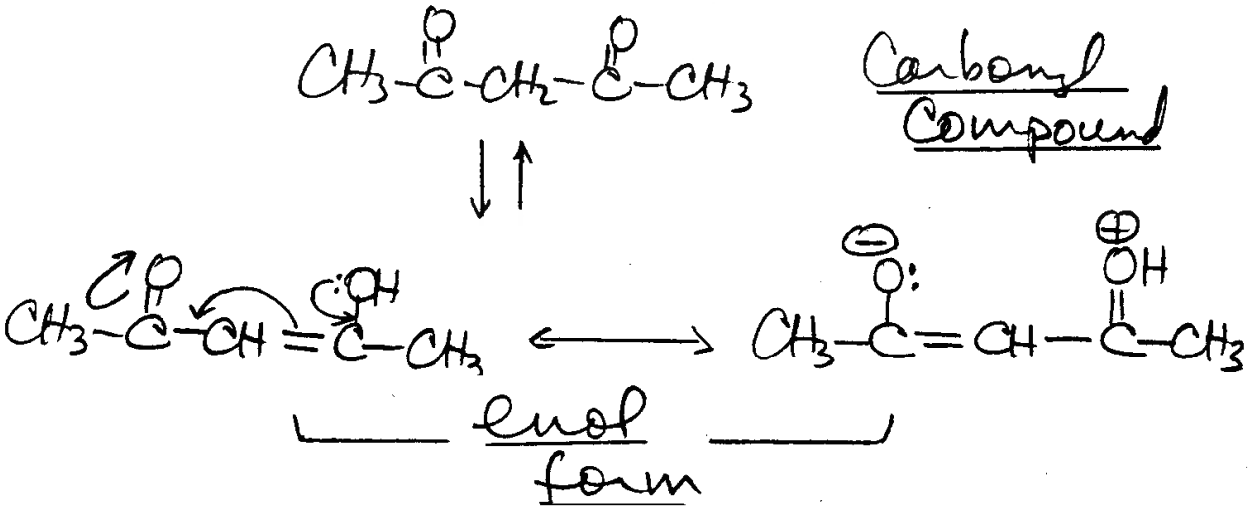


Figure 18.11

Figure 17.8 shown in the text should have been relabeled Figure 18.11.

Figure 18.12

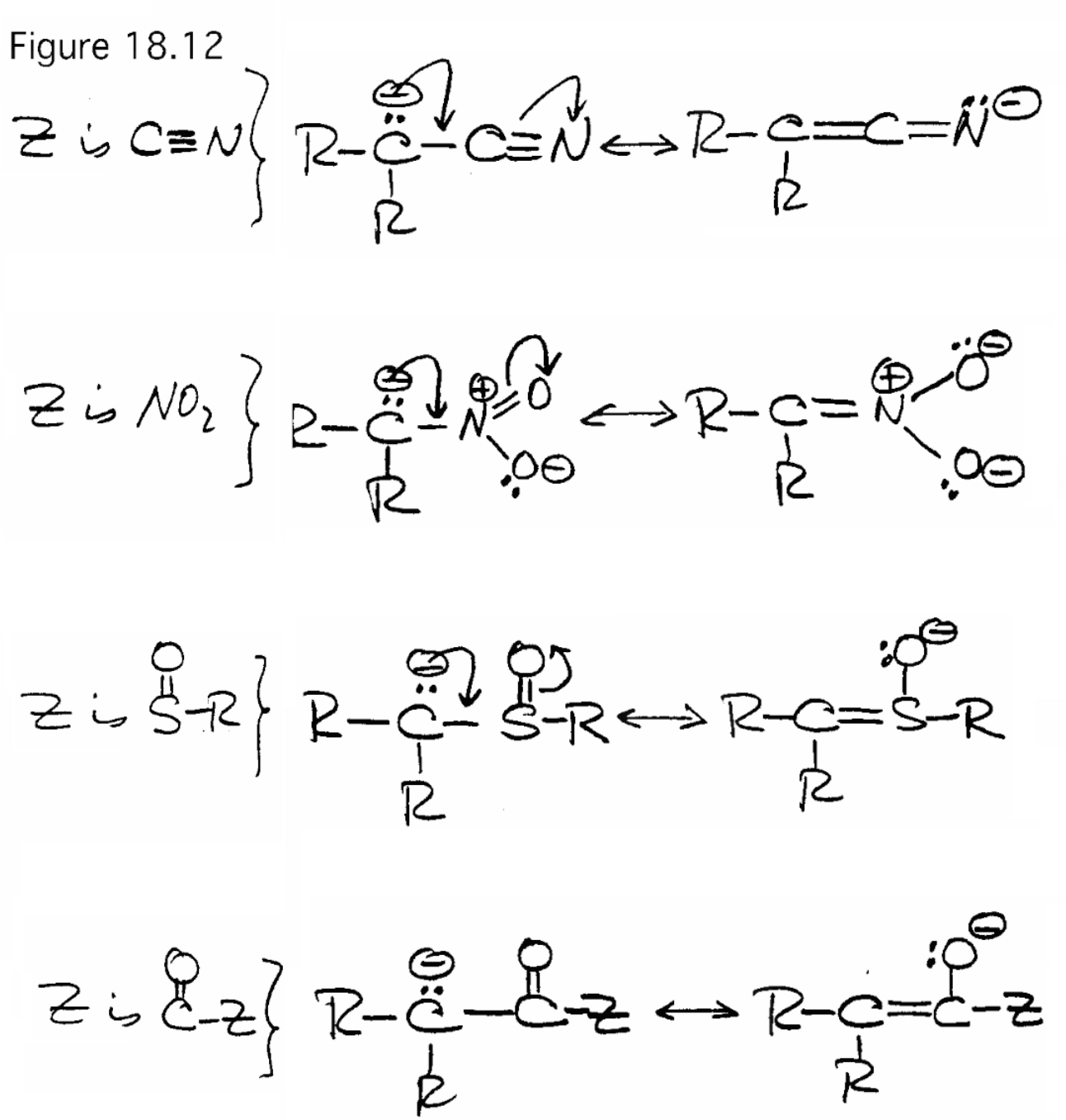


Figure 18.15

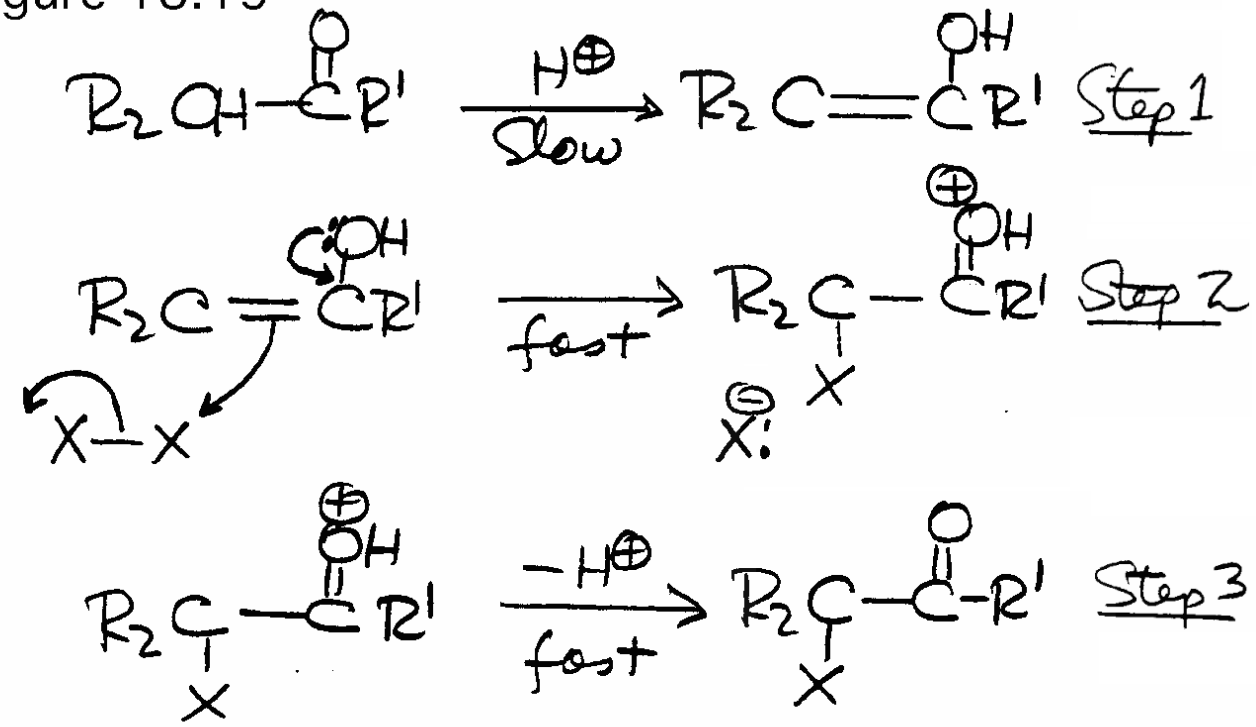


Figure 18.16

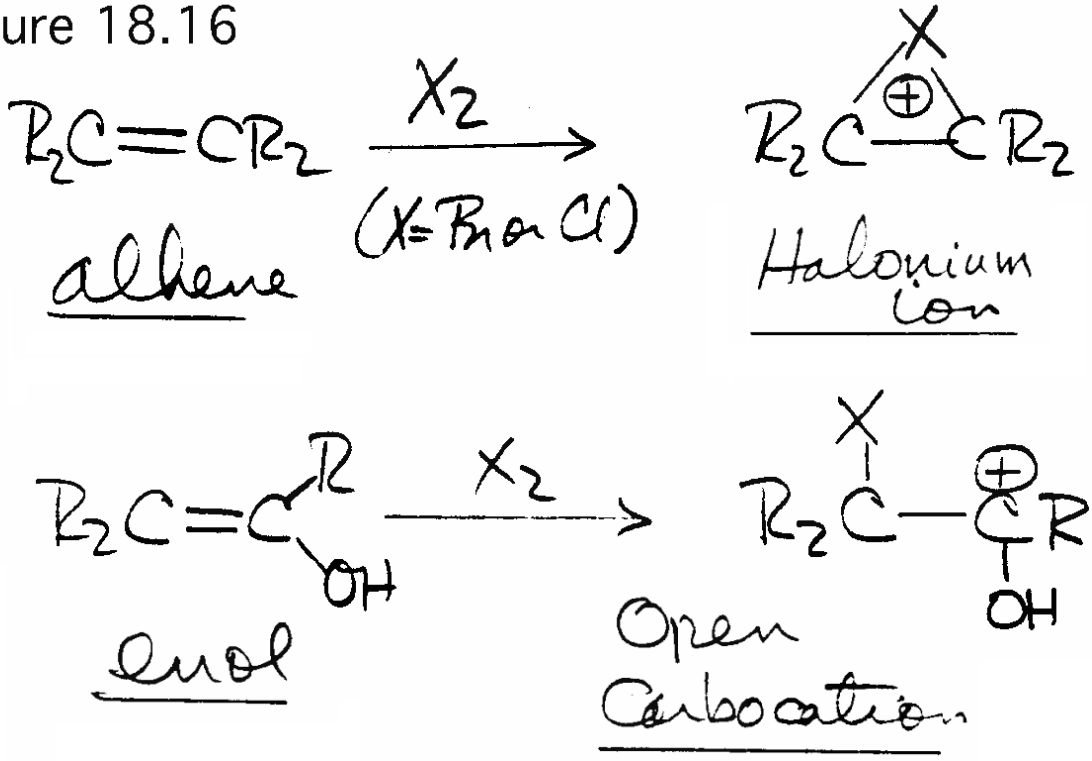


Figure 18.19

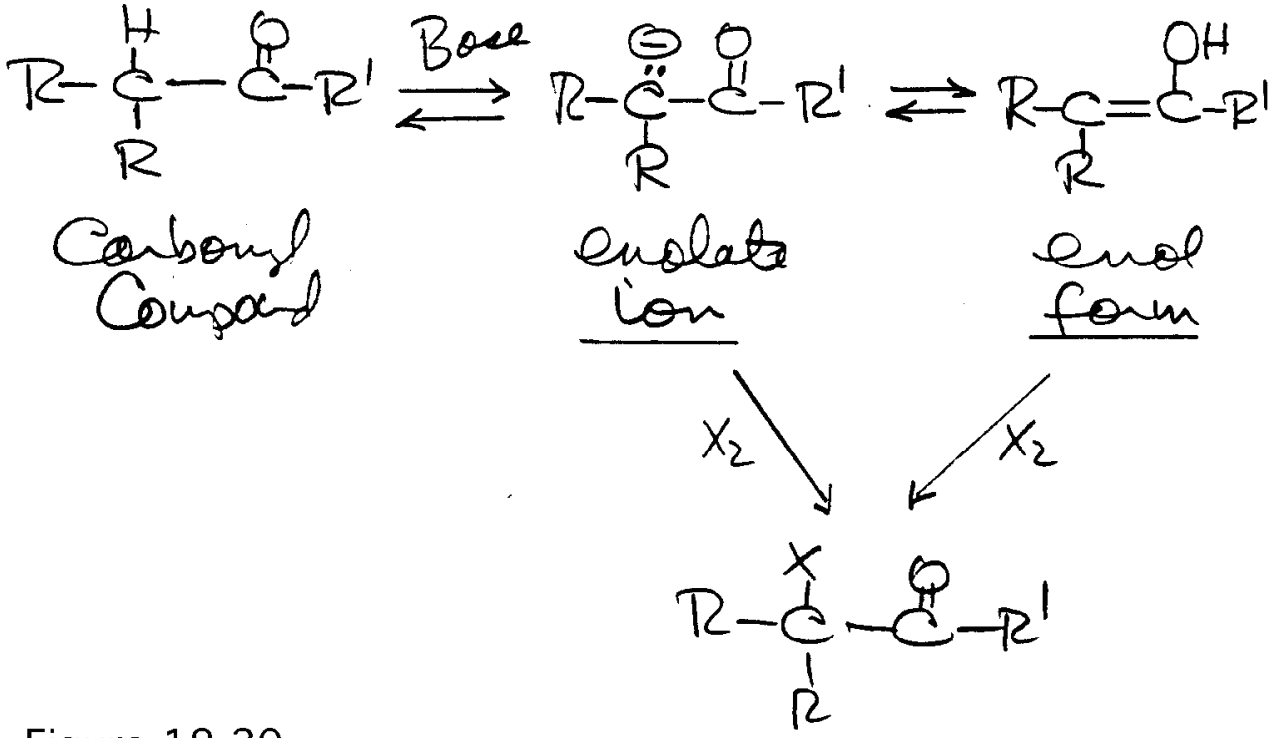


Figure 18.20

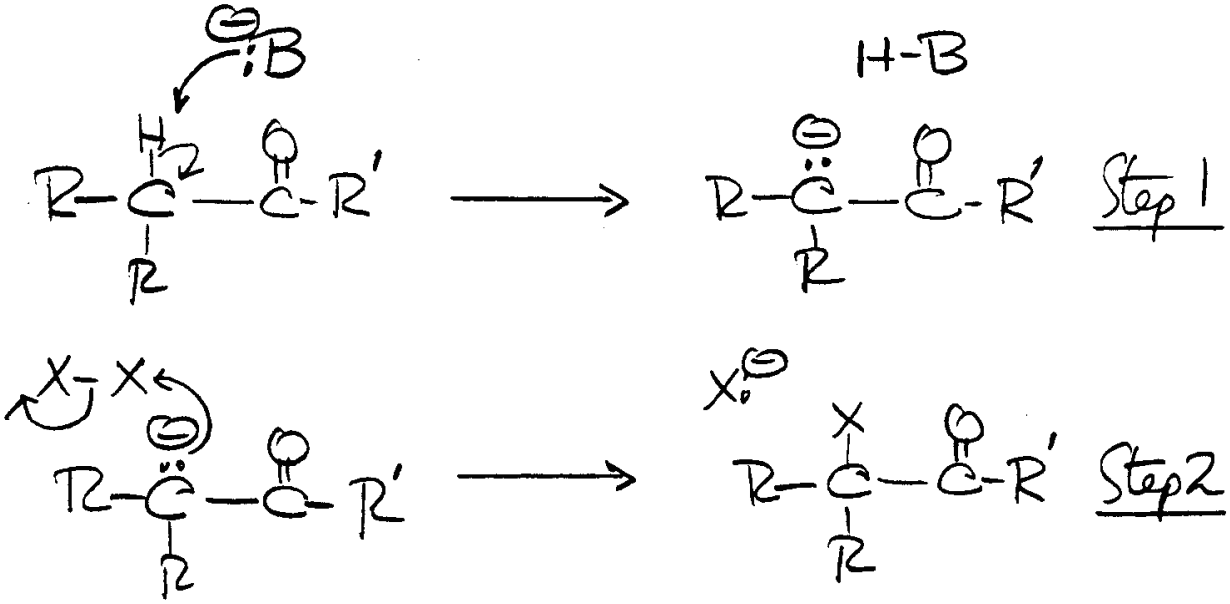


Figure 18.21

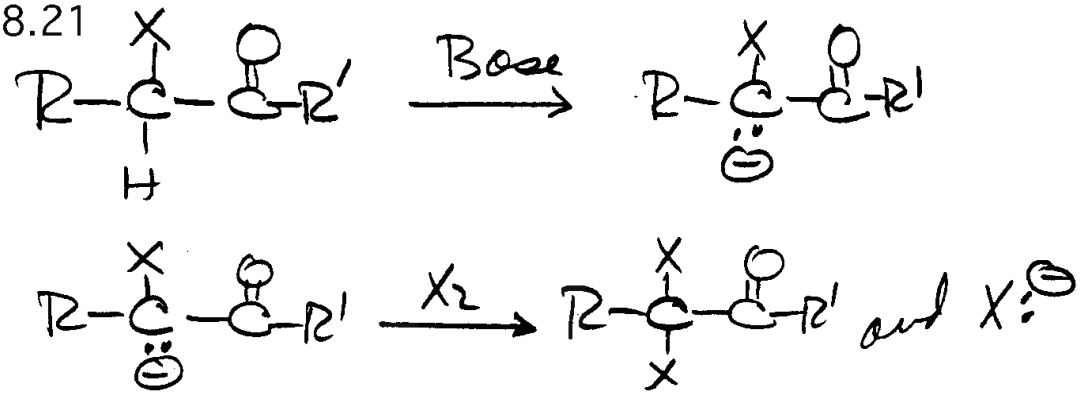


Figure 18.22

is stabilized by inductive electron withdrawal by X

Figure 18.23

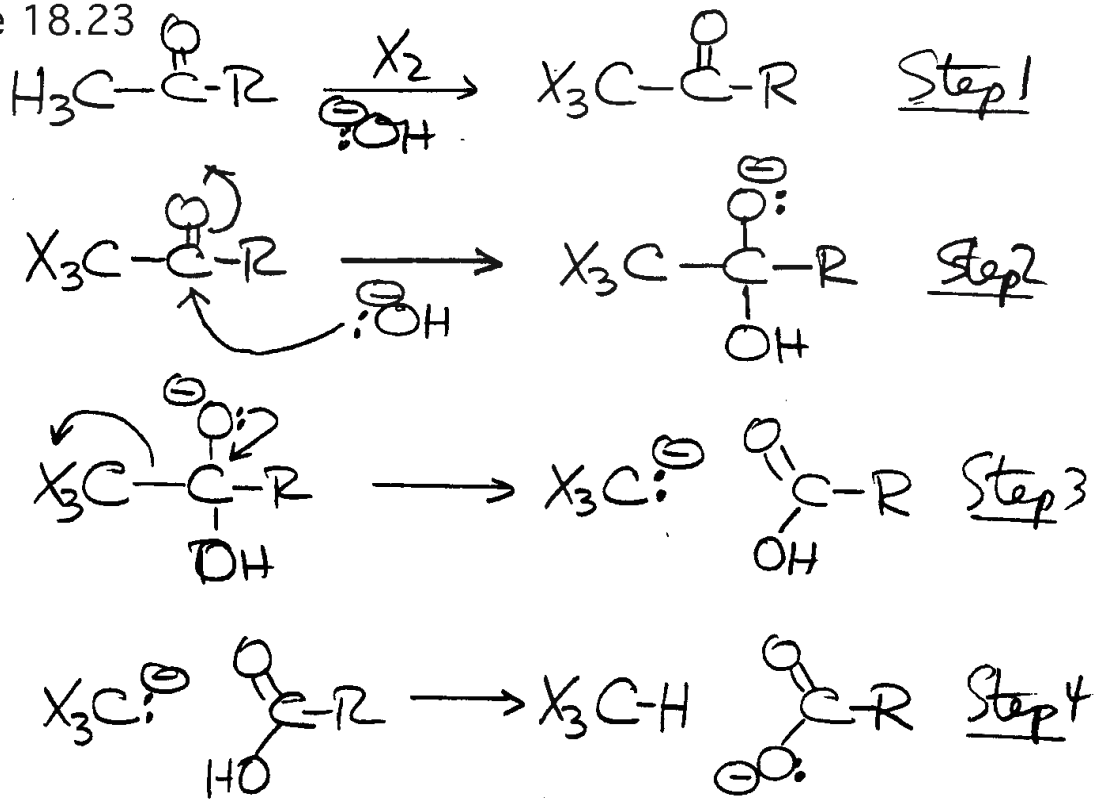


Figure 18.24

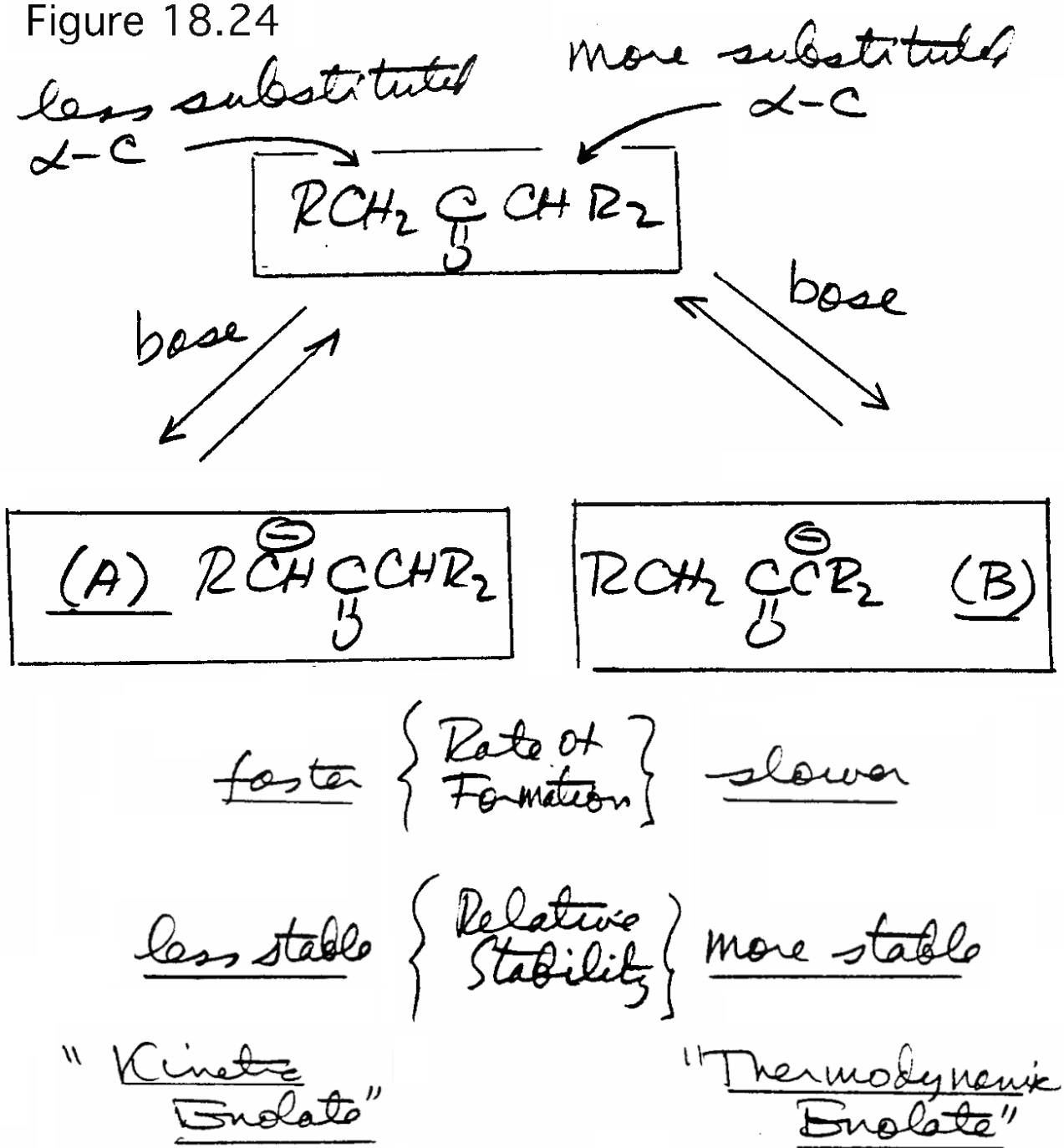

less substituted α-C
more substituted α-C
RCH2 C CH R2
O
base
base
(A) R CH C CHR2
O
RCH2 C CR2 (B)
O
faster
Rate of Formation
slower
less stable
Relative Stability
more stable
"Kinetic Enolate"
"Thermodynamic Enolate"

Figure 18.25

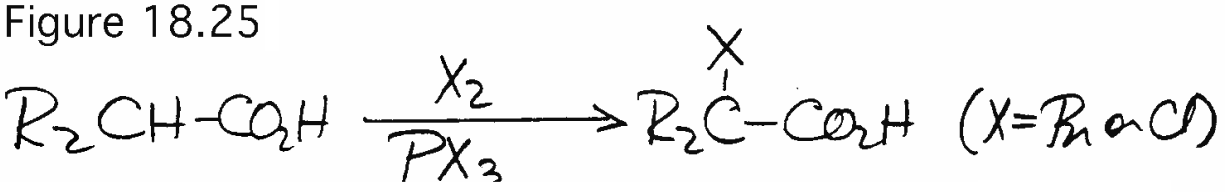


Figure 18.26

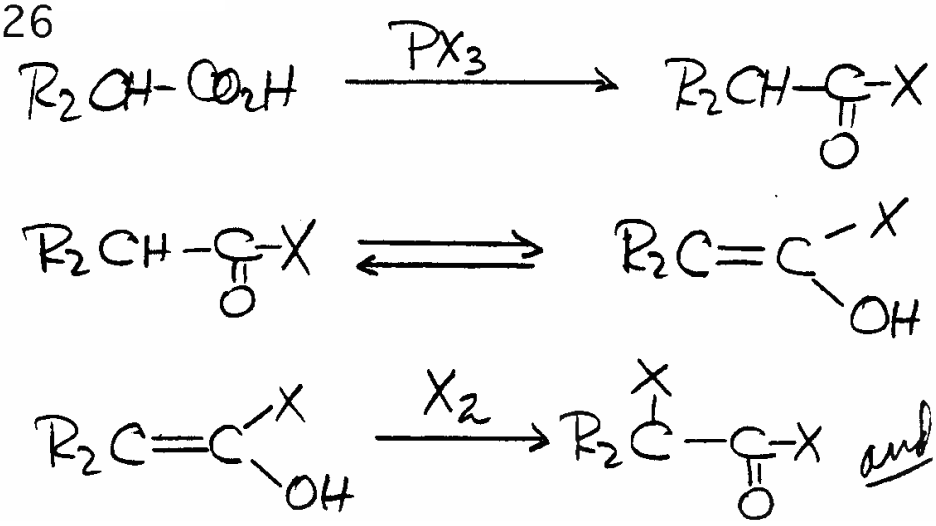


Figure 18.27

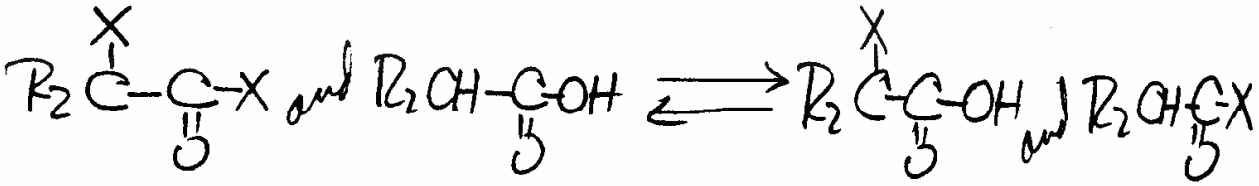
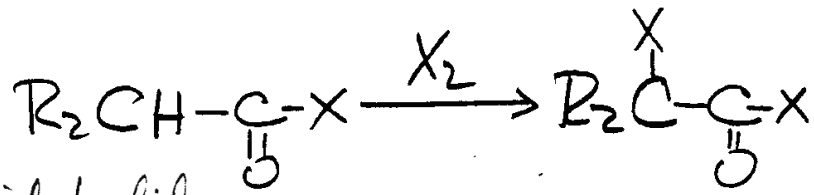


Figure 18.28



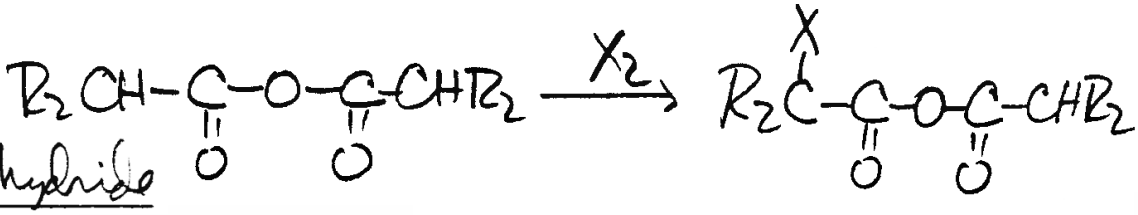


Figure 18.29

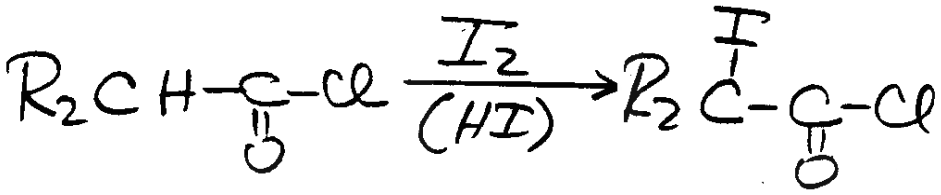


Figure 18.31

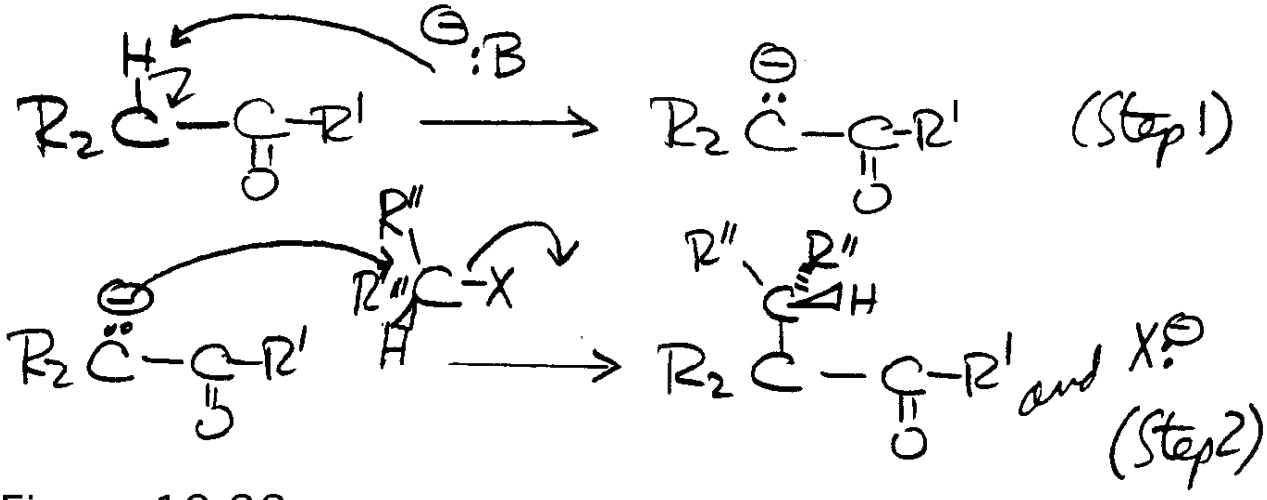


Figure 18.32

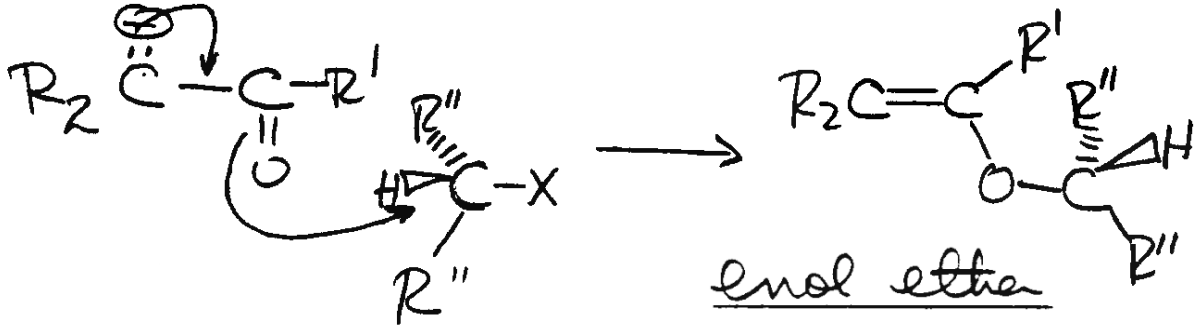


Figure 18.33

1,2-dimethoxyethane $CH_3O-CH_2CH_2-OCH_3$

tetrahydrofuran (THF)

N,N-dimethylformamide (DMF) $H-C(=O)-N(CH_3)_2$

liquid ammonia NH_3

Figure 18.34

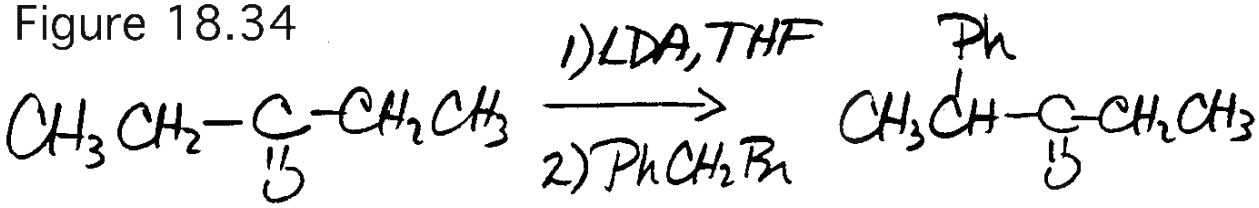


Figure 18.35

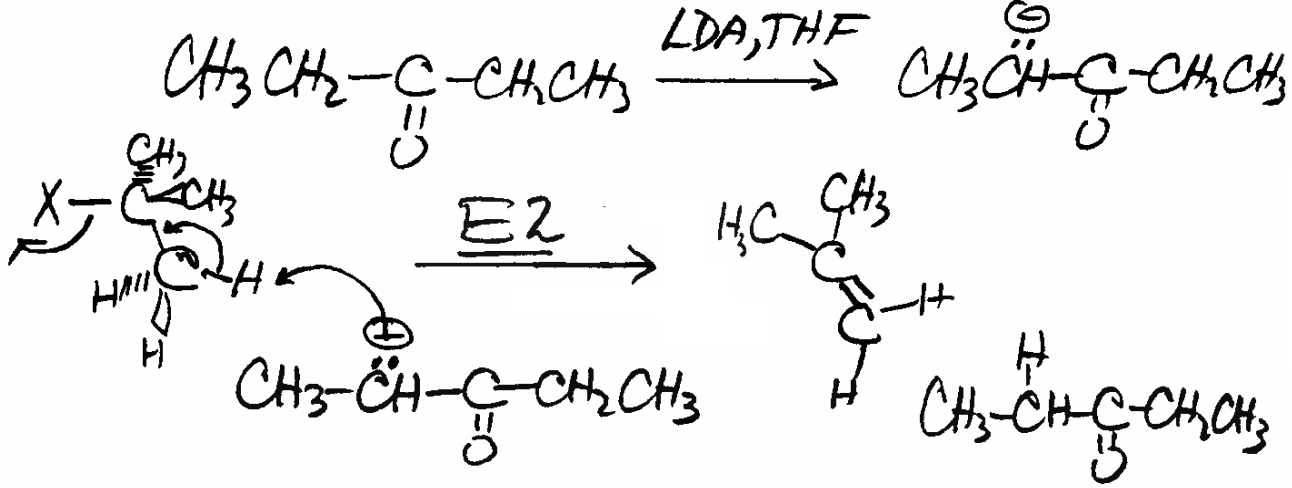


Figure 18.36

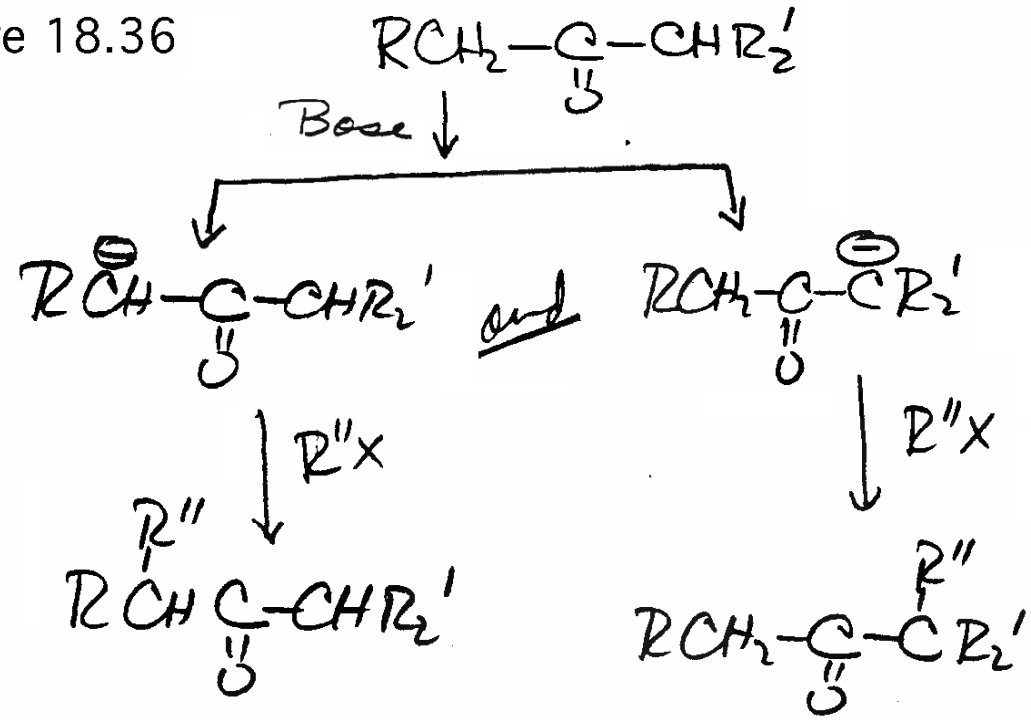


Figure 18.37

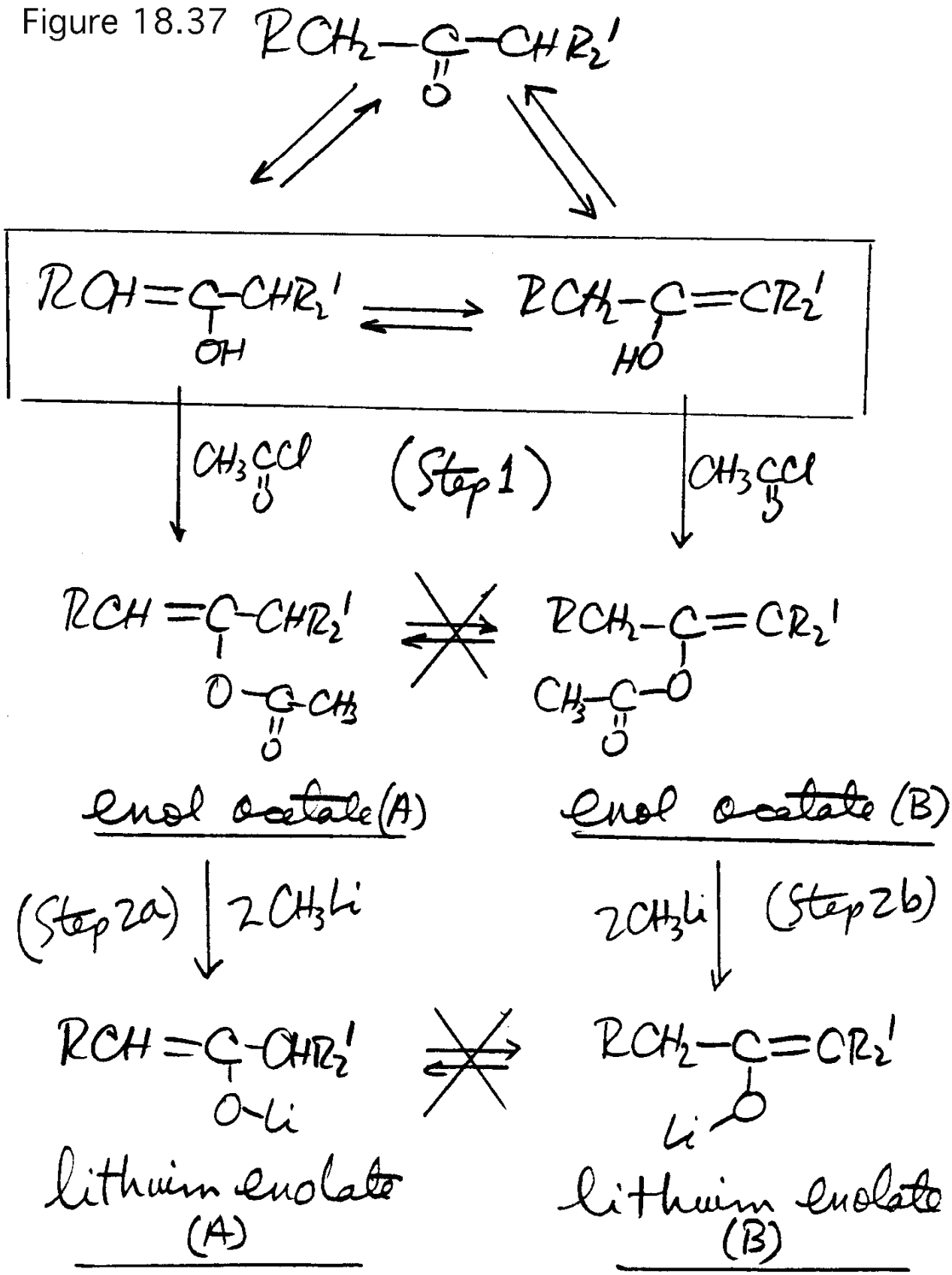

RCH2–C(=O)–CHR2'
RCH=C(OH)–CHR2' ⇌ RCH2–C(HO)=CR2'
CH3COCl (Step 1) CH3COCl
RCH=C(O–C(=O)–CH3)–CHR2'
RCH2–C(O–C(=O)–CH3)=CR2'
enol acetate (A)
enol acetate (B)
(Step 2a) 2 CH3Li
2 CH3Li (Step 2b)
RCH=C(O–Li)–CHR2'
RCH2–C(O–Li)=CR2'
lithium enolate (A)
lithium enolate (B)

Figure 18.38

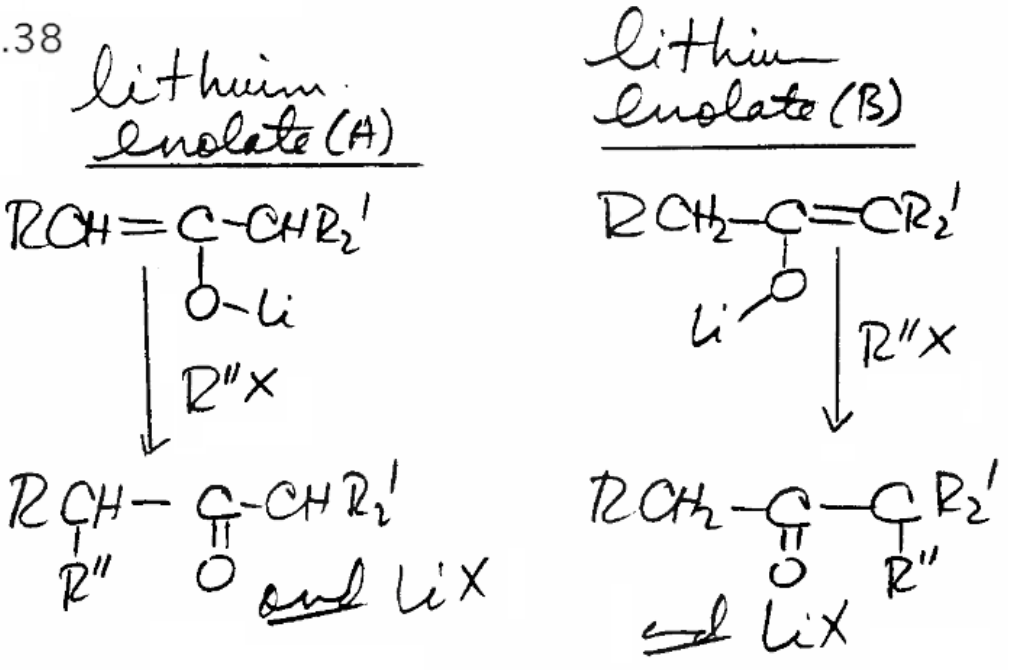


Figure 18.39

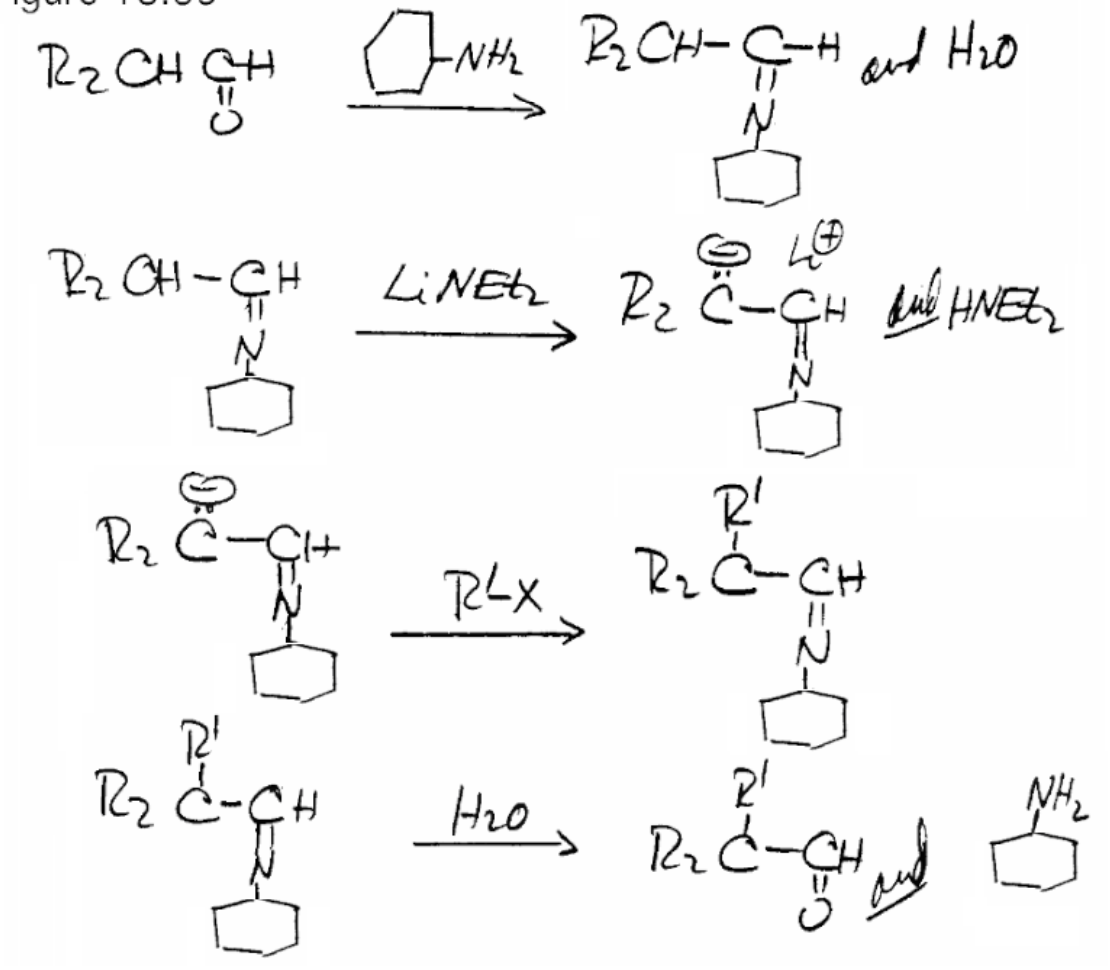


Figure 18.40

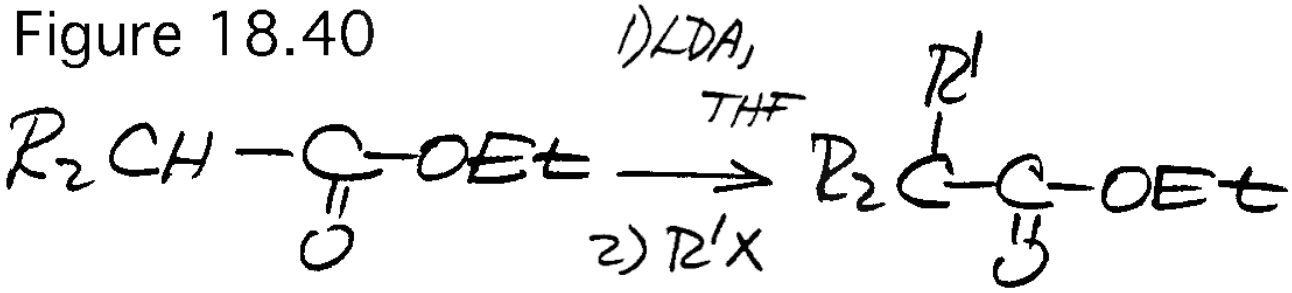


Figure 18.41

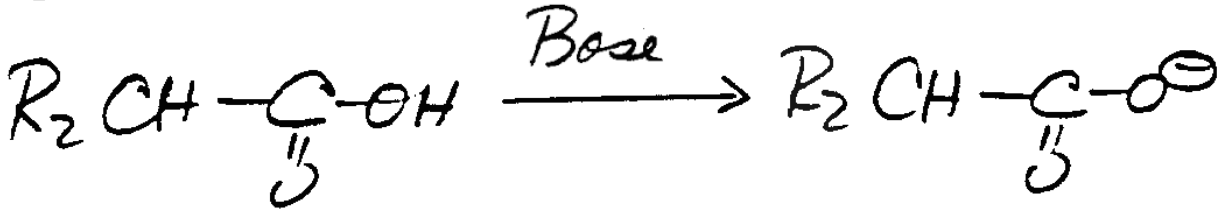
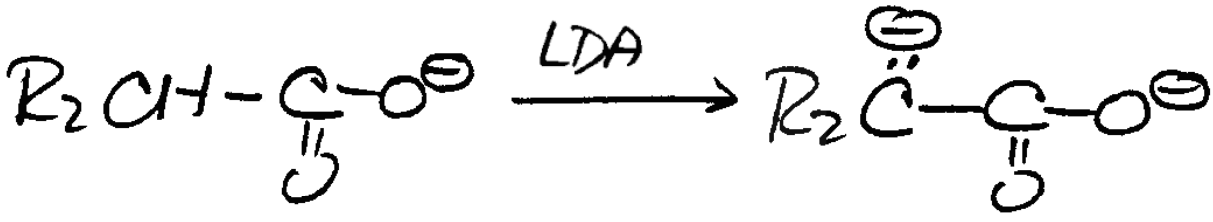


Figure 18.42



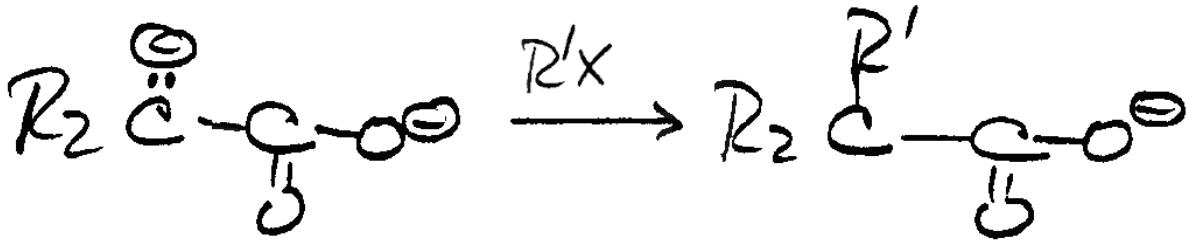


Figure 18.45

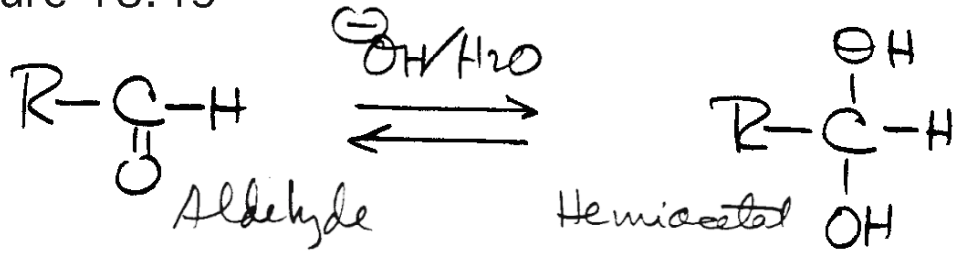


Figure 18.46

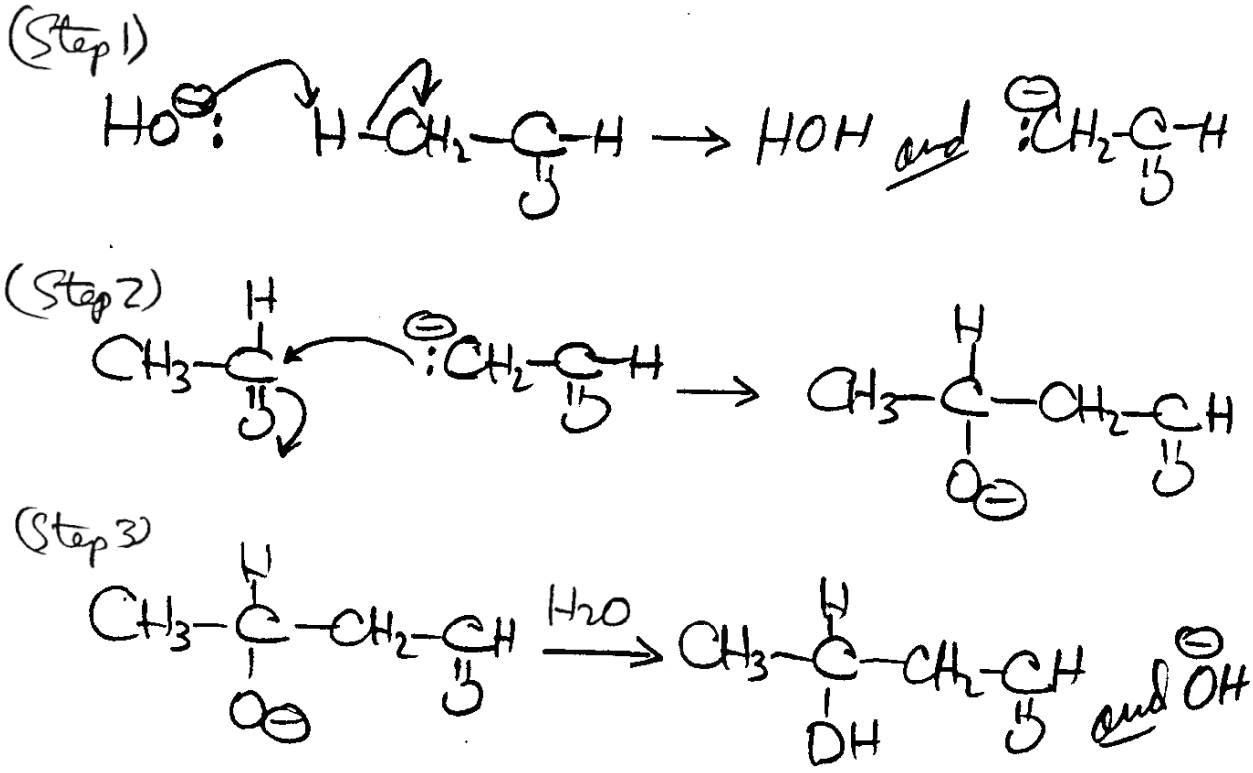


Figure 18.47

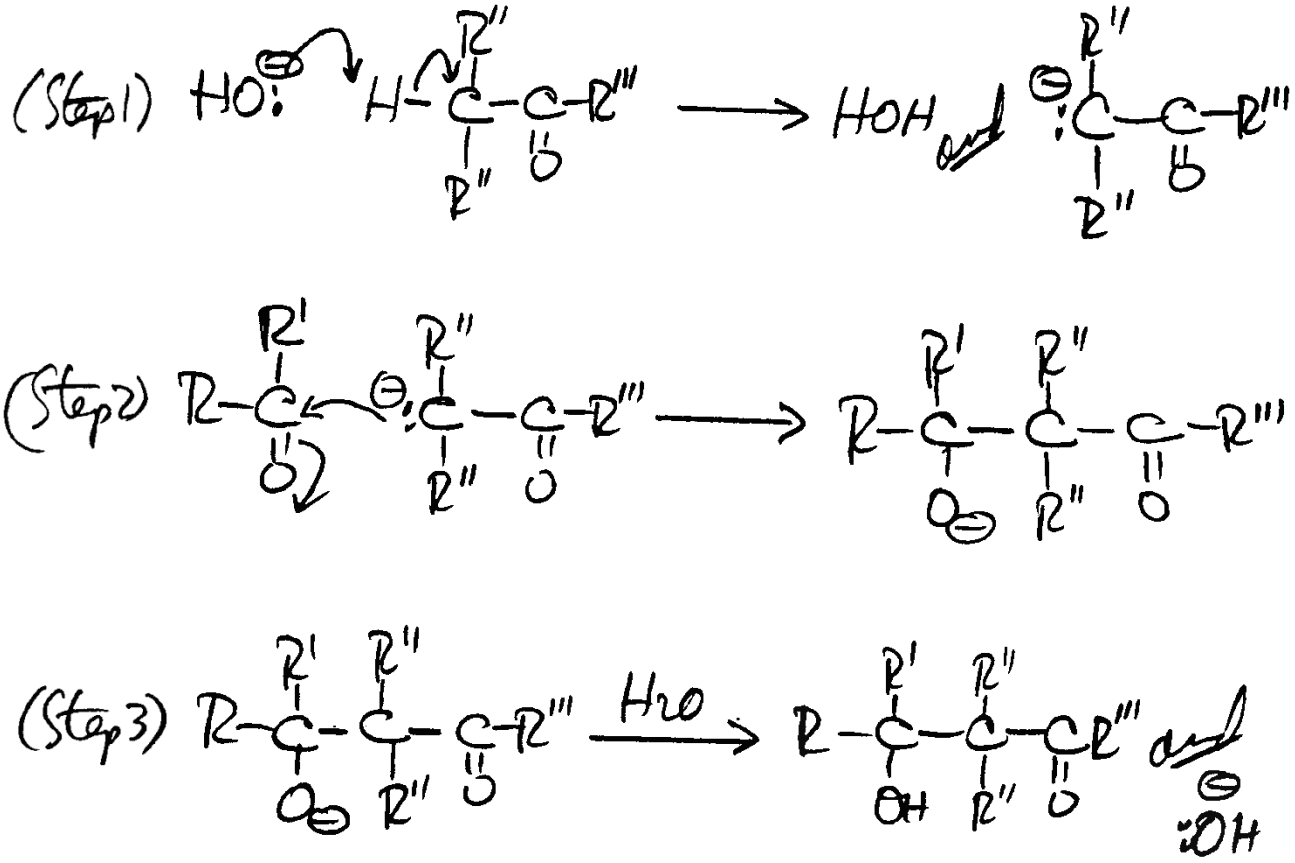


Figure 18.48

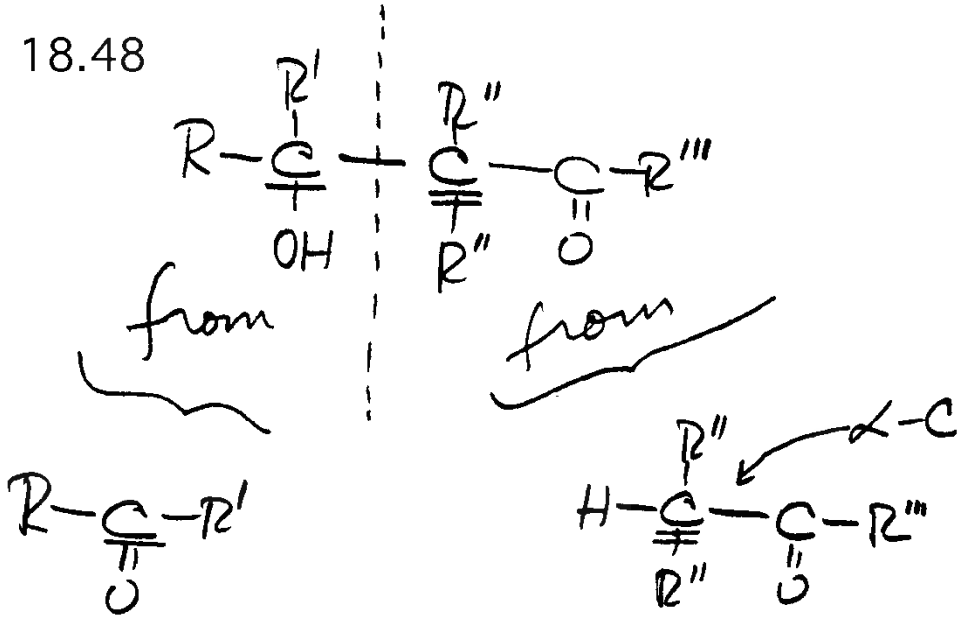


Figure 18.50 Base Catalyzed Dehydration

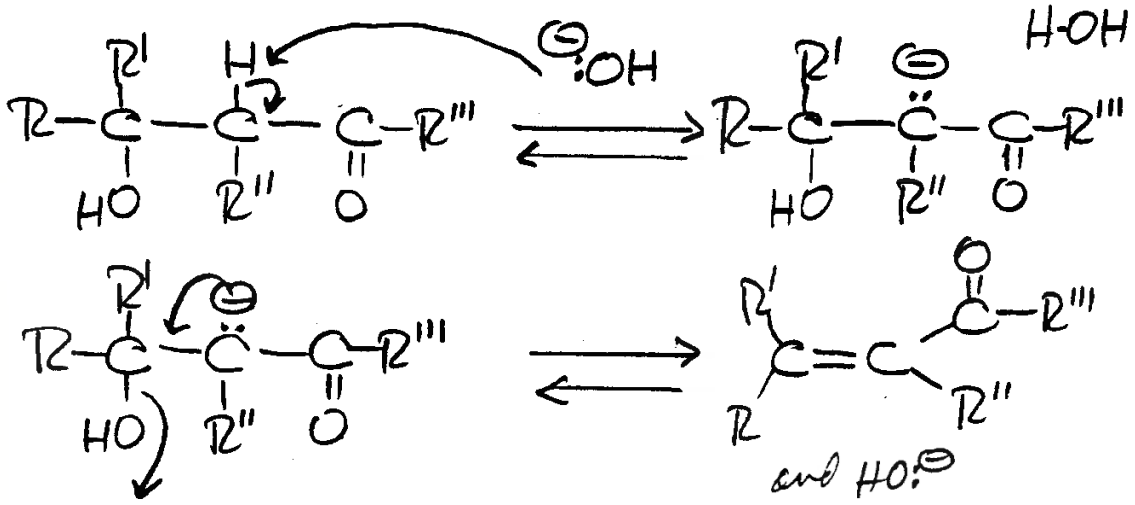


Figure 18.51 Acid Catalyzed Dehydration

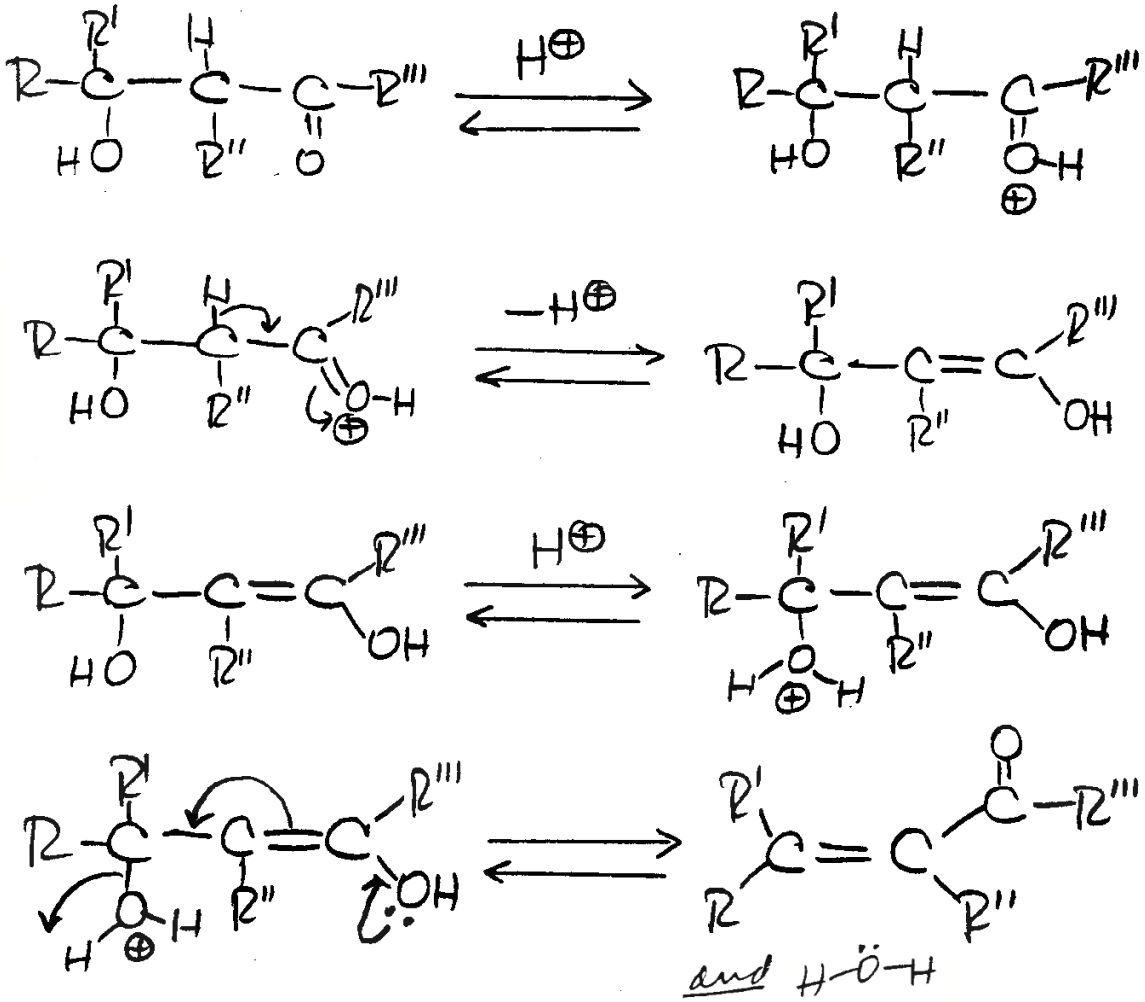


Figure 18.54

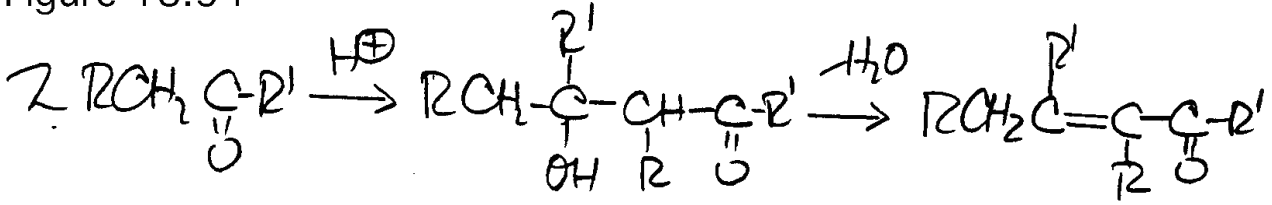


Figure 18.55

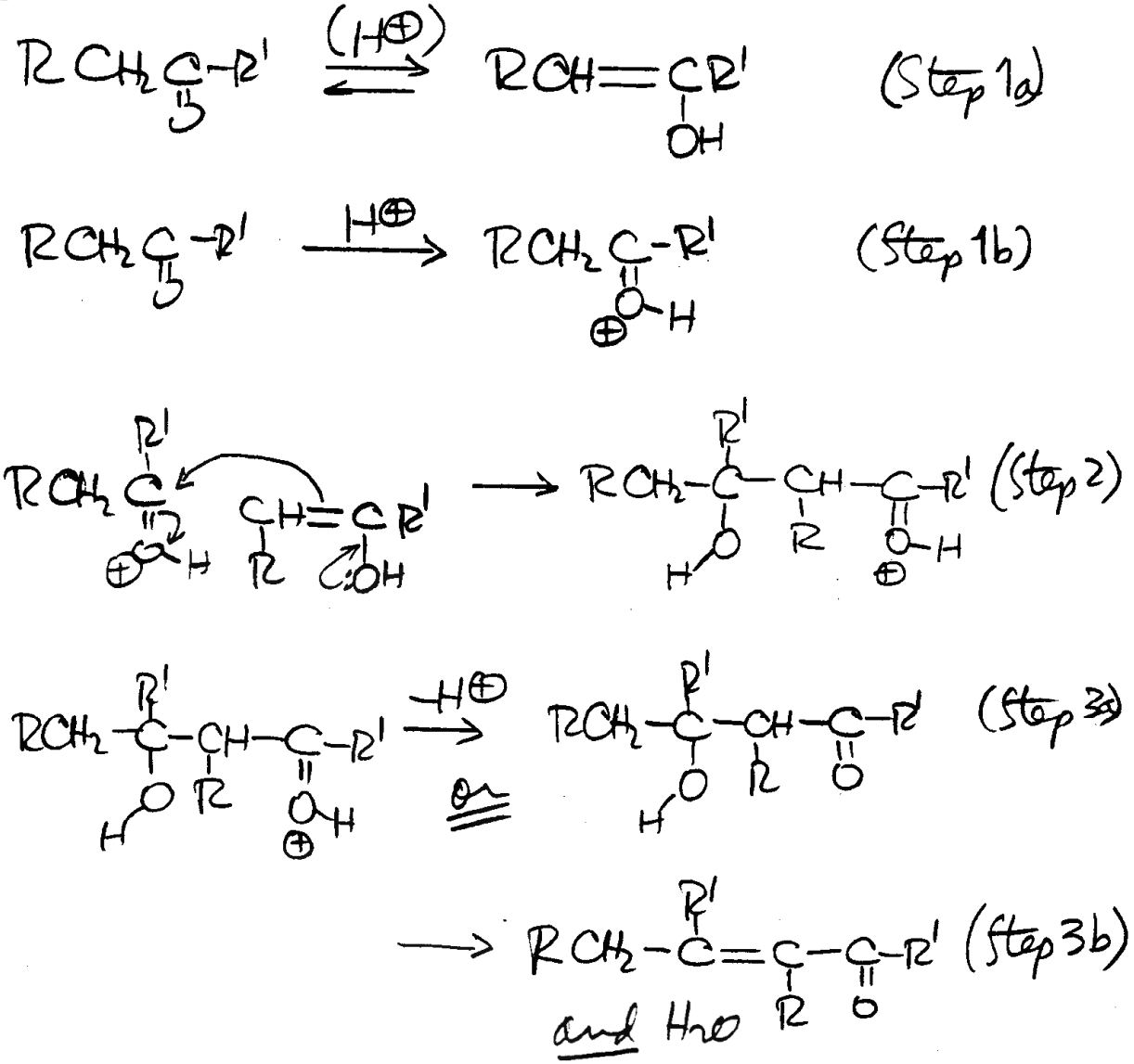


Figure 18.56

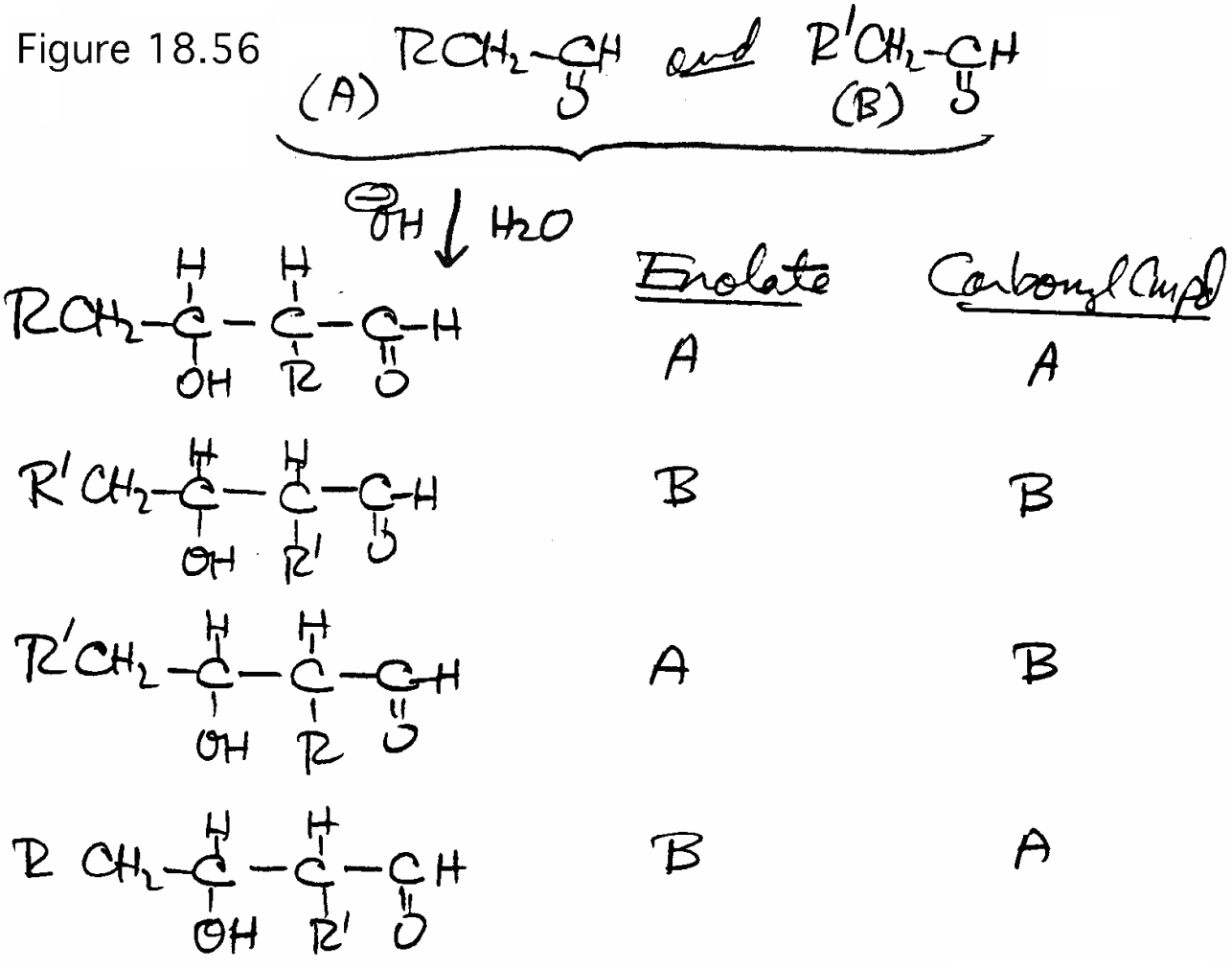


Figure 18.57

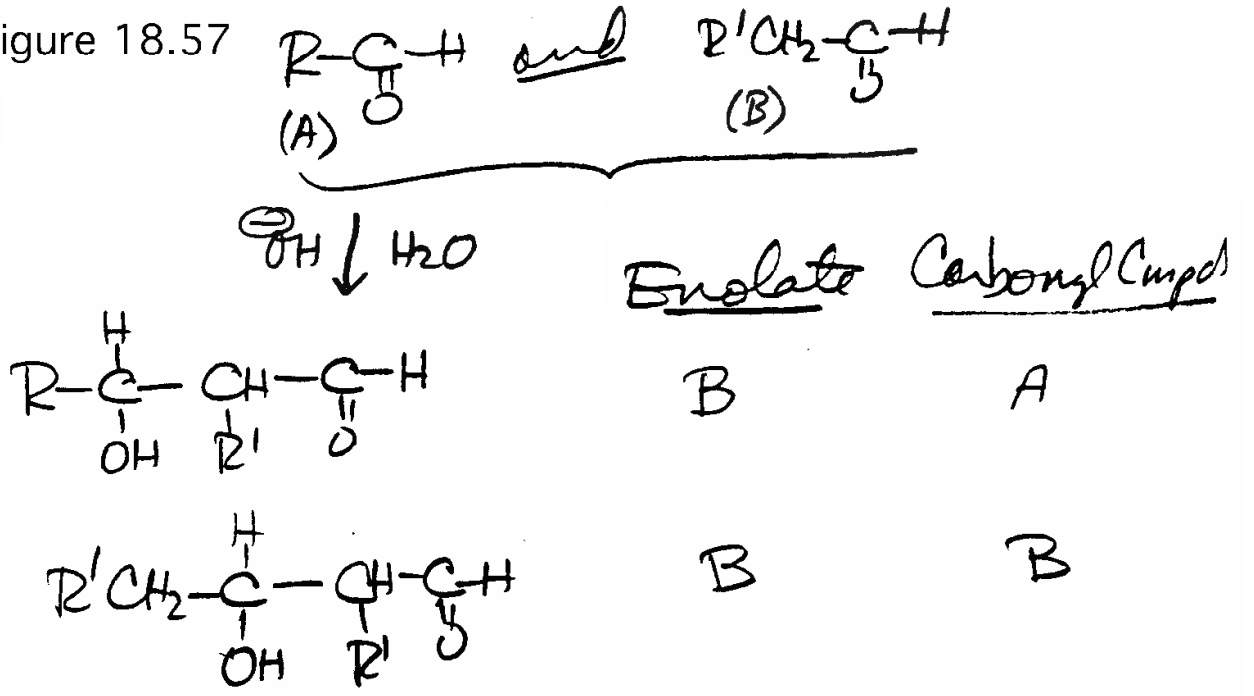


Figure 18.58

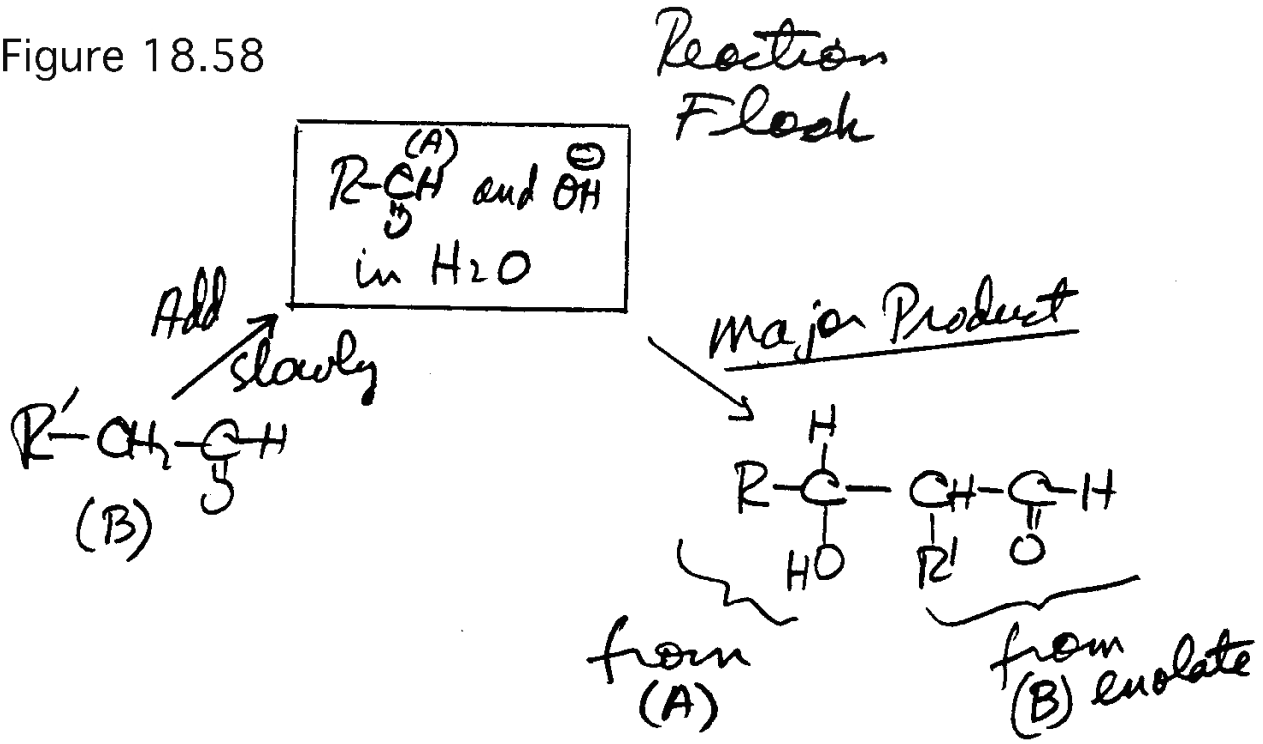


Figure 18.59

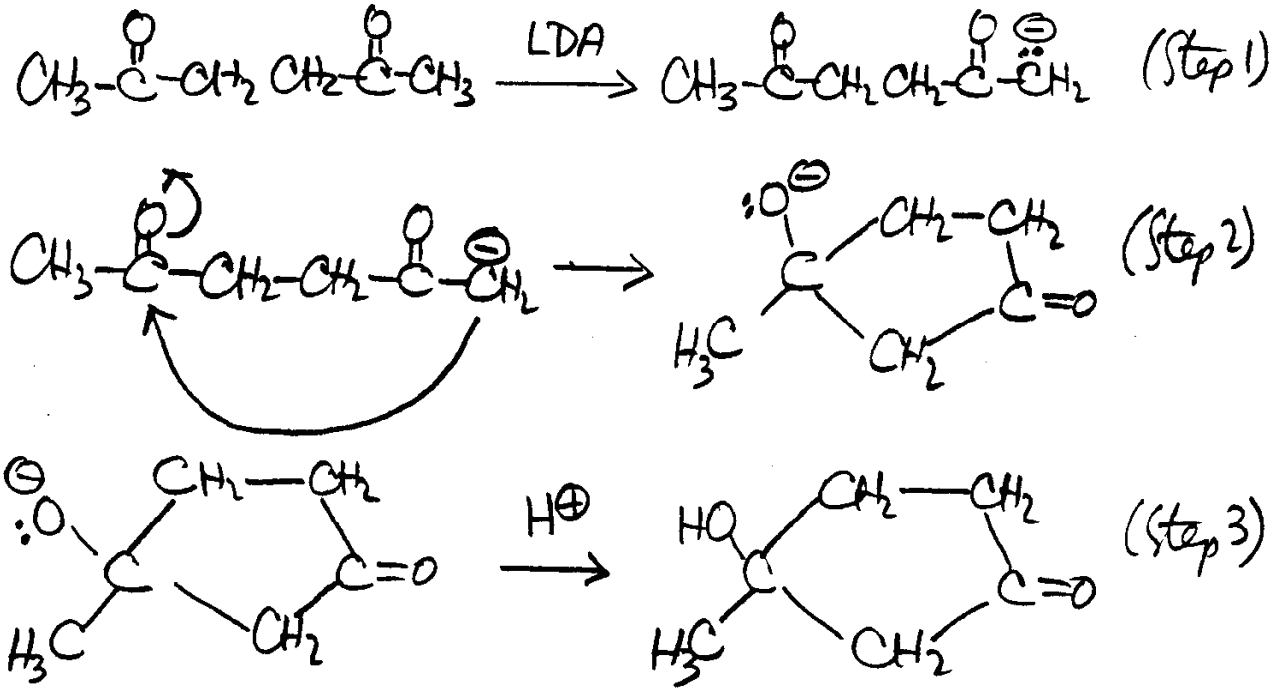


Figure 18.60

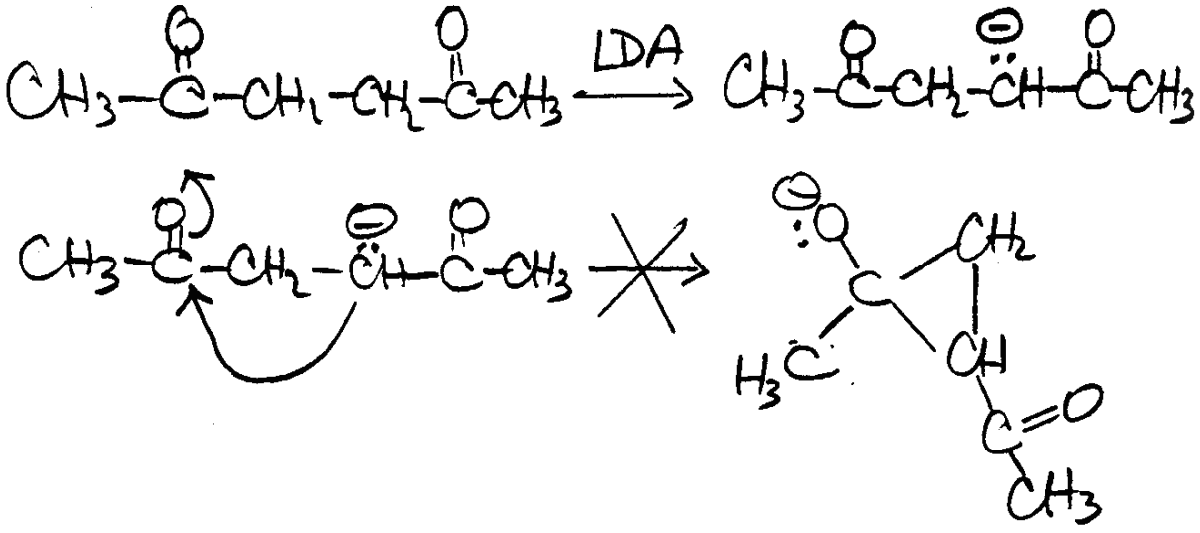


Figure 18.64

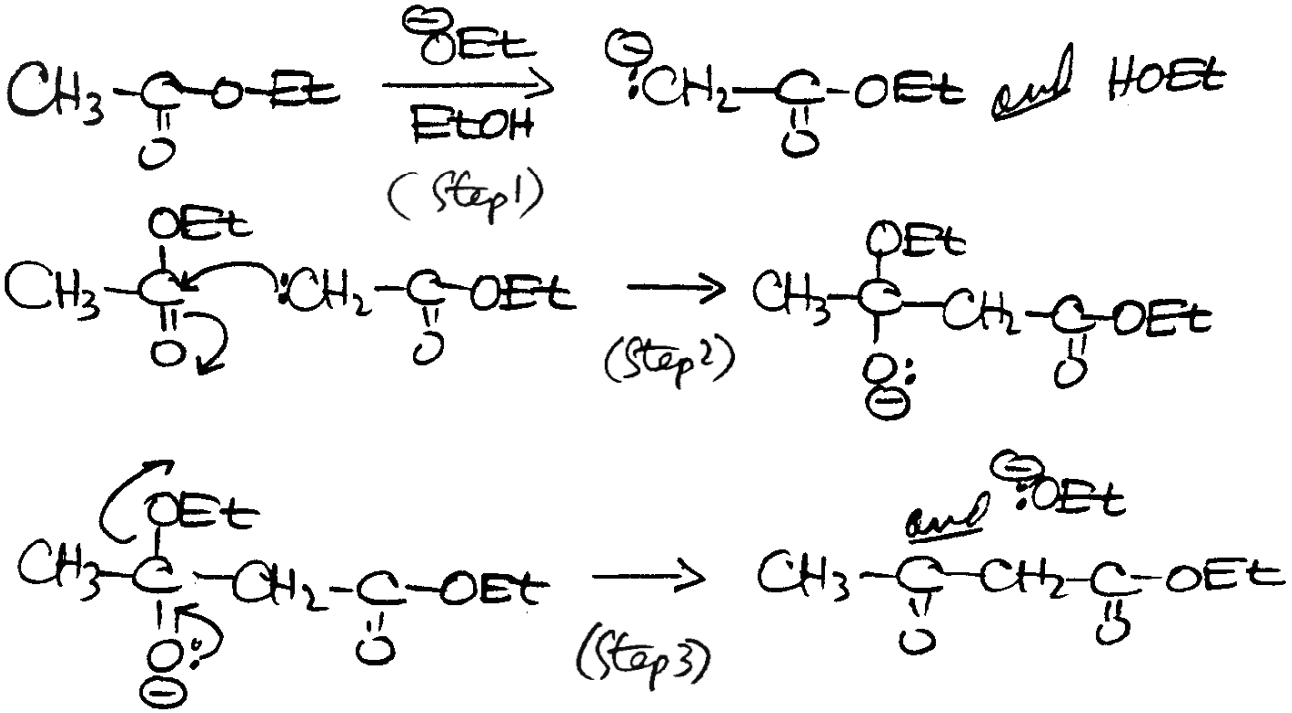


Figure 18.66

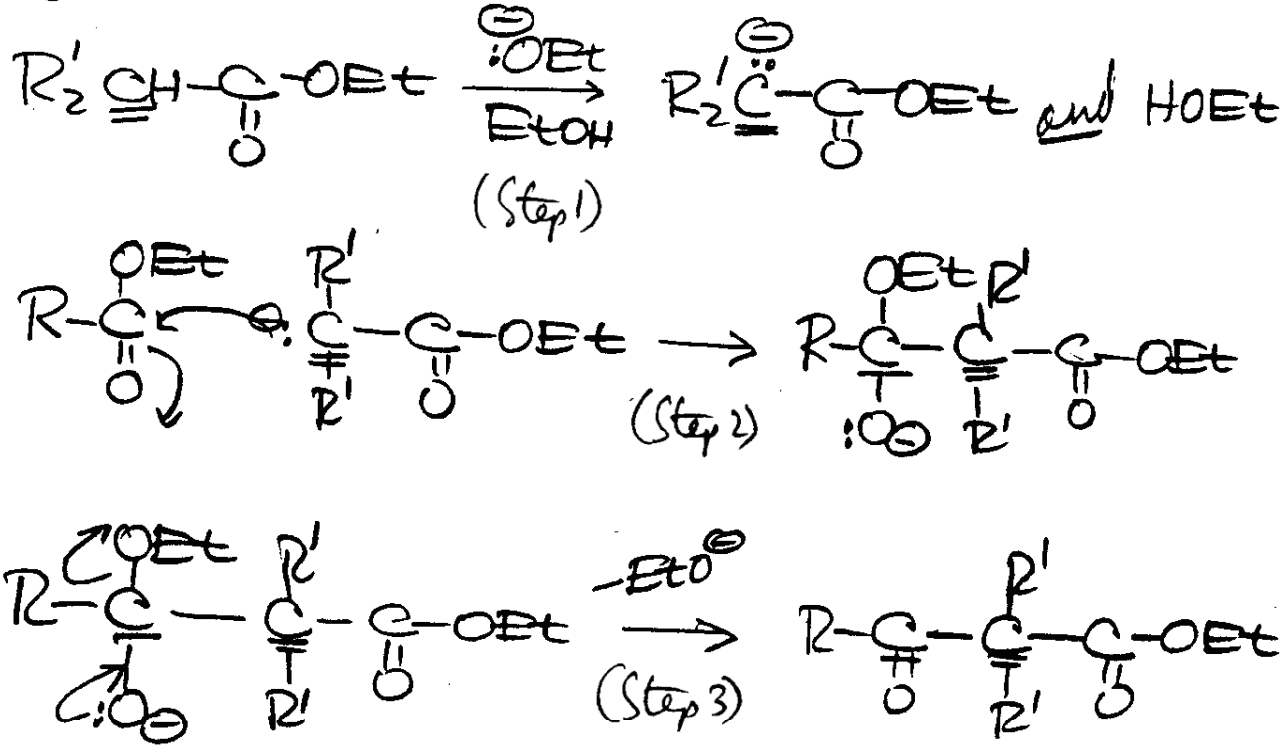


Figure 18.67

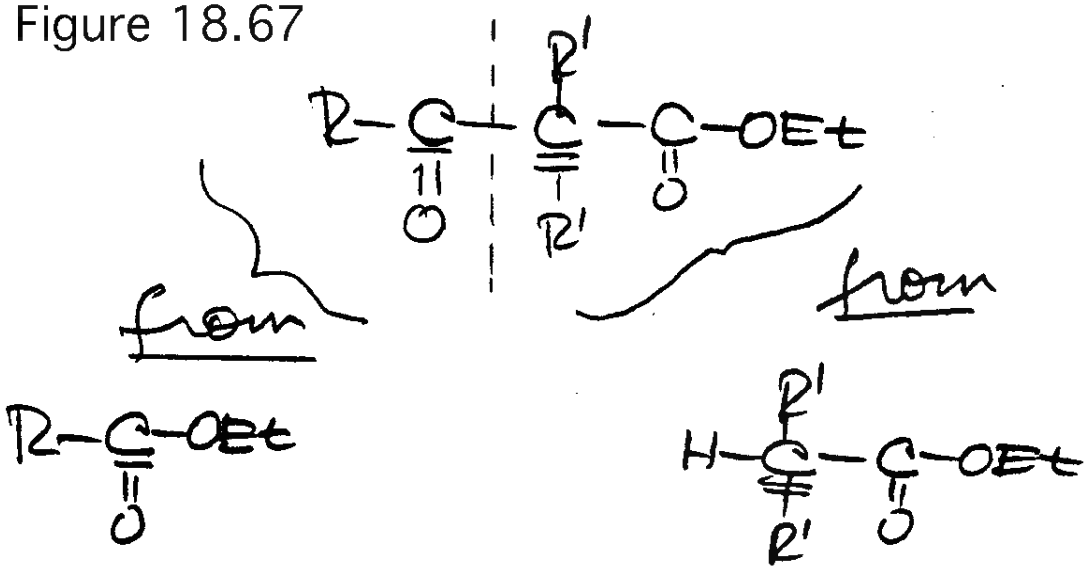


Figure 18.68

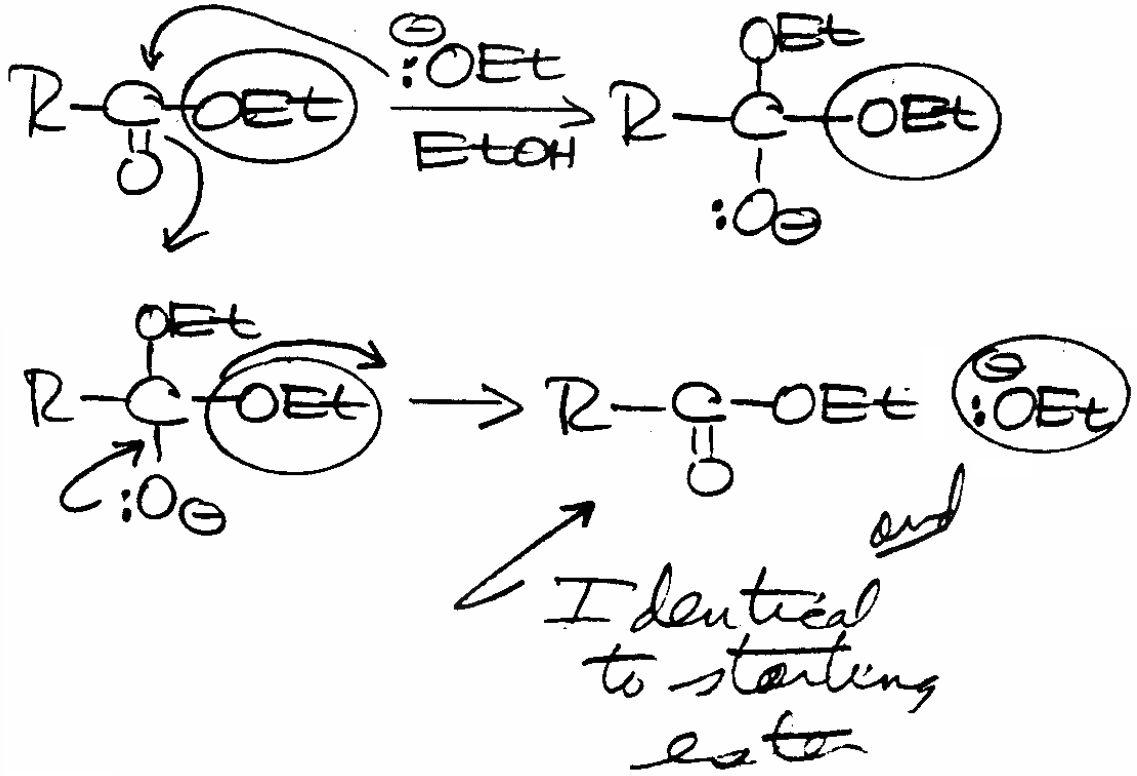


Figure 18.70

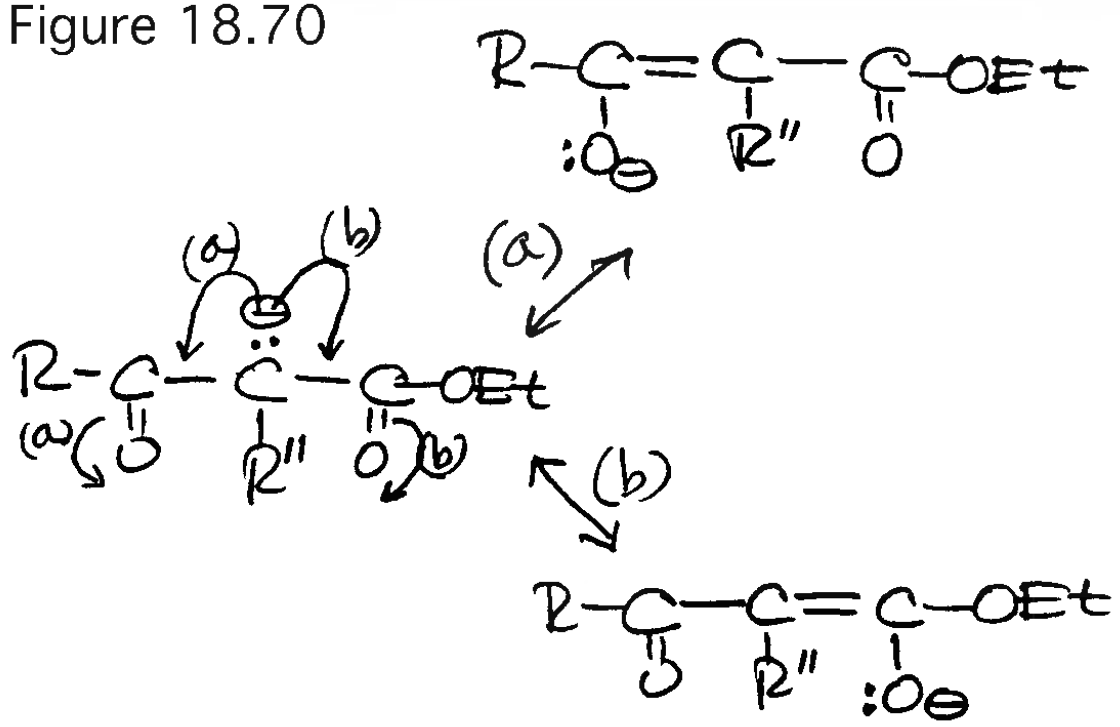


Figure 18.71

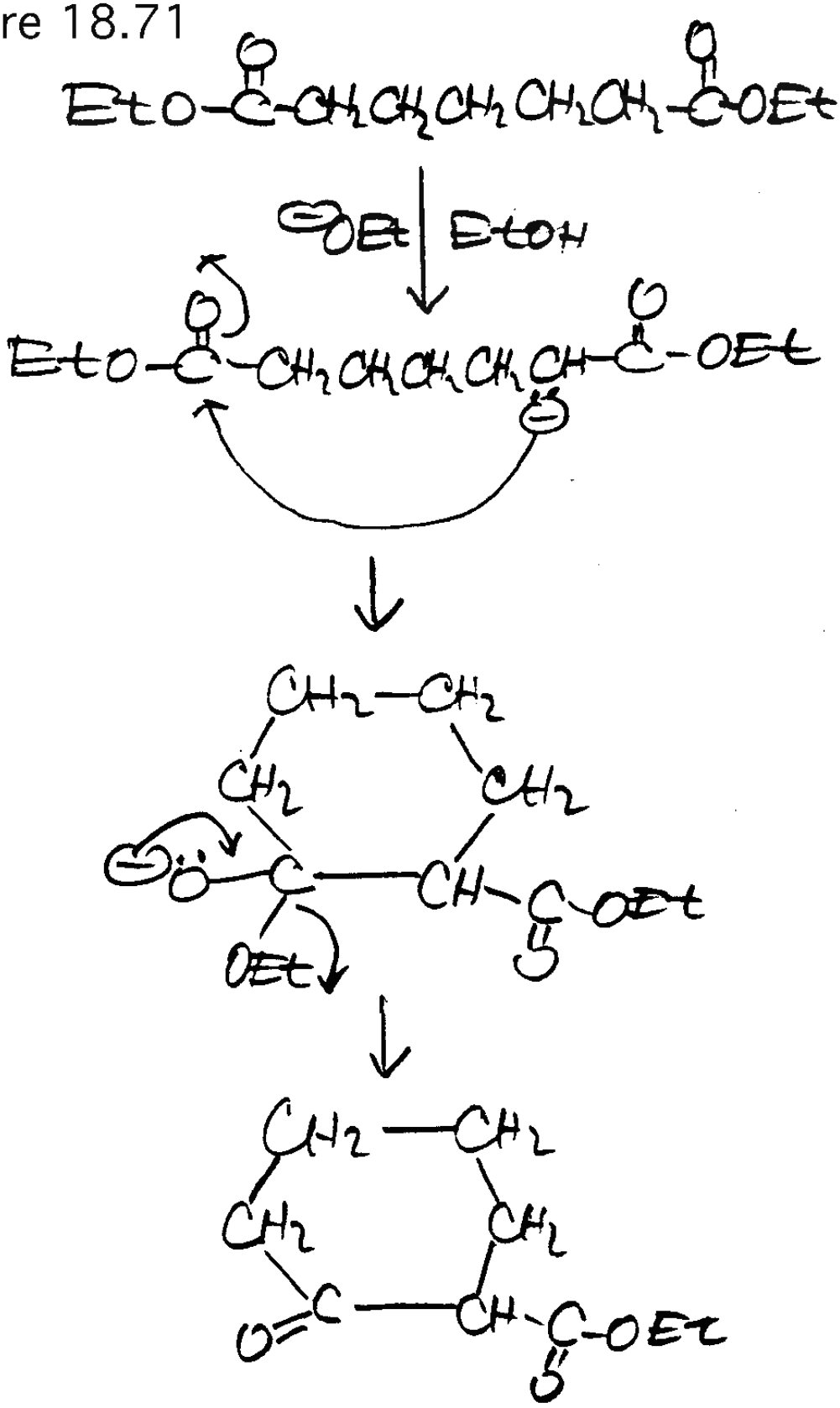


Figure 18.72

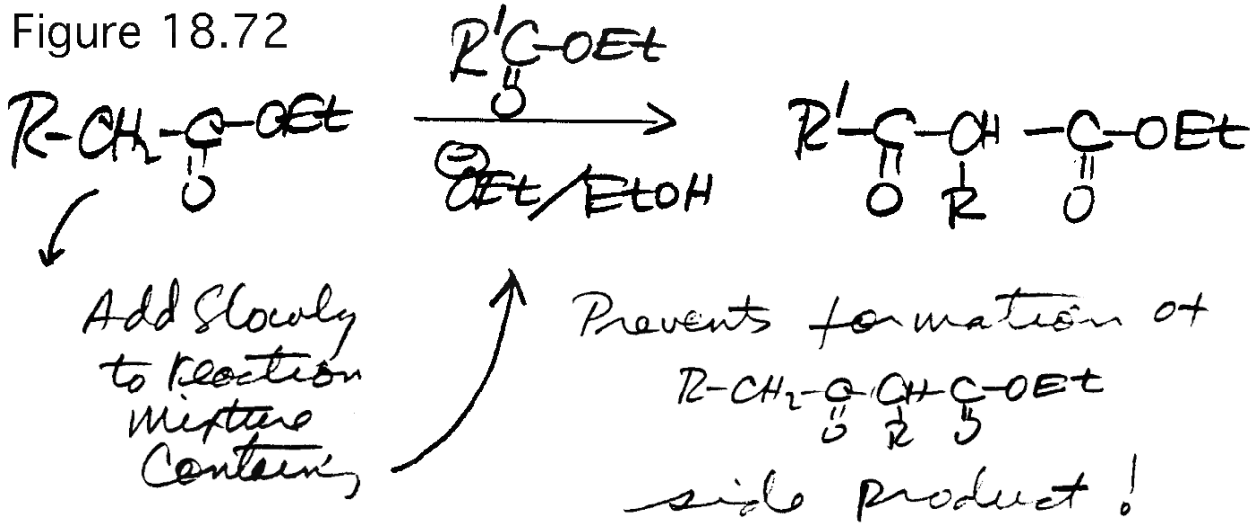


Figure 18.73

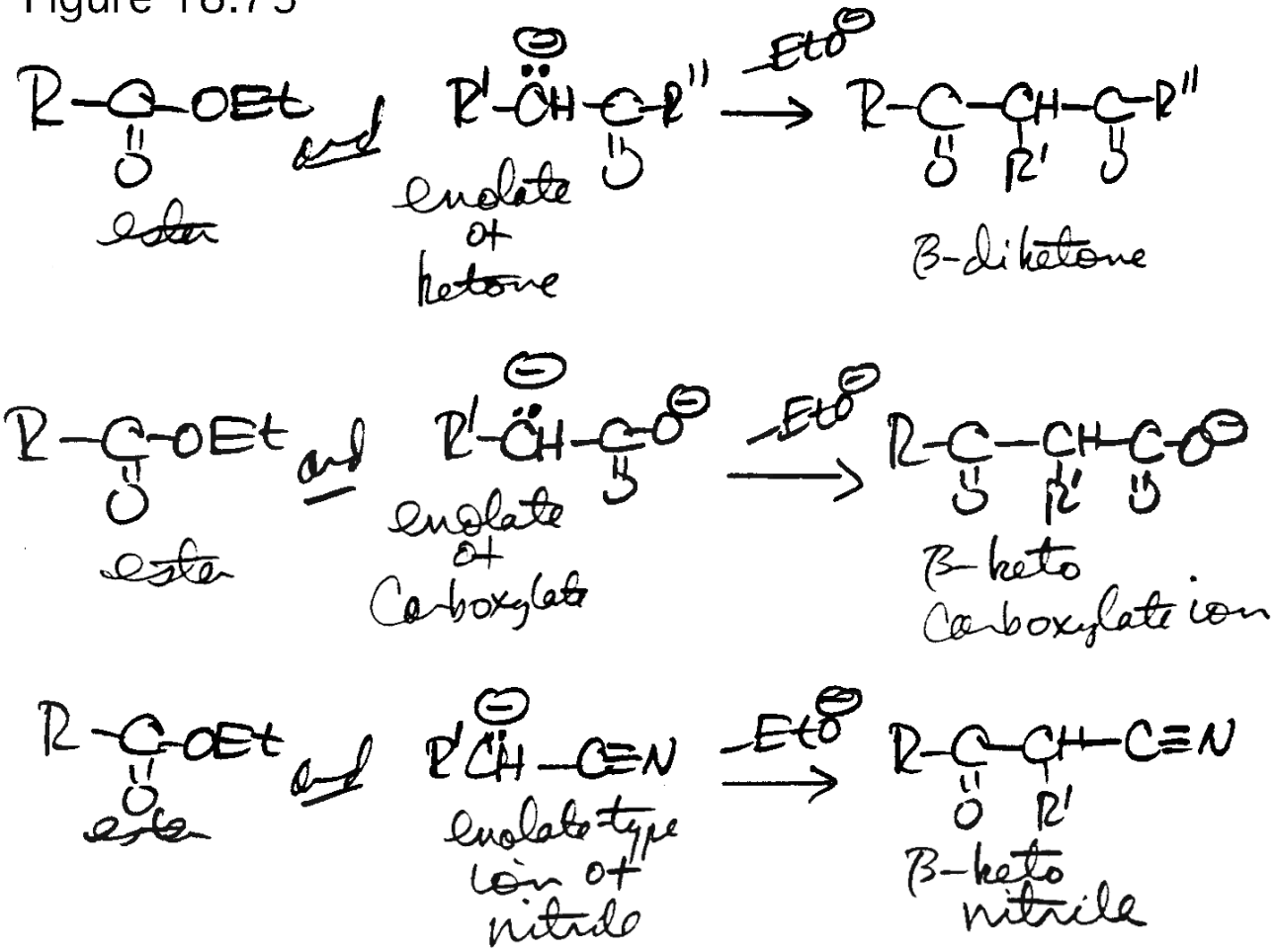


Figure 18.74

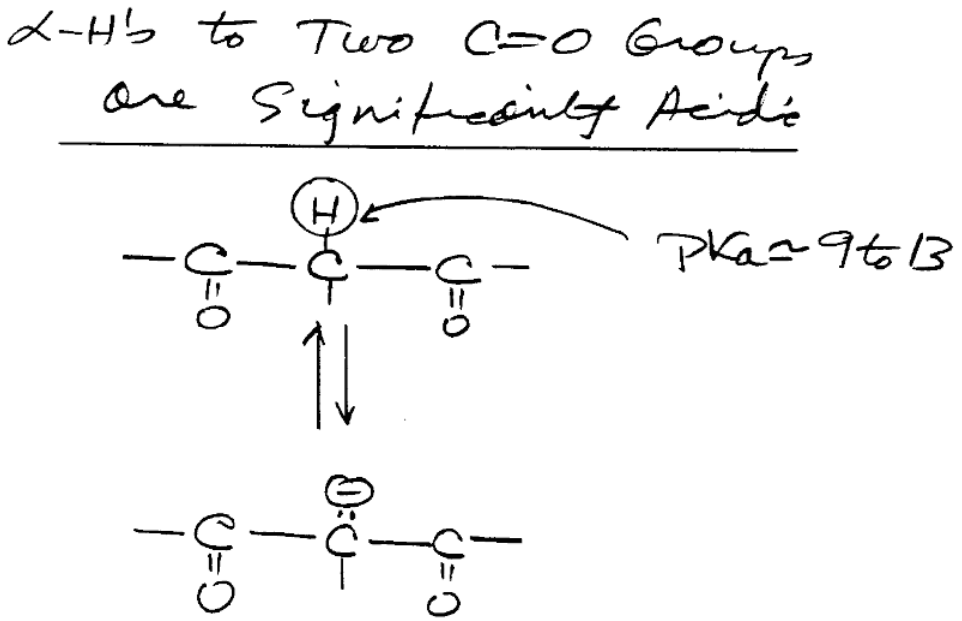


Figure 18.75

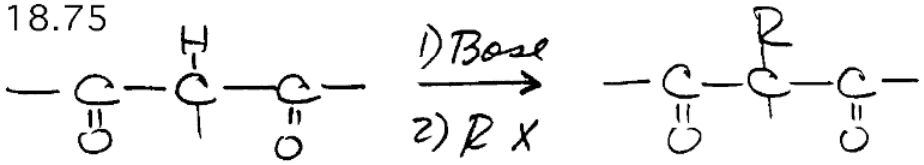


Figure 18.76

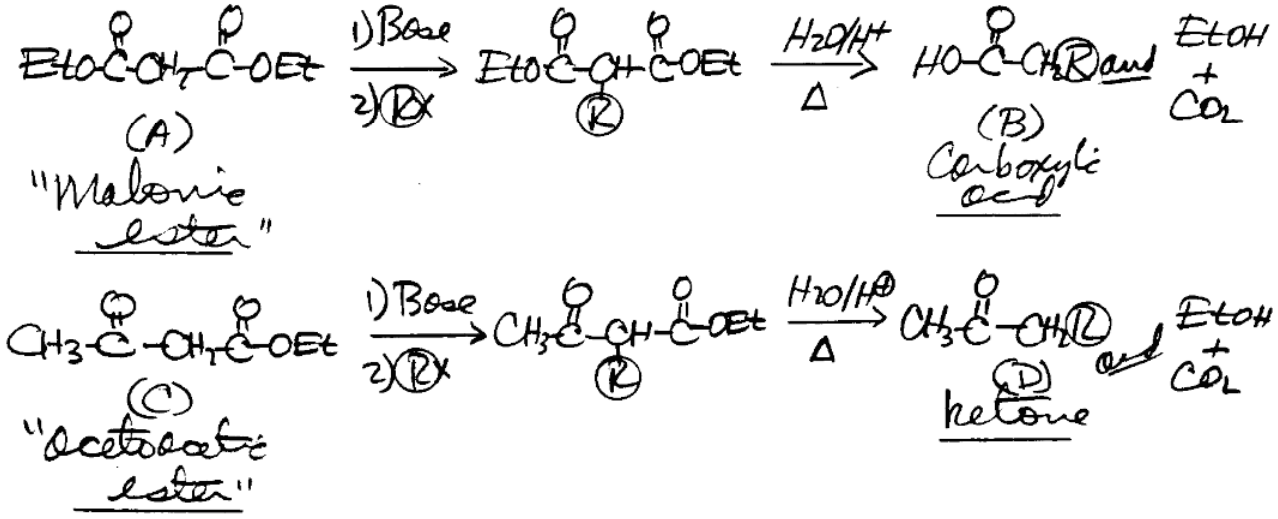


Figure 18.77 Mechanism of the Malonic Ester and Acetoacetic Ester Syntheses

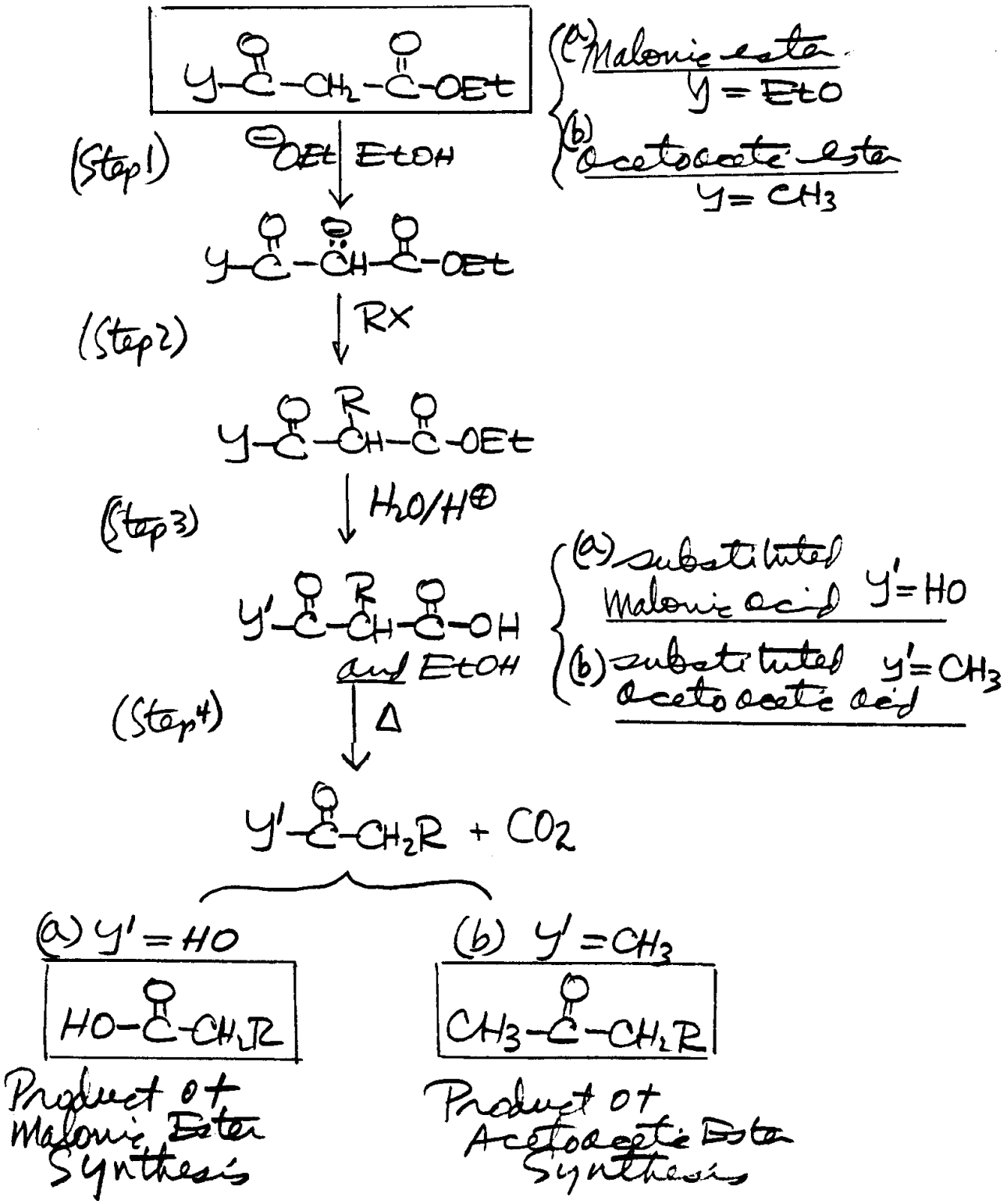


Figure 18.78 Decarboxylation (Step 4)

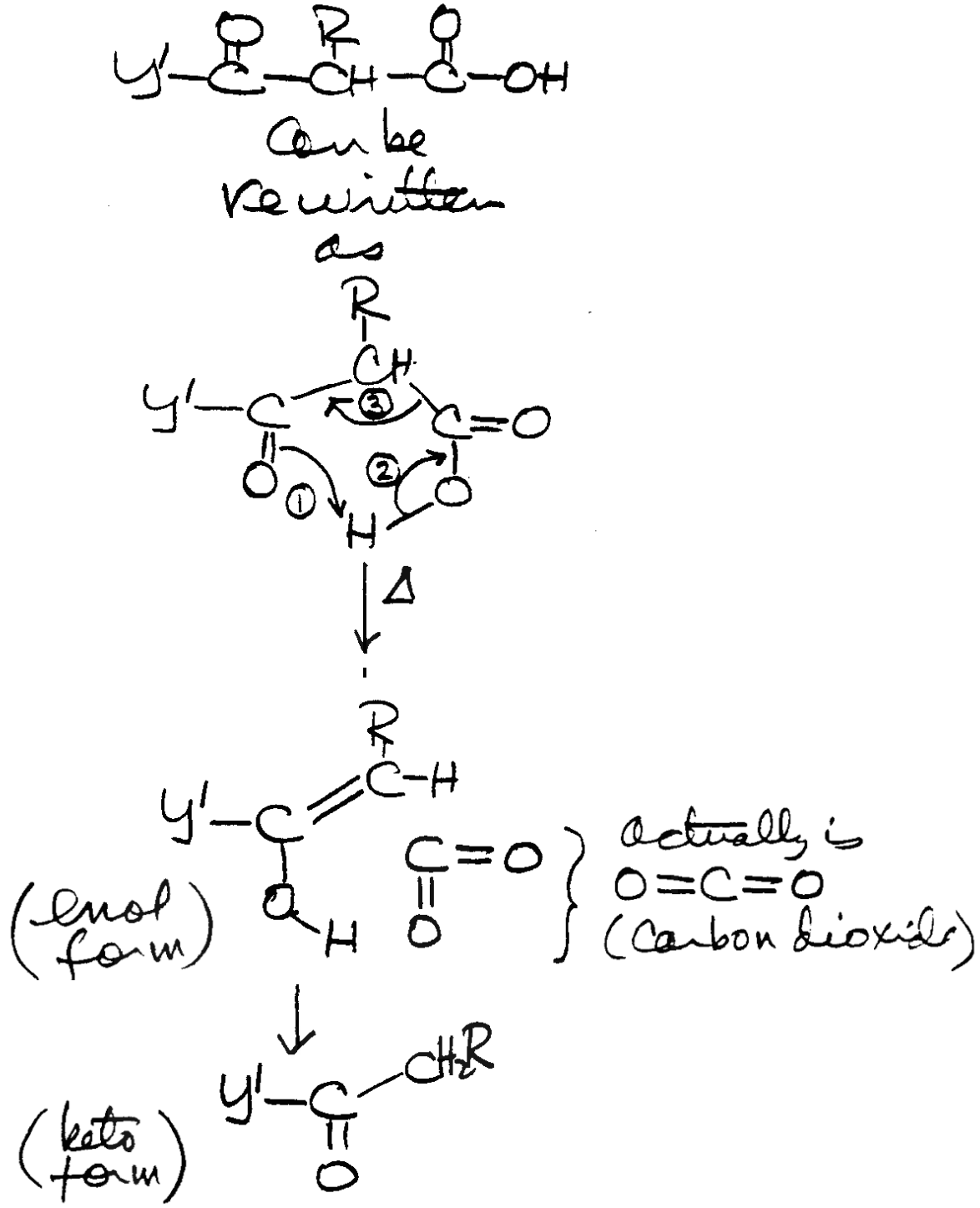
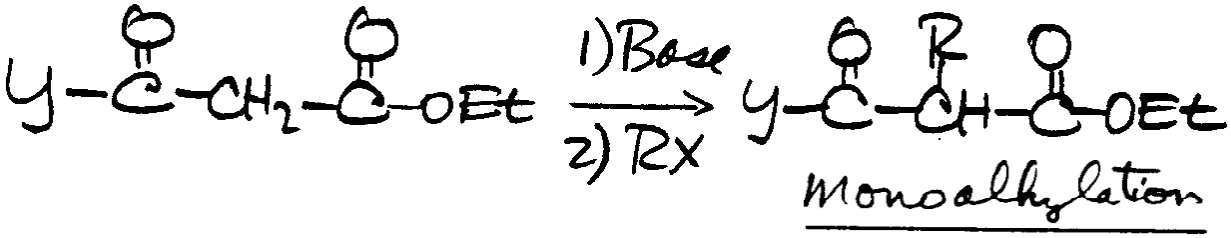


Figure 18.79 Enolate Alkylation



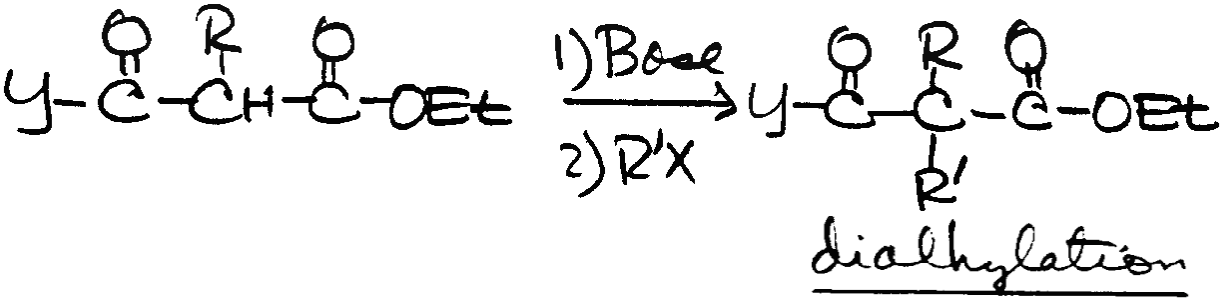
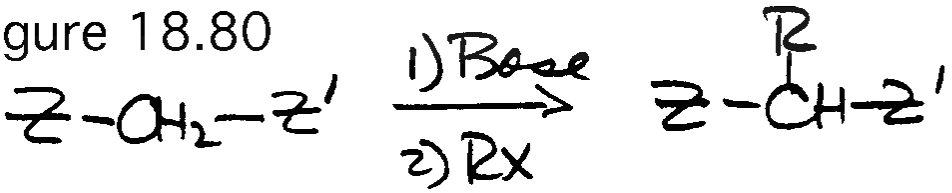


Figure 18.80



If $Z' \equiv$

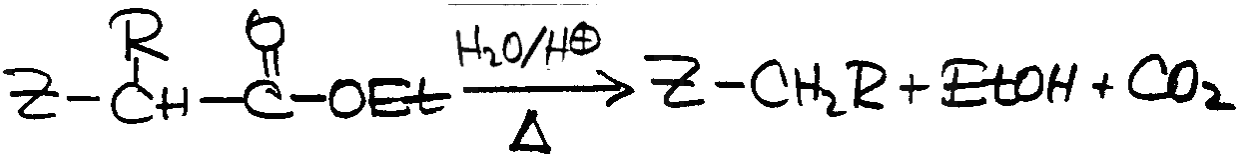


Figure 18.81

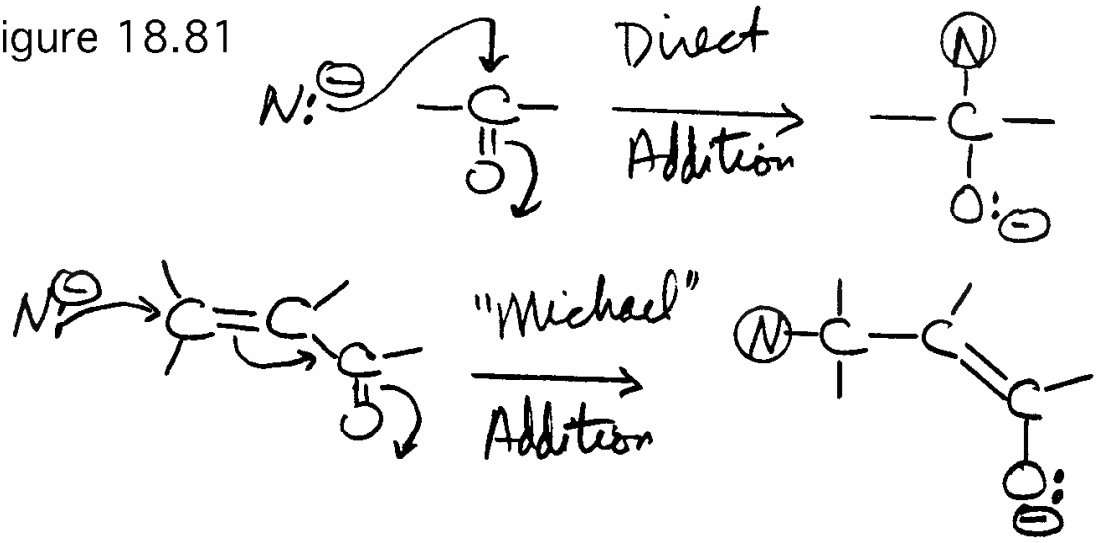


Figure 18.82

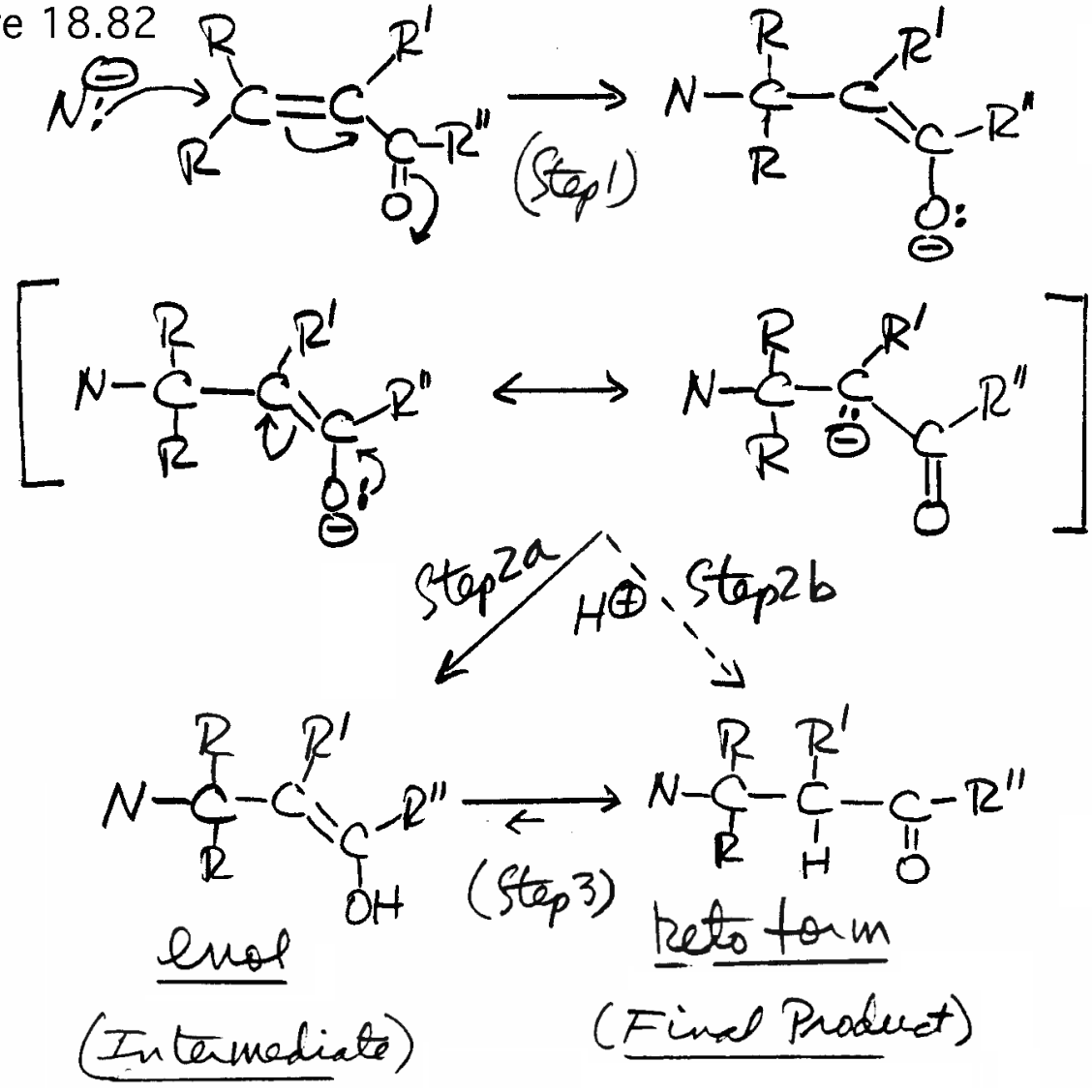
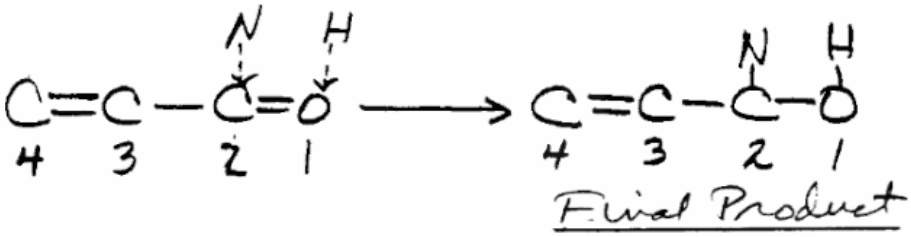
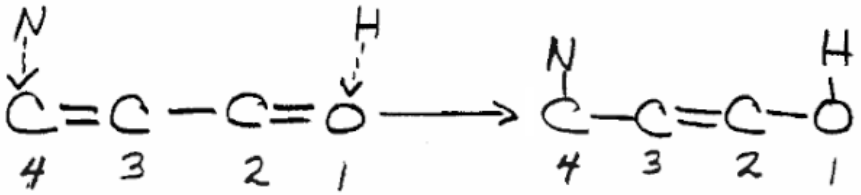


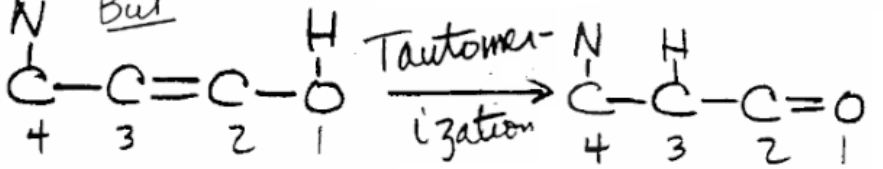
Figure 18.83 1,2-Addition (Direct Addn)



1,4-Addition (Michael Addn)



But



Final Product

Figure 18.84

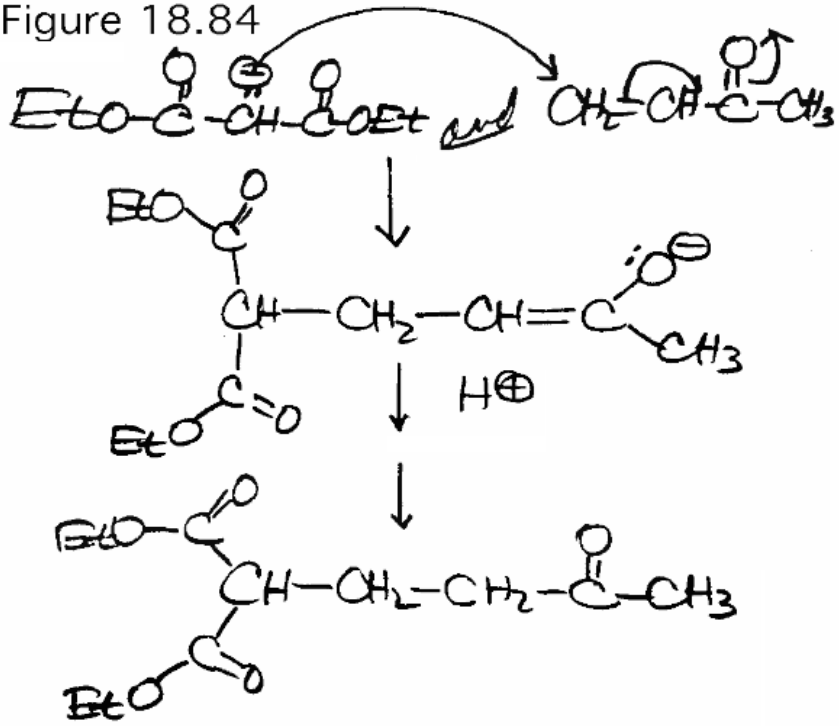


Figure 18.85

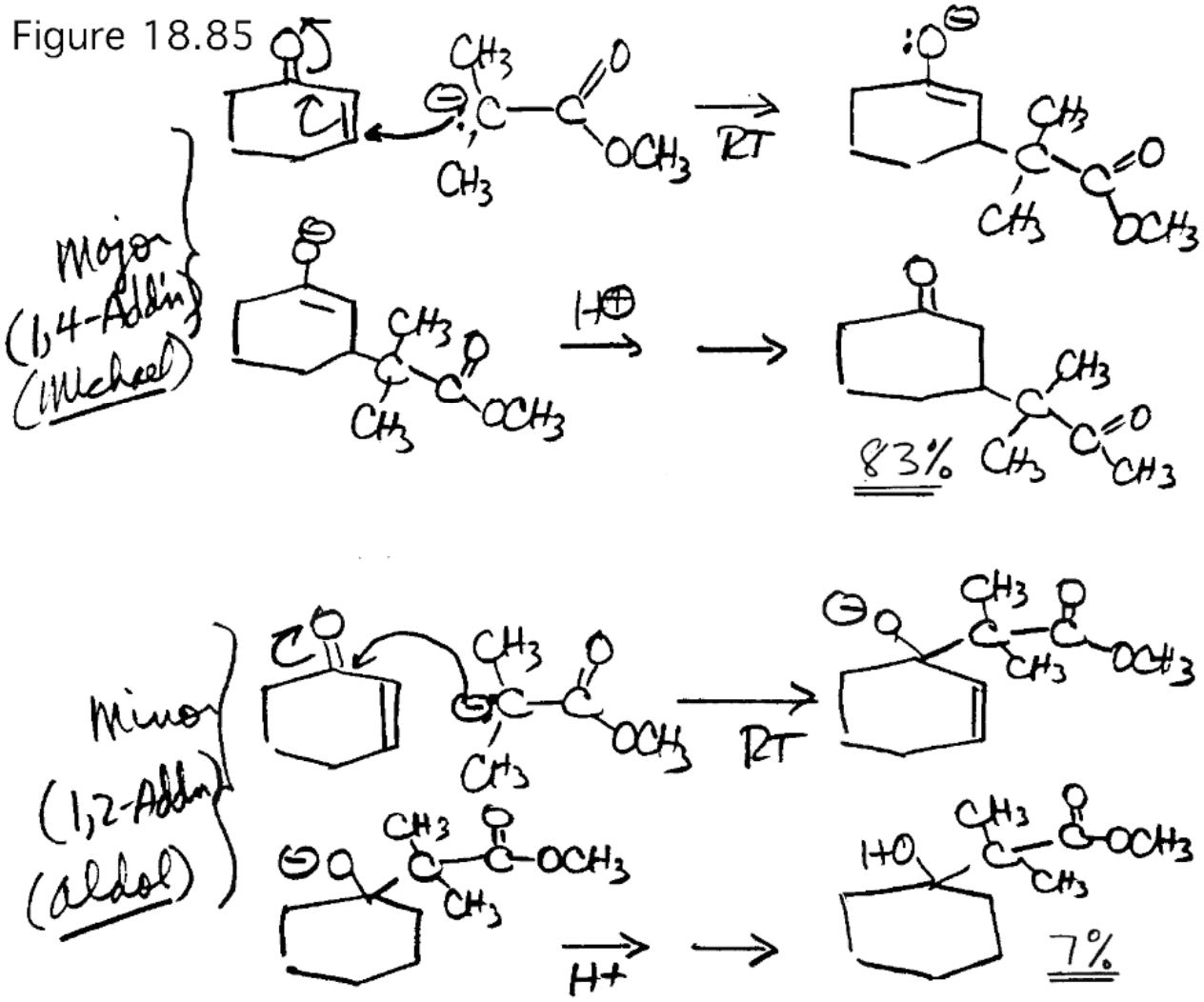


Figure 18.86

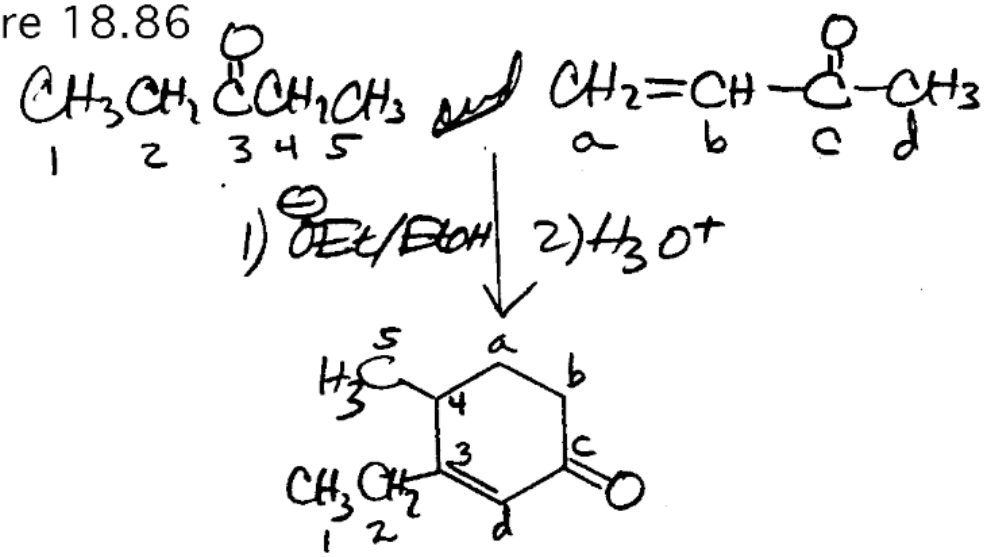


Figure 18.87

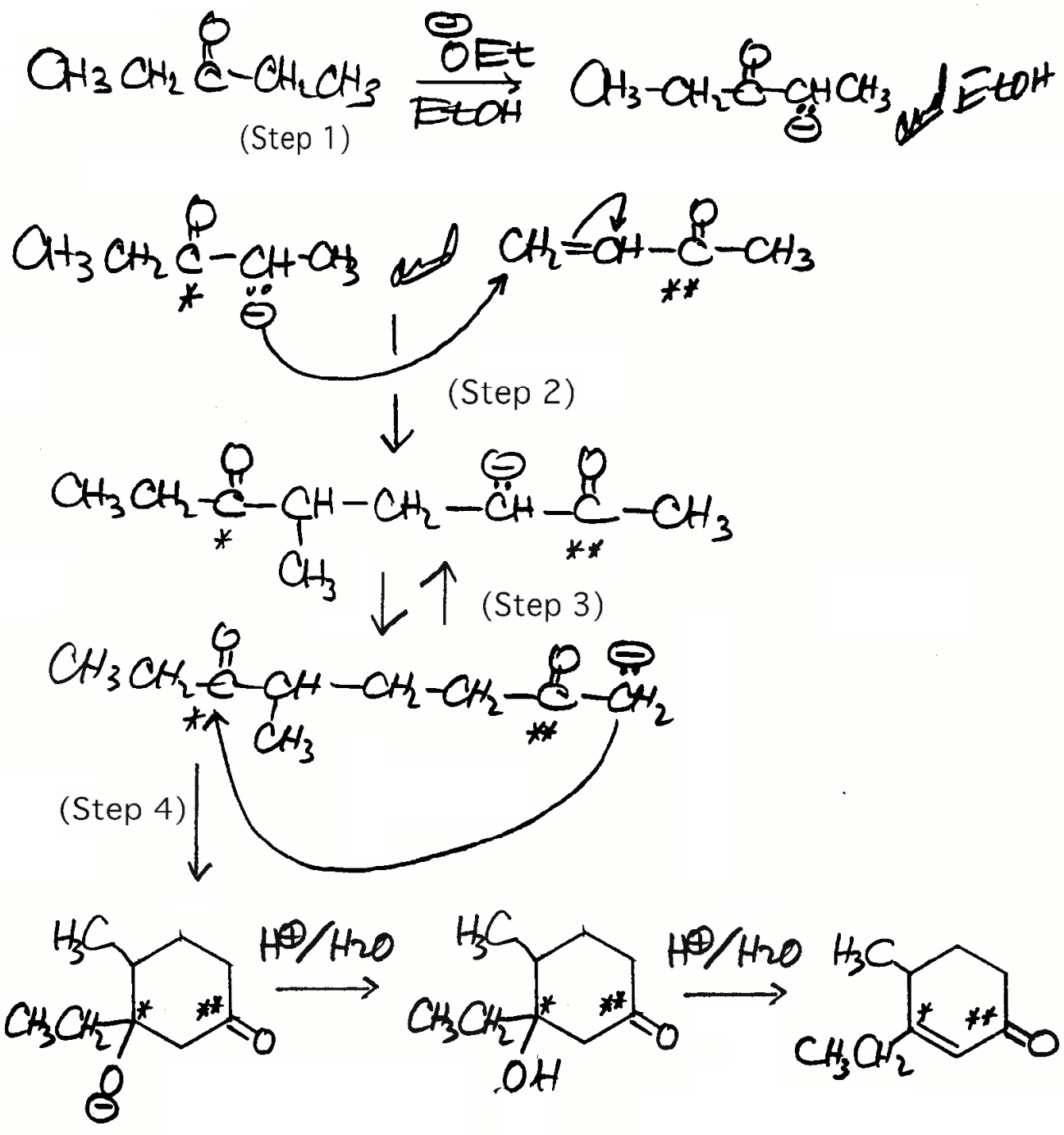


Figure 18.88

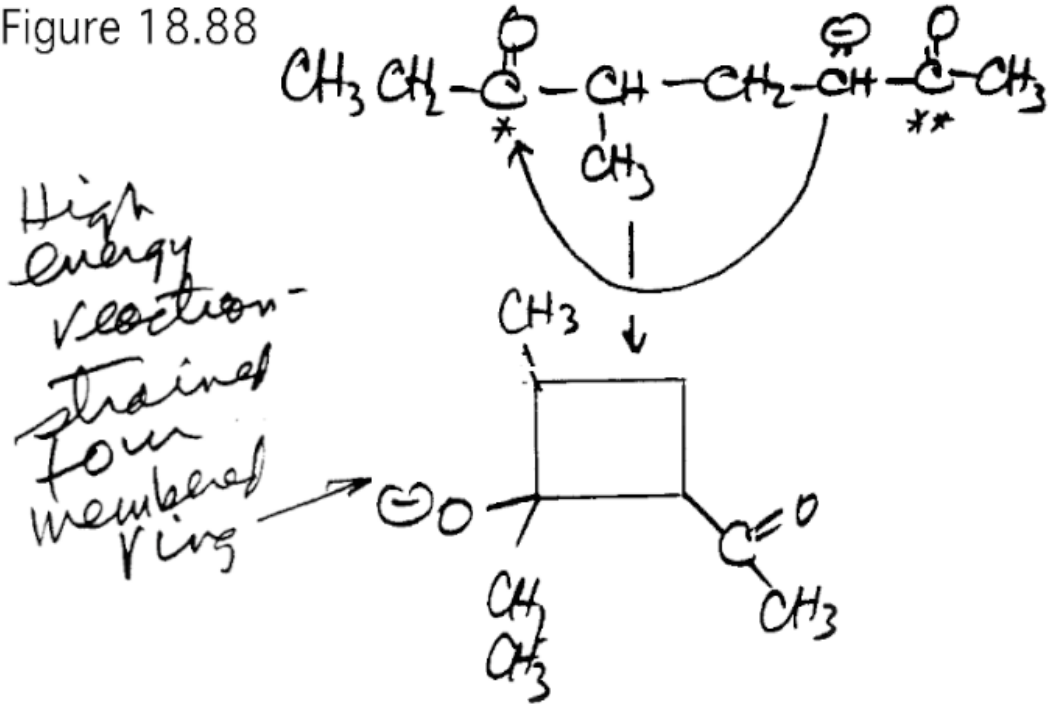


Figure 18.89 Enamines

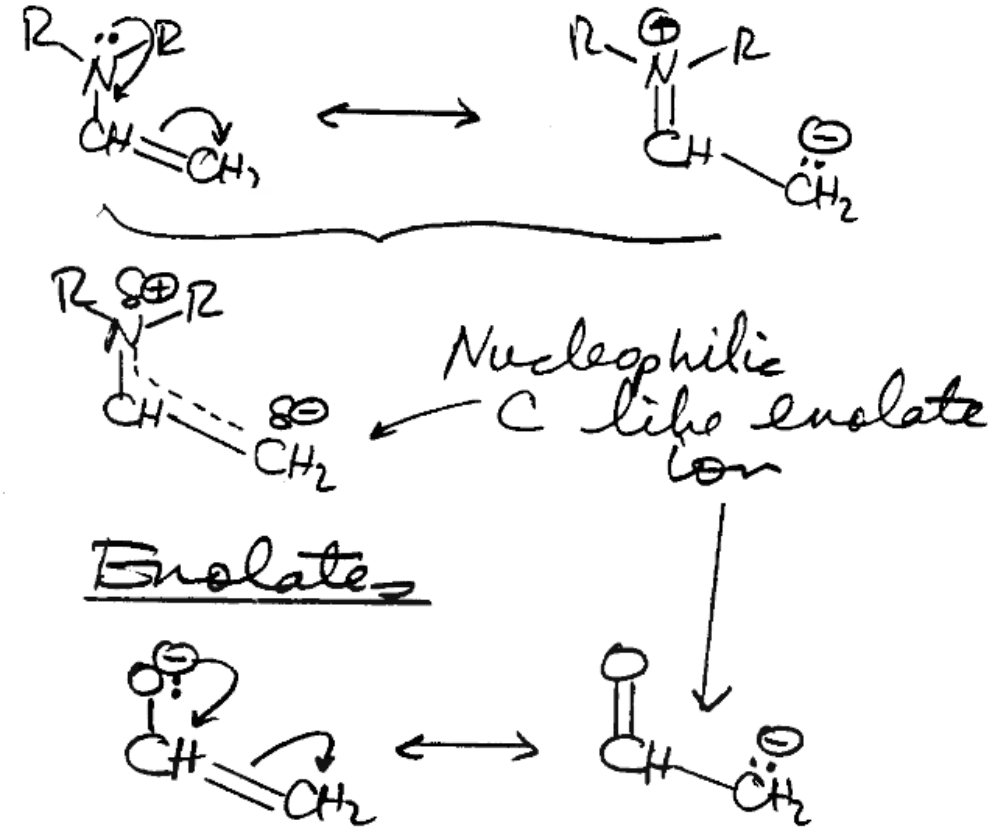


Figure 18.90

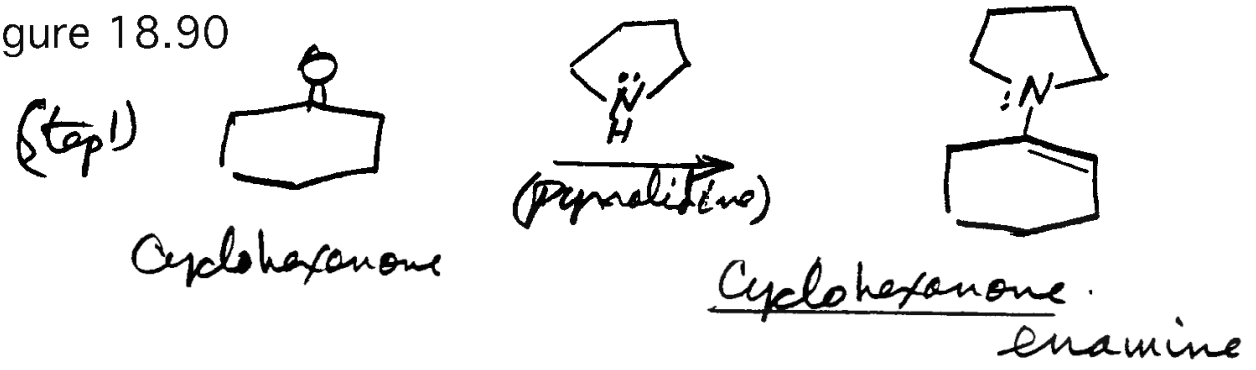


Figure 18.91

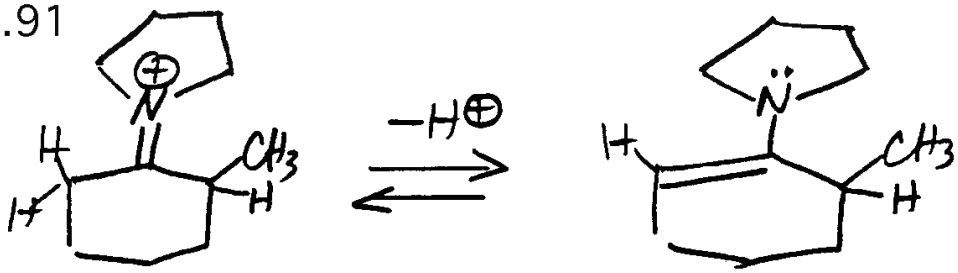


Figure 18.92

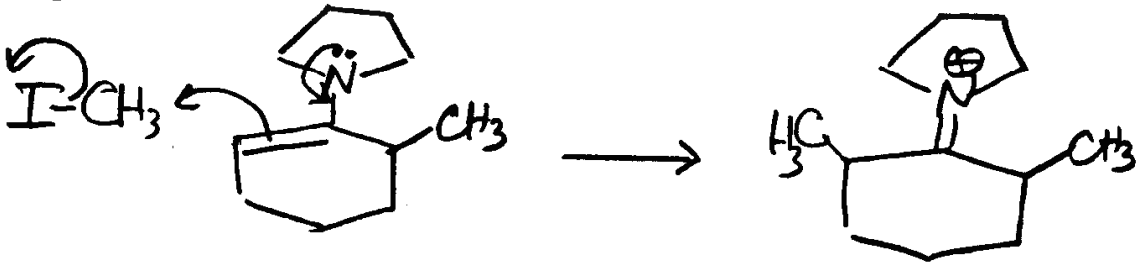
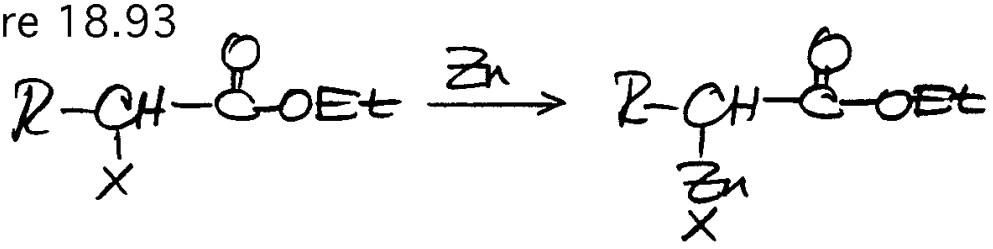


Figure 18.93



C–Zn bond is polarized so that the C is negative

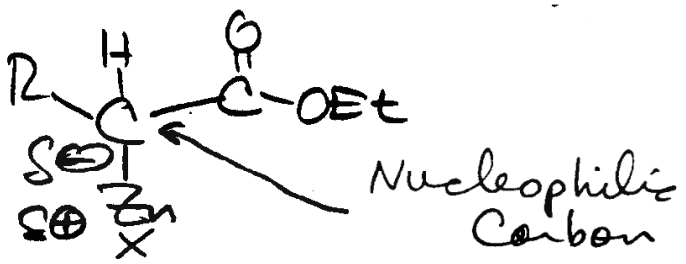


Figure 18.94

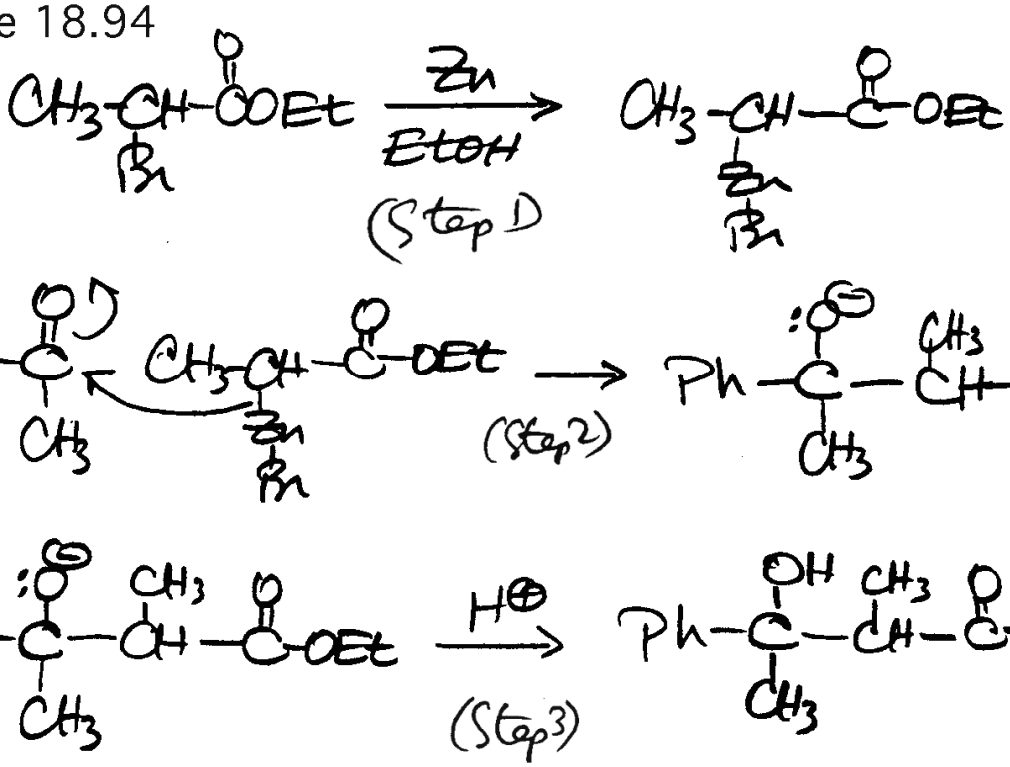


Figure 18.95

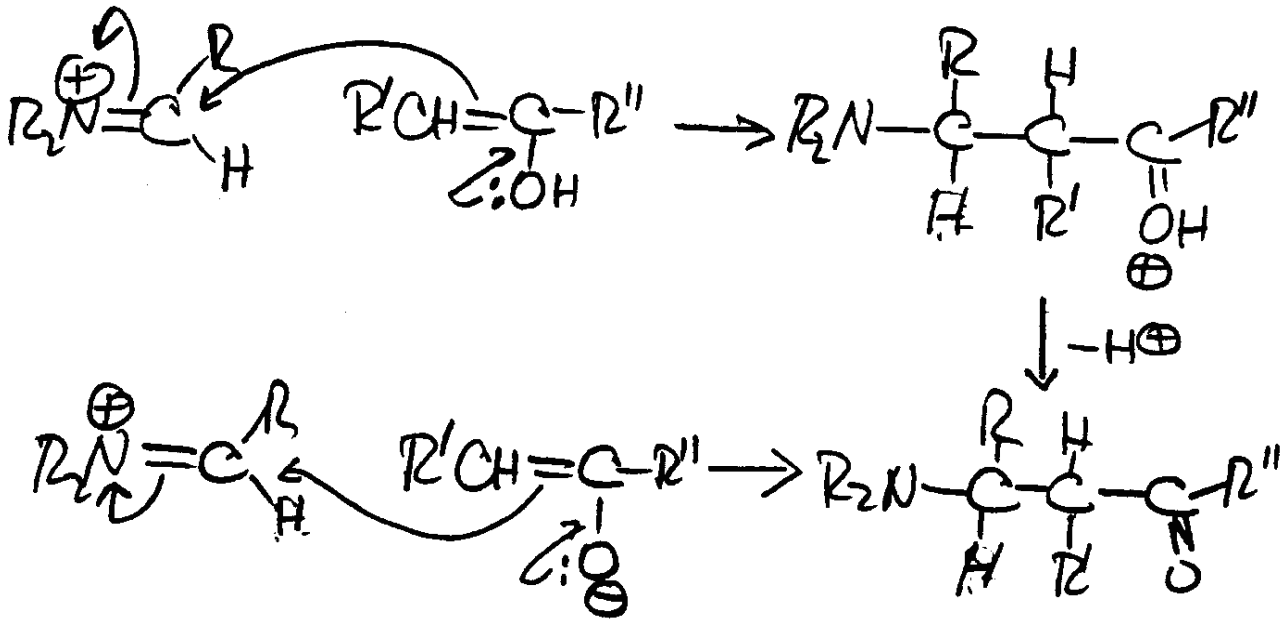


Figure 18.96