

Organic synthesis

Organic transformations 1

Complete the diagram showing the reagents, conditions and mechanisms that accompany the following transformations.

		Reagents	Conditions	Mechanism
$\text{CH}_3\text{CH}_2\text{OH}$	→	CH_3CHO		x
$\text{CH}_3\text{CH}_2\text{OH}$	→	$\text{CH}_3\text{CO}_2\text{H}$		x
$\text{CH}_3\text{CH}_2\text{Br}$	→	$\text{CH}_3\text{CH}_2\text{CN}$	x	
$\text{CH}_3\text{CO}_2\text{H}$	→	CH_3CONH_2	x	x
CH_3CN	→	$\text{CH}_3\text{CH}_2\text{NH}_2$		

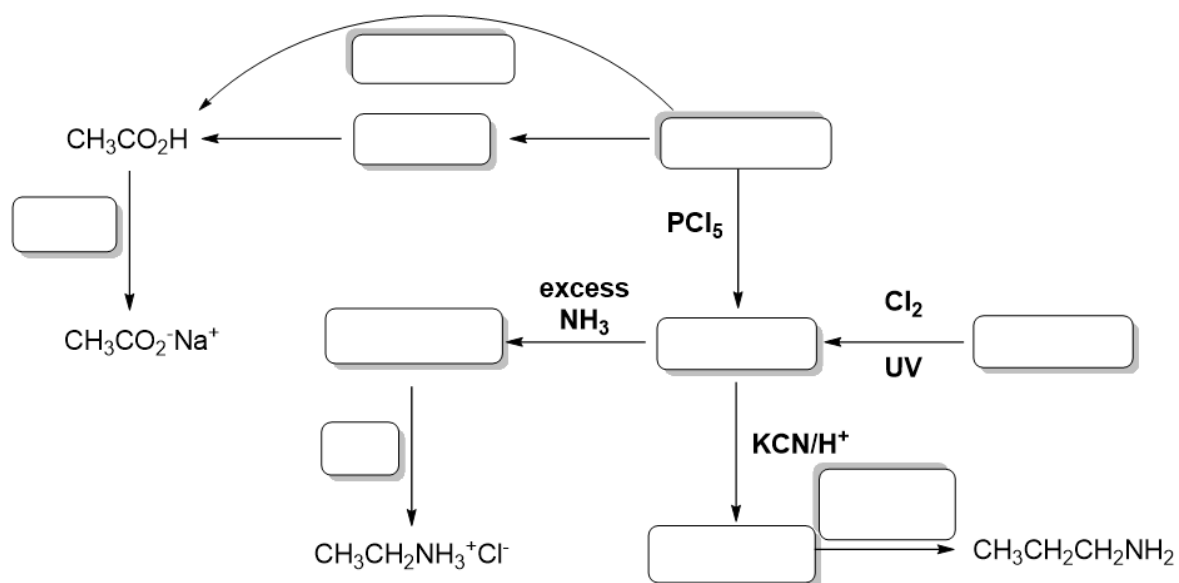
Organic transformations 2

Complete the diagram showing the reagents, conditions and mechanisms that accompany the following transformations.

		Reagents	Conditions	Mechanism
CH_3CONH_2	→	$\text{CH}_3\text{CH}_2\text{NH}_2$	x	
CH_3CH_3	→	$\text{CH}_3\text{CH}_2\text{Cl}$		
$\text{CH}_3\text{CH}_2\text{Br}$	→	$\text{CH}_3\text{CH}_2\text{NH}_2$		
$\text{H}_2\text{C}=\text{CH}_2$	→	$\text{CH}_3\text{CH}_2\text{Br}$	x	

Organic transformations 3

Complete the diagram below to show the reagents and species formed.



Organic synthesis – Answers

Organic transformations 1

		Reagents	Conditions	Mechanism	
$\text{CH}_3\text{CH}_2\text{OH}$	\longrightarrow	CH_3CHO	$\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$	Distillation	x
$\text{CH}_3\text{CH}_2\text{OH}$	\longrightarrow	$\text{CH}_3\text{CO}_2\text{H}$	$\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$	Reflux	x
$\text{CH}_3\text{CH}_2\text{Br}$	\longrightarrow	$\text{CH}_3\text{CH}_2\text{CN}$	KCN	x	Nucleophilic sub ⁿ
$\text{CH}_3\text{CO}_2\text{H}$	\longrightarrow	CH_3CONH_2	NH_3	x	x
CH_3CN	\longrightarrow	$\text{CH}_3\text{CH}_2\text{NH}_2$	LiAlH_4	Dry ether solvent	Nucleophilic add ⁿ

Organic transformations 2

		Reagents	Conditions	Mechanism	
CH_3CONH_2	\longrightarrow	$\text{CH}_3\text{CH}_2\text{NH}_2$	H_2/Ni or LiAlH_4	x	Nucleophilic add ⁿ
CH_3CH_3	\longrightarrow	$\text{CH}_3\text{CH}_2\text{Cl}$	Cl_2	UV light	Free radical substitution
$\text{CH}_3\text{CH}_2\text{Br}$	\longrightarrow	$\text{CH}_3\text{CH}_2\text{NH}_2$	NH_3	Excess	Nucleophilic substitution
$\text{H}_2\text{C}=\text{CH}_2$	\longrightarrow	$\text{CH}_3\text{CH}_2\text{Br}$	HBr	x	Electrophilic addition

Organic transformations 3

