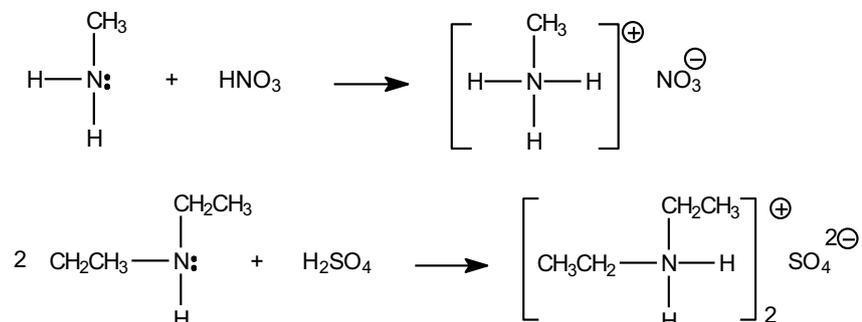
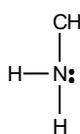
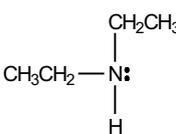
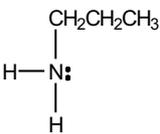
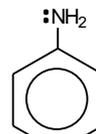
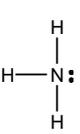
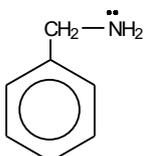
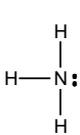
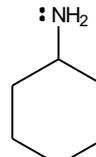




TASK 1

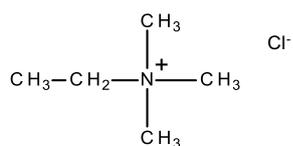


TASK 2

	amine	amine	stronger base	reason
1	methylamine 	diethylamine 	diethylamine	<ul style="list-style-type: none">• 2^o compared to 1^o• Extra inductive effect of two alkyl groups compared to one• Diethylamine has greater electron density on N lone pair• Diethylamine has greater ability to accept H⁺
2	propylamine 	phenylamine 	propylamine	<ul style="list-style-type: none">• Lone pair on phenylamine N is partially delocalised into benzene ring• Propylamine has greater electron density on N lone pair• Propylamine has greater ability to accept H⁺
3	ammonia 	phenylmethanamine 	phenylmethanamine	<ul style="list-style-type: none">• 1^o compared to ammonia• Inductive effect of an alkyl group compared to H• Phenylmethanamine has greater electron density on N lone pair• Phenylmethanamine has greater ability to accept H⁺
4	ammonia 	cyclohexylamine 	cyclohexylamine	<ul style="list-style-type: none">• 1^o compared to ammonia• Inductive effect of an alkyl group compared to H• Cyclohexylamine has greater electron density on N lone pair• Cyclohexylamine has greater ability to accept H⁺

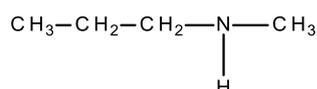
TASK 3

1



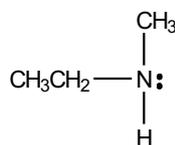
ethyltrimethylammonium chloride

2

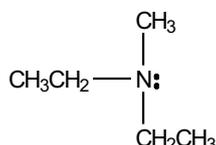


N-methylpropylamine OR N-methyl propan-1-amine

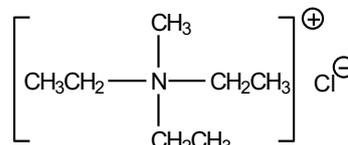
3



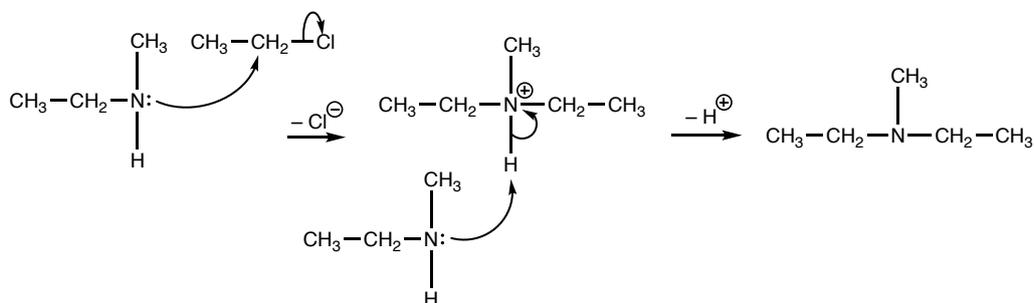
N-methylethylamine
or
N-methyl ethanamide



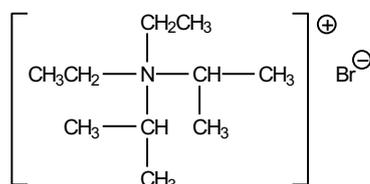
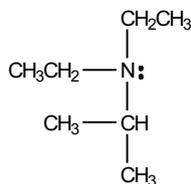
N-methyldiethylamine
or
N-ethyl N-methyl ethanamide



N-methytriethylammonium
chloride



4

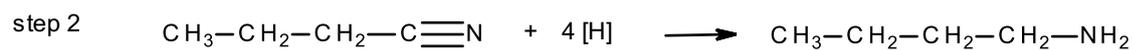
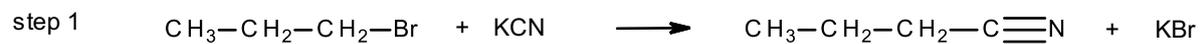


TASK 1

Route 1

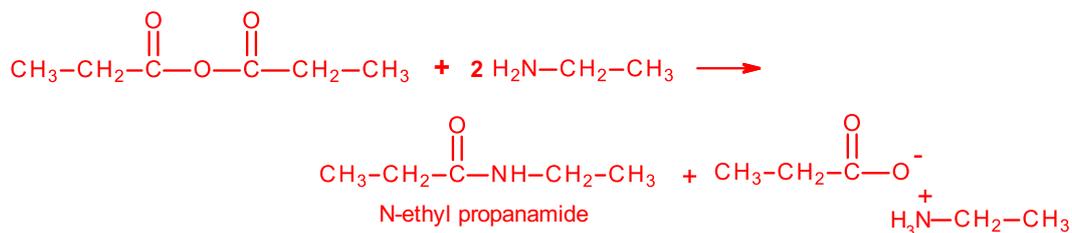


Route 2



TASK 5

e.g. ethylamine + propanoic anhydride



e.g. propylamine + butanoyl chloride

