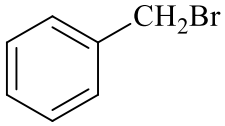
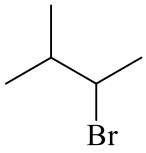
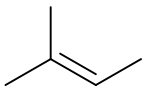
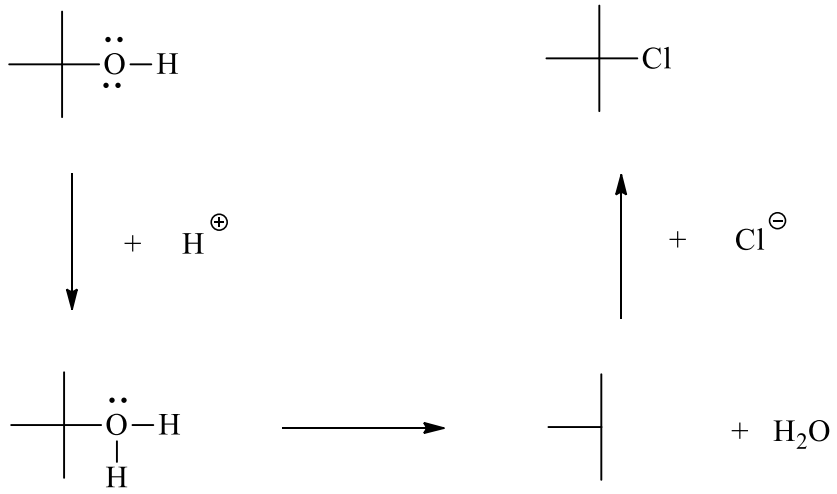
- Complete the following table. Make sure you give the name of the starting material where indicated.

Marks 2

STARTING MATERIAL	REAGENTS/ CONDITIONS	STRUCTURAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
	KCN / ethanol (solvent)	
		

Marks 4

- Concentrated HCl reacts with 2-methyl-2-propanol in an S_N1 reaction to give 2-chloro-2-methylpropane as shown below. Complete the reaction mechanism by adding curly arrows and formal charges on the intermediates as appropriate.



Explain what each part of the abbreviation S_N1 means.

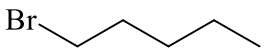
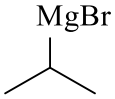
S =

N =

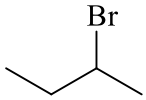
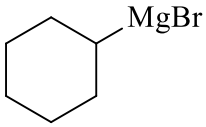
1 =

THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.

• Complete the following table. **Marks 2**

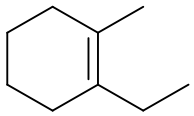
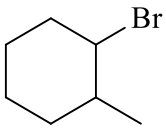
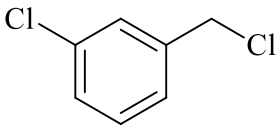
STARTING MATERIAL	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
	hot conc. KOH in ethanol solvent	
	1. CO_2 2. $H^{\oplus}$ / H_2O	

• Complete the following table. **Marks 2**

STARTING MATERIAL	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
	hot conc. KOH in ethanol	
	1. CO_2 2. $H^{\oplus}$/ H_2O	

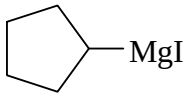
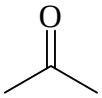
Marks 3

- Complete the following table. If there is no reaction, write "NR". Show any relevant stereochemistry.

STARTING MATERIAL	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
	H_2, Pd/C	
	conc. KOH in ethanol solvent	
	hot aqueous NaOH	

- Complete the following table.

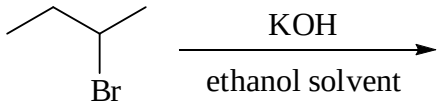
Marks 1

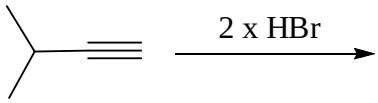
STARTING MATERIAL	REAGENTS/ CONDITIONS	CONSTITUTIONAL FORMULA(S) OF MAJOR ORGANIC PRODUCT(S)
		

Page Total:

- Draw the structure of the major organic product formed in the following reactions.

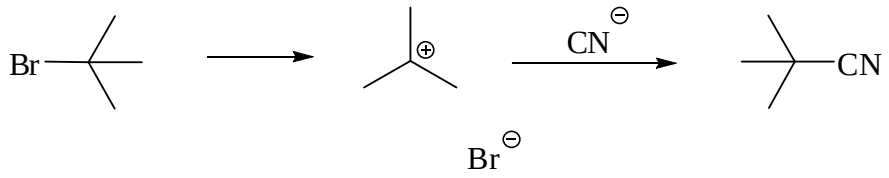
Marks 2





Marks 4

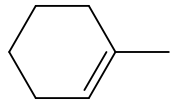
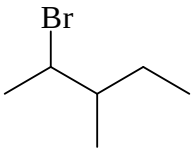
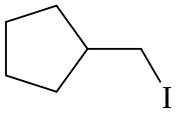
- Add curly arrows to complete the following mechanism.



Classify this reaction as S_N1 or S_N2 and explain what the three parts of this descriptor signify.

Marks 3

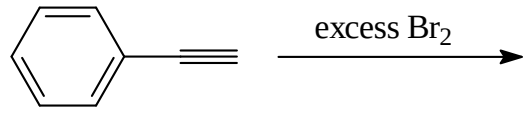
- Complete the following table.

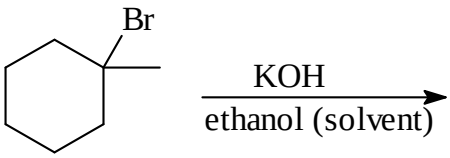
Starting material	Reagents / Conditions	Major organic product(s)
	HCl	
	hot conc. KOH ethanol (solvent)	
	$CN^{\ominus}$	

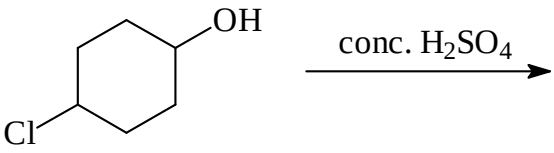
THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.

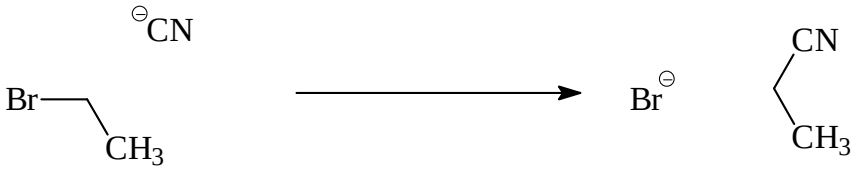
Marks 5

- Draw the structure of the major organic product formed in the following reactions.



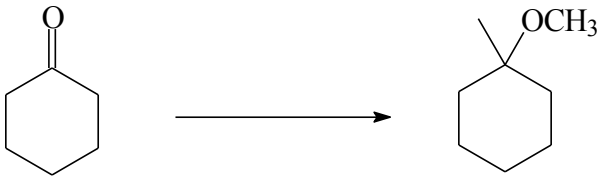


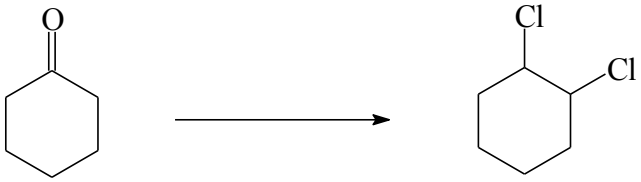


• Add curly arrows to complete the following mechanism.	**Marks 5**
	
Classify this reaction as S_N1 or S_N2 and explain what the three parts of this descriptor signify.	

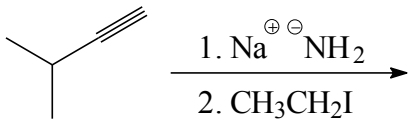
Marks 6

- Devise a synthesis of the following compounds from the starting material indicated. Note that more than one step may be required and you should indicate all necessary steps and the constitutional formulas of any intermediate compounds.





• Give the constitutional formula and the name of the major organic product of each of the following reactions.	**Marks 2**



Name: