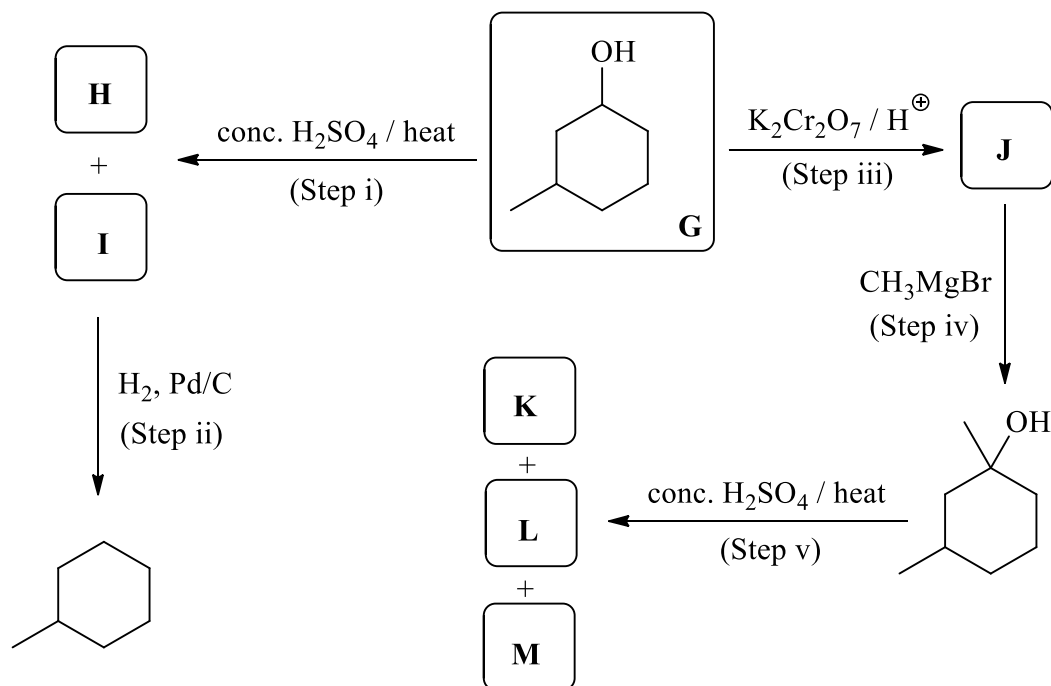


- Consider the following reaction sequences beginning with the secondary alcohol, **G**.



Suggest structures for compounds **H** – **M** in the reaction sequences above.

H	I	J
K	L	M

What approximate ratio **H** : **I** do you expect? Why?

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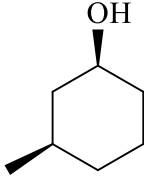
What type of reaction is occurring in Step i?

What type of reaction is occurring in Step ii?

What type of reaction is occurring in Step iii?

What type of reaction is occurring in Step iv?

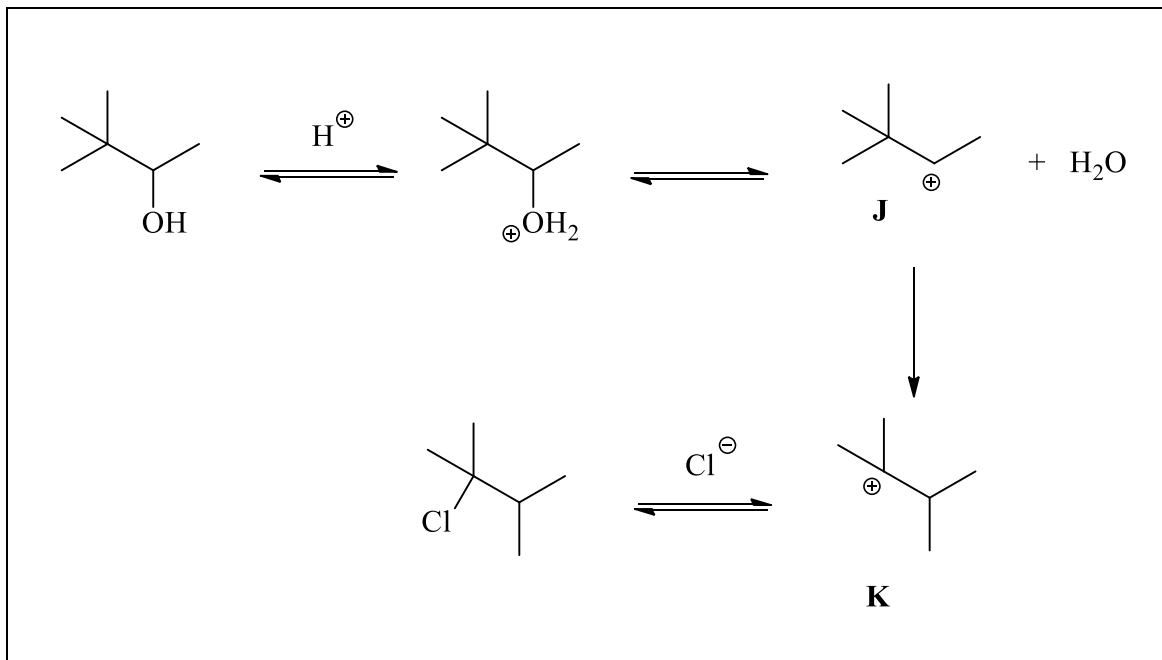
THIS QUESTION CONTINUES ON THE NEXT PAGE.

What is the systematic name for G ?	Marks 6
How many configurational stereoisomers of G are there?	
Assign the absolute configuration of stereoisomer G ₁ below. Show your working.	
 <p style="text-align: center;">G₁</p>	
Draw G ₂ (the enantiomer of G ₁) and G ₃ (a diastereomer of G ₁)	
G ₂ (enantiomer of G ₁)	G ₃ (diastereomer of G ₁)

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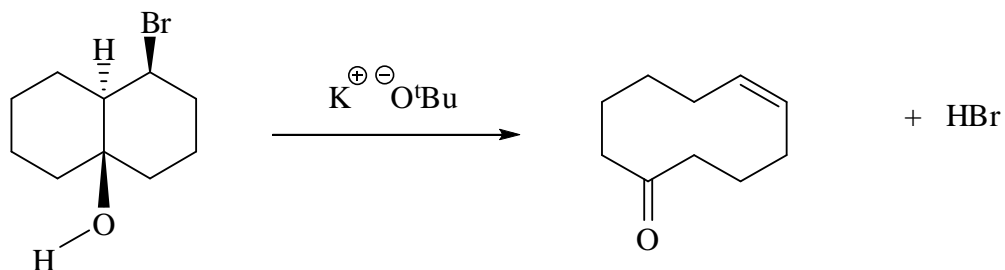
- Apply your understanding of curly arrows to complete a mechanism for the following S_N reaction:

**Mark
s
3**



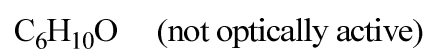
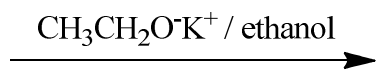
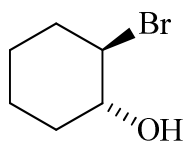
Why does the rearrangement step (**J** \rightarrow **K**) occur?

- Add curly arrows to complete the mechanism of the unusual E2 reaction shown below, the Grob Fragmentation. (Note that KO^tBu is potassium *tert*-butoxide, a strong base.)

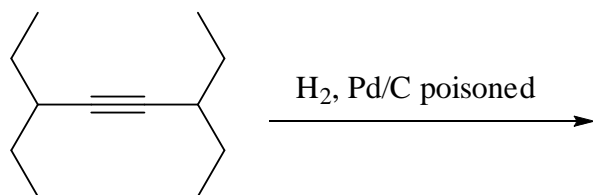
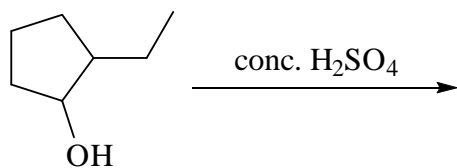
Marks
3

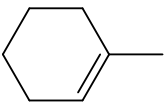
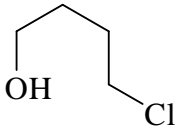
Explain briefly why the relative stereochemistry of the OH and Br groups in the starting material is important in this reaction.

- Propose a structure for the product of the following reaction. Outline a mechanism for its formation, showing all curly arrows and intermediates.

Marks
3

- Draw the structure(s) of the major organic product(s) formed in each of the following reactions. Give the names of the products where requested.

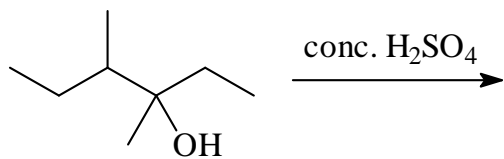
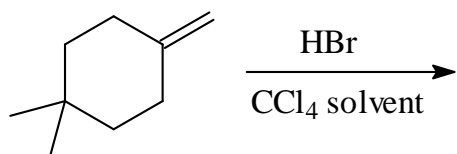
Marks
3**Name(s):****THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.**

• Complete the following table.			Marks 2
Starting material	Reagents / Conditions	Major organic product(s)	
	HCl CCl ₄ (solvent)		
	Na		

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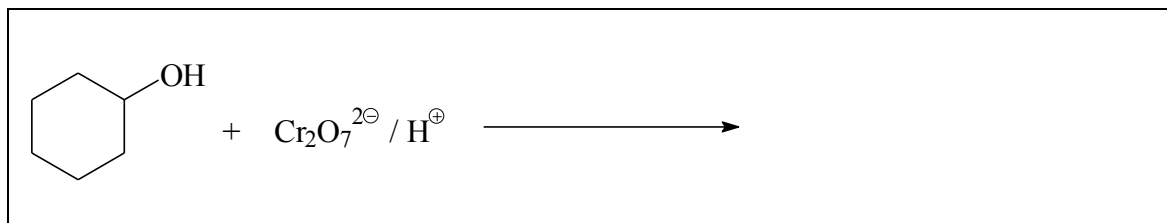
Marks
4

- Draw the structure(s) of the major organic product(s) formed in each of the following reactions. Give the names of the products where requested.

**Name(s):****Name(s):**

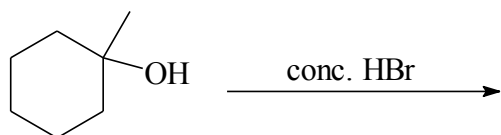
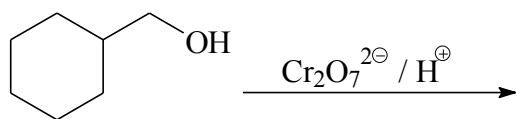
Marks
1

- Draw the constitutional structure of the major organic product formed in the following reactions. Indicate the correct isomer where appropriate.



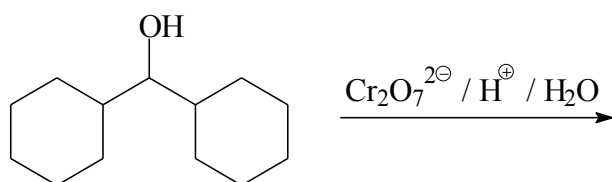
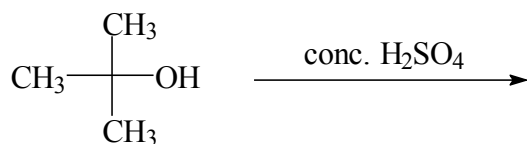
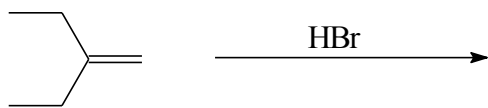
Marks
2

- Draw the constitutional formula of the major organic product formed in each of the following reactions.

**THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.**

Marks
3

- Draw the constitutional formula(s) of the major organic product(s) formed in each of the following reactions.



- Use curly arrow notation to illustrate the mechanism of each of the following reactions.

