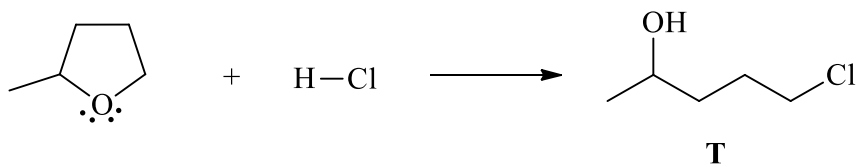
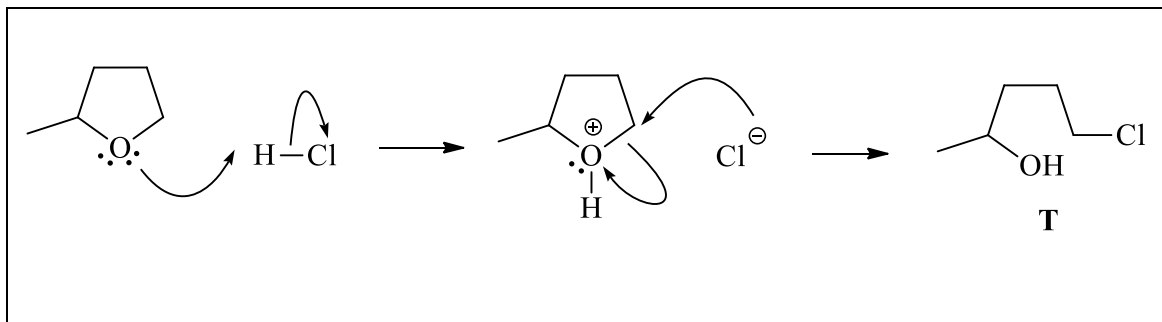


- Propose a mechanism for the following reaction.

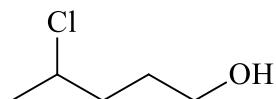


**Mark  
s  
4**



What isomeric product might also form in this reaction?

**If the  $\text{Cl}^-$  attacks on the left hand side of the molecule, the analogous reaction leads to:**

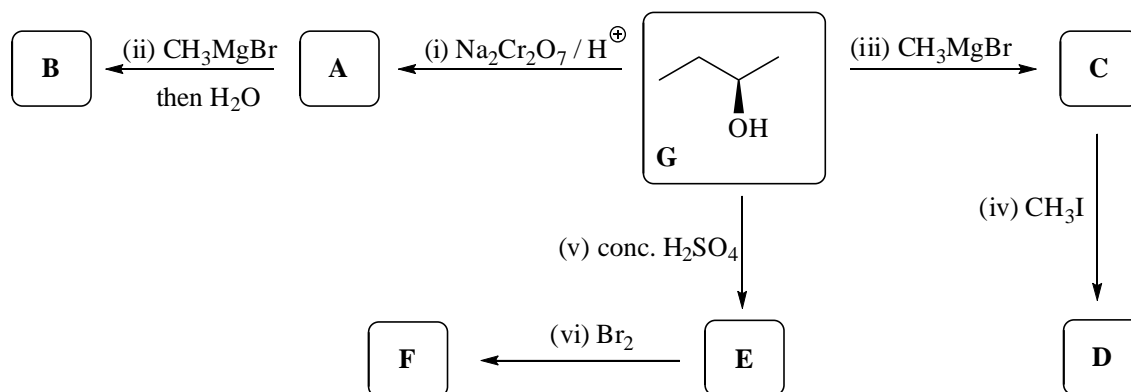


Why is T the major product?

**Steric effects. The  $\text{CH}_2$  group on the right is more accessible than the  $\text{CH}(\text{CH}_3)$  group on the left for  $\text{S}_{\text{N}}2$  attack by the  $\text{Cl}^-$  nucleophile.**

**Marks  
10**

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



What is the systematic name for **G**?

**(R)-2-butanol**

Suggest structures for compounds **A** – **F** in the reaction sequences above.

<b>A</b>		<b>B</b>		<b>C</b>	
<b>D</b>		<b>E</b>		<b>F</b>	

What type of reaction is occurring at each of the following steps?

Step (iii)

**acid/base**

Step (iv)

**S<sub>N</sub>2 (nucleophilic substitution)**

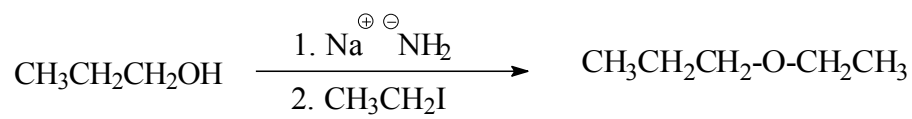
Step (v)

**elimination**

Step (vi)

**electrophilic addition**

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

**Marks**  
**6**

- Give the constitutional formula and the name of the major organic product of each of the following reactions.

**Marks**  
**2**

