

# LeAP: E1 Mechanism

- Due Oct 3, 2024 at 11:59pm
- Points 5
- Questions 8
- Available Sep 1, 2024 at 12am - Oct 7, 2024 at 11:59pm
- Time Limit None
- Allowed Attempts 2

## Instructions

Lecture Application Practices (LeAPs) serve as initial opportunities for students to apply the information they've gathered from the pre-lecture videos and in-person lectures/lecture videos.

Students are strongly encouraged to complete LeAPs on the same day that the corresponding topic is completed in class. However, to provide consistent due dates, sets of LeAPs will be due on Thursdays at 11:59 PM - Chicago time. See the Weekly Schedules or Course Calendar for specific due dates for each activity.

Each LeAP is worth 5 points. Credit will be awarded based on accuracy. There is no time limit. Students will receive two attempts for each assignment and the highest score will be recorded in the gradebook. LeAPs may consist of multiple-choice, calculation, ranking, choose all that apply, and fill in the blank type questions.

This quiz was locked Oct 7, 2024 at 11:59pm.

## Attempt History

	Attempt	Time	Score
LATEST	<u>Attempt 1</u>	467 minutes	5 out of 5

🚫 Correct answers are hidden.

Score for this attempt: 5 out of 5

Submitted Oct 2, 2024 at 9:16pm

This attempt took 467 minutes.



Question 1

0.5 / 0.5 pts

Which electrophiles CANNOT proceed through an E1 mechanism? **Choose all that apply.**

(Hint: Draw out the skeletal structures for the molecules.)

- ☒ Chloromethane
- ☒ 1-chloro-4-methylhexane

☐ 5-chloro-2,2-dimethylhexane

☐ 3-chloro-3-ethylhexane



### Question 2

0.5 / 0.5 pts

During an E1 mechanism, the H atom is always removed from the carbon next to the carbocation ( $\beta$  position). Which "rule" should be followed to determine which  $\beta$  carbon should be deprotonated and where the alkene will form in the major product of an E1 reaction?

☒ Zaitzev

☐ Hammond Rule

☐ Gibbs Rule

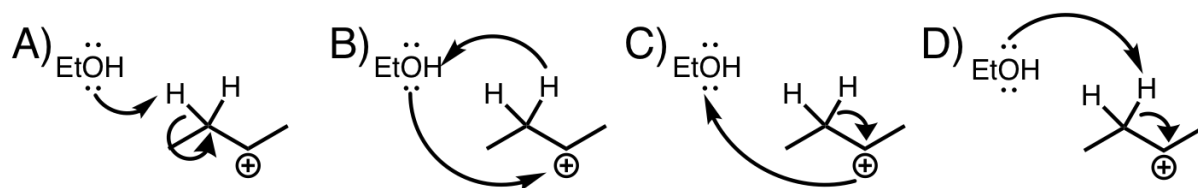
☐ Newman's Rule



### Question 3

0.5 / 0.5 pts

Which answer correctly shows the **second step** of an E1 mechanism?



☐ A

☐ B

☐ C

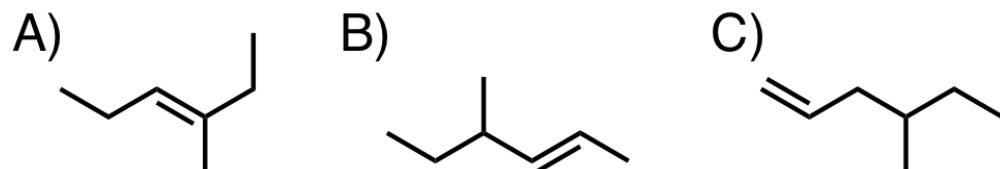
☒ D



### Question 4

1 / 1 pts

Rank the alkenes from most stable (1) to least stable (3).



1

Alkene A



2

Alkene B



3

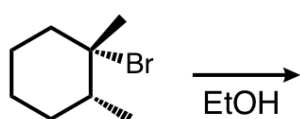
Alkene C



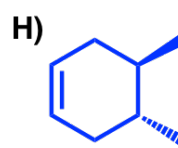
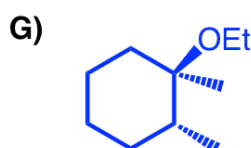
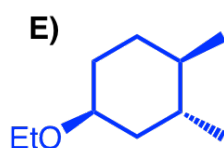
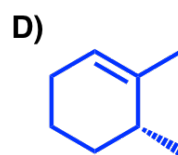
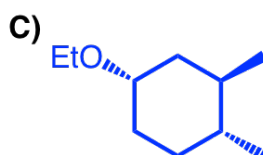
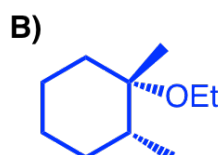
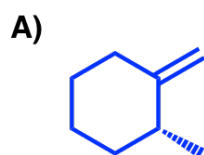
Question 5

1 / 1 pts

As we've seen, SN1/E1 reactions can be quite messy and can generate multiple products. Consider the reaction shown below in order to answer questions 5-6.



Identify ALL possible elimination and substitution products that can be formed from the given reagents. **Choose all that apply.** (Hint: There are 5 possible products.)

☒ A☒ B☐ C☒ D☐ E☒ F☒ G☐ H

Question 6

0.5 / 0.5 pts

Which product will be the major elimination product of the reaction?

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E
- ☒ F
- ☐ G
- ☐ H



#### Question 7

0.5 / 0.5 pts

Why do carbocation rearrangements occur? **Choose all that apply.**

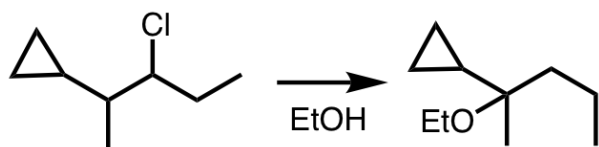
- ☒ A more stable carbocation can be formed.
- ☒ Ring strain can be reduced.
- ☐ They allow the nucleophile to attack faster.
- ☐ They proceed through homolytic cleavage when the bond breaks.



#### Question 8

0.5 / 0.5 pts

What type of carbocation rearrangement has taken place over the course of the reaction?



- ☒ Hydride shift
- ☐ Methyl shift
- ☐ Ring expansion
- ☐ Transannular shift

Quiz Score: 5 out of 5