

# LeAP: Alkynes

- Due Dec 5, 2024 at 11:59pm
- Points 5
- Questions 9
- Available Nov 3, 2024 at 12am - Dec 9, 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 Dec 9, 2024 at 11:59pm.

## Attempt History

	Attempt	Time	Score
LATEST	<u>Attempt 1</u>	44 minutes	5 out of 5

⚠ Correct answers are hidden.

Score for this attempt: 5 out of 5

Submitted Dec 5, 2024 at 11:03am

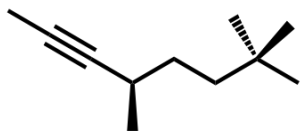
This attempt took 44 minutes.



Question 1

0.5 / 0.5 pts

Type the name of the molecule in the box. Remember to include RS and/or EZ in parenthesis [ex. (R) or (Z) or (R,Z)] at the beginning of the name to define stereochemistry. RS should be listed before EZ.



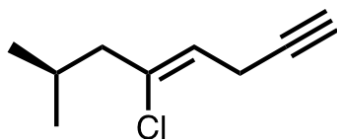
(R)-4,7,7-trimethyl-2-octyne



### Question 2

0.5 / 0.5 pts

Type the name of the molecule in the box. Remember to include RS and/or EZ in parenthesis [ex. (R) or (Z) or (R,Z)] at the beginning of the name to define stereochemistry. RS should be listed before EZ.



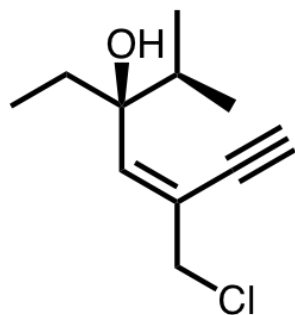
(Z)-5-chloro-7-methyl-4-octen-1-yne



### Question 3

0.5 / 0.5 pts

Name the molecule shown below.



- ☐ (R,Z)-5-(chloromethyl)-3-ethyl-2-methylhept-4-en-6-yn-3-ol
- ☐ (S,E)-3-(chloromethyl)-5-ethyl-6-methylhept-3-en-1-yn-5-ol
- ☐ (R,Z)-3-(chloromethyl)-5-ethyl-6-methylhept-3-en-1-yn-5-ol
- ☒ (S,E)-5-(chloromethyl)-3-ethyl-2-methylhept-4-en-6-yn-3-ol



### Question 4

0.5 / 0.5 pts

What is the best electrophile to use to make 5,5-dimethyl-2-hexyne through E2 reactions?

- ☐ 3,4-dibromo-2,2-dimethylhexane
- ☐ 3,5-dibromo-2,2-dimethylhexane

☐ 4,4-dibromo-2,2-dimethylhexane

☒ 4,5-dibromo-2,2-dimethylhexane



Question 5

0.5 / 0.5 pts

Which bases can be used to deprotonate a terminal alkyne? **Choose all that apply.**

☒ NaH

☒ NaNH<sub>2</sub>

☐ HP(CH<sub>3</sub>)<sub>2</sub>

☐ KOC(CH<sub>3</sub>)<sub>3</sub>



Question 6

0.5 / 0.5 pts

Terminal alkynes (HCCR) can be converted to organometallic reagents through deprotonation with a strong base. Which electrophile shown below **WILL NOT** result in a new C-C sigma bond during a reaction with a terminal alkyne organometallic reagent?

☐ Epoxide

☐ Aldehyde

☒ 2-Iodopropane

☐ 1-Iodopropane



Question 7

0.5 / 0.5 pts

A terminal alkyne (RC≡CH) is exposed to excess HBr. What rule should be followed to determine the placement of the halogen atoms in the product?

☐ Hofmann's rule

☐ Zaitzev's rule

☒ Markovnikov rule

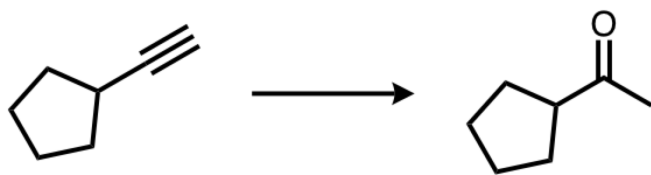
☐ Anti-Markovnikov rule



Question 8

0.5 / 0.5 pts

Which set of reagents should be used to form the product shown below?



☐ 1.  $\text{HB}(\text{C}_6\text{H}_{11})_2$ ; 2.  $\text{H}_2\text{O}_2$ ,  $\text{NaOH}$

☒  $\text{H}_2\text{O}$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{HgSO}_4$

☐  $\text{H}_2\text{O}$ ,  $\text{H}_2\text{SO}_4$

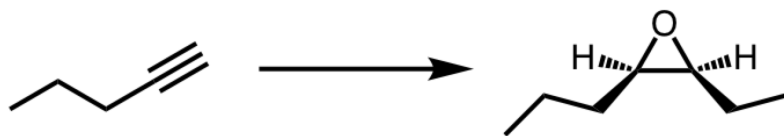
☐ Heat,  $\text{NaOH}$



Question 9

1 / 1 pts

Which reagent(s) **IS NOT** used in the synthesis problem shown below?



Note: This synthesis problem involves both alkene and alkyne reactions. If you're not sure how to start, make a list of objectives based on the changes you observe. Then consider the reagent options listed below, and use your notes to determine what each reagent does.

☐ 1-Iodoethane

☐ mCPBA

☒  $\text{Na}$ ,  $\text{NH}_3$

☐  $\text{NaH}$

☐  $\text{H}_2$ ,  $\text{Pb}(\text{OAc})_2$ ,  $\text{Pd}/\text{CaCO}_3$ , quinoline

Quiz Score: 5 out of 5