

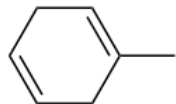
Organic Chemistry II CHM 3150
Dr. Laurie S. Starkey, Cal Poly Pomona
Chapter 16, Conjugated Dienes, Part 1 – [Practice Problems](#)

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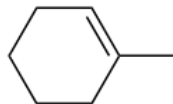


1

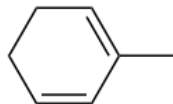
Arrange the following compounds in order of INCREASINGLY NEGATIVE heats of hydrogenation (from smallest ΔH to largest).



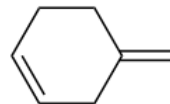
I



II



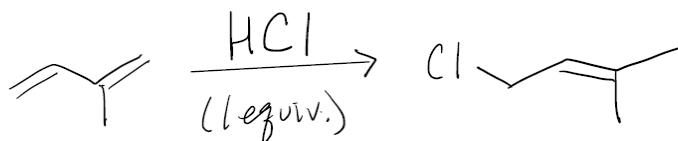
III



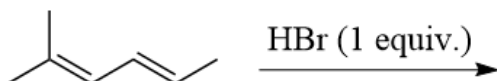
IV

2

Which of the following is an intermediate or likely step in the mechanism for the given reaction?

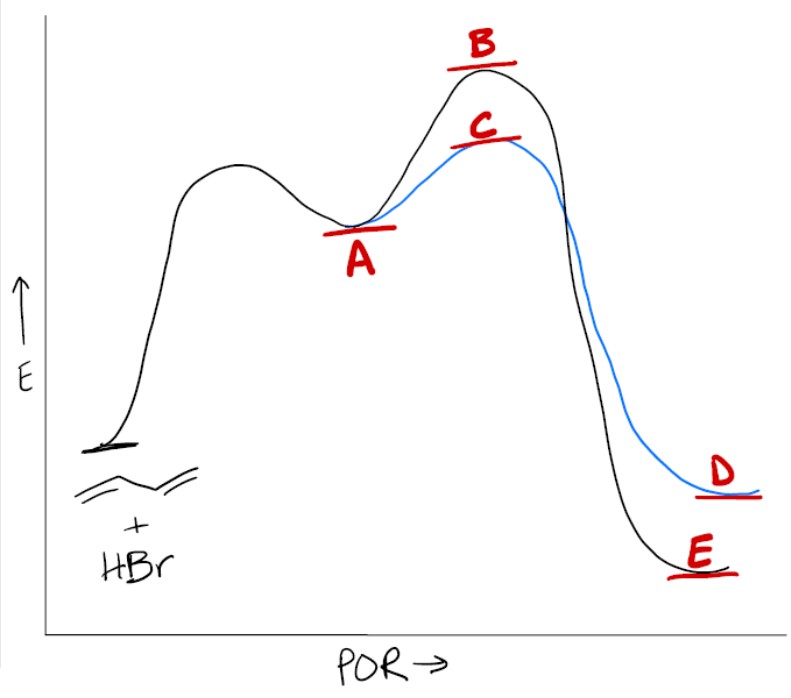
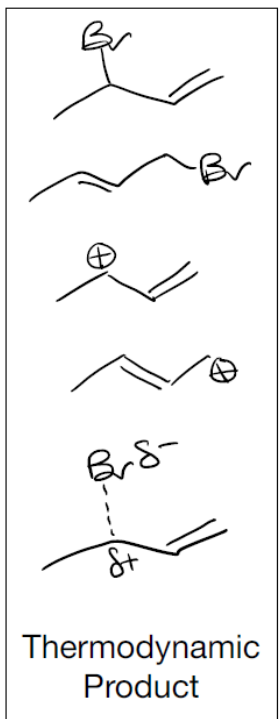


3 Predict the major **1,4-addition** product expected.



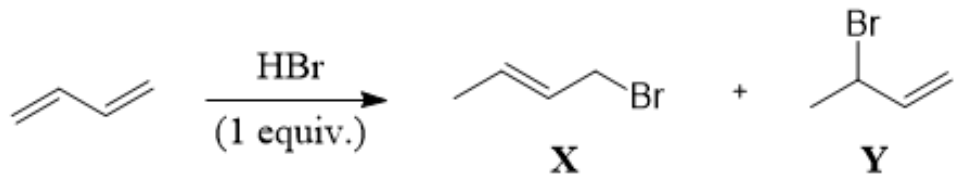
Locate each of the following species on the given reaction coordinate diagram.

4

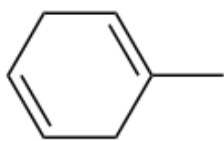


5

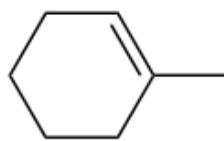
Identify the kinetic and thermodynamic products, and determine which would be favored in hot temperatures and which is favored in cold temperatures. Explain.



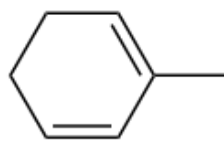
1 Arrange the following compounds in order of INCREASINGLY NEGATIVE heats of hydrogenation (from smallest ΔH to largest).



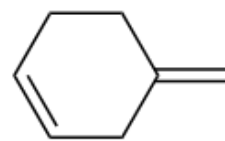
I



II



III



IV

A) III < I < IV < II

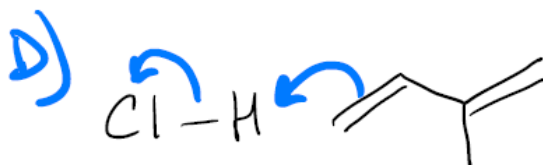
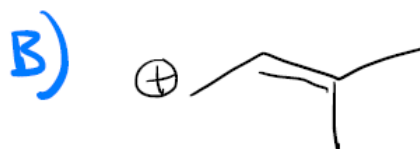
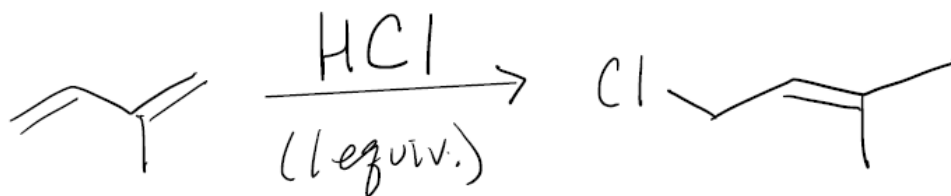
B) II < III < I < IV

C) IV < II < I < III

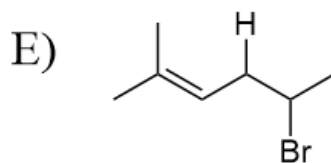
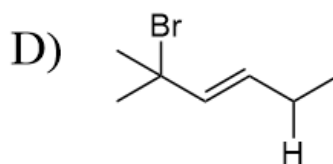
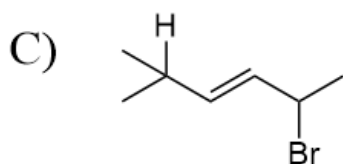
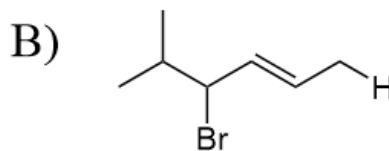
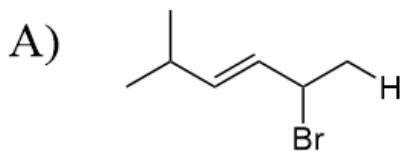
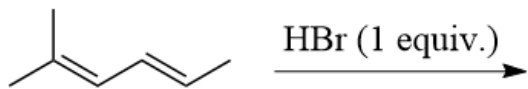
D) II < IV < I < III

E) III < I < II < IV

2 Which of the following is an intermediate or likely step in the mechanism for the given reaction?

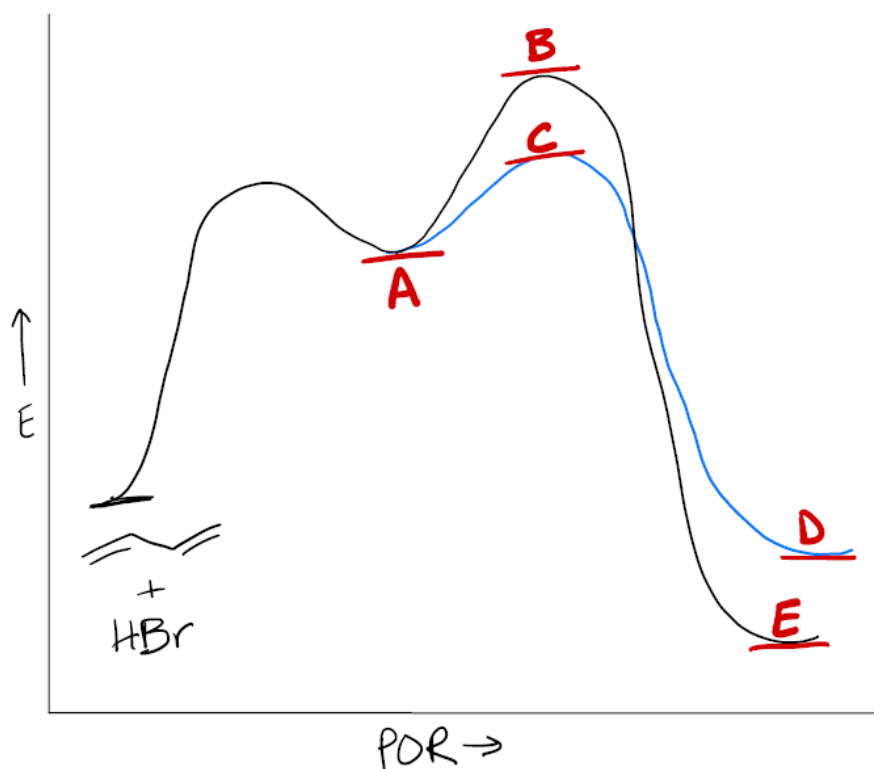
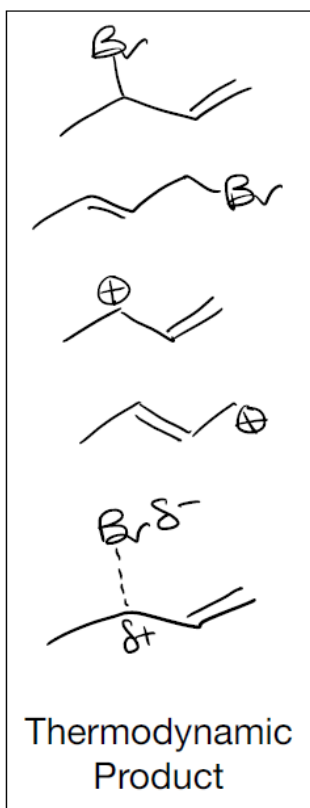


3 Predict the major **1,4-addition** product expected.

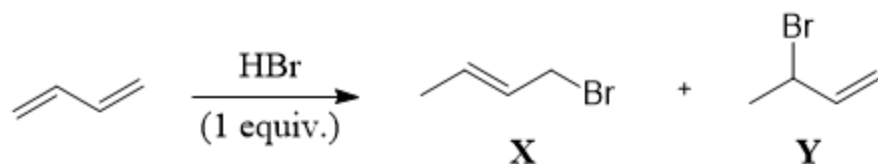


4

Locate each of the following species on the given reaction coordinate diagram.



5



Which of the statements below is NOT true?

- A) **X** is favored at high temperatures, because it is the more stable product.
- B) **Y** is formed faster because it comes from the more stable carbocation intermediate.
- C) **Y** is the kinetic product.
- D) **X** is the thermodynamic product.
- E) None of the above (all statements are true).