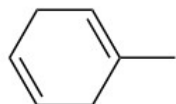


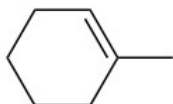


1

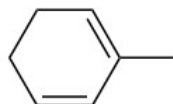
Arrange the following compounds in order of INCREASINGLY
NEGATIVE heats of hydrogenation (from smallest ΔH to largest).



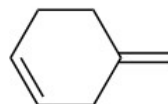
I



II



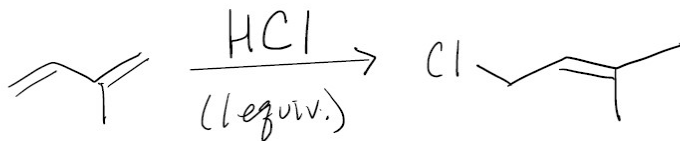
III



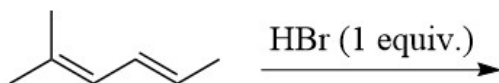
IV

2

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

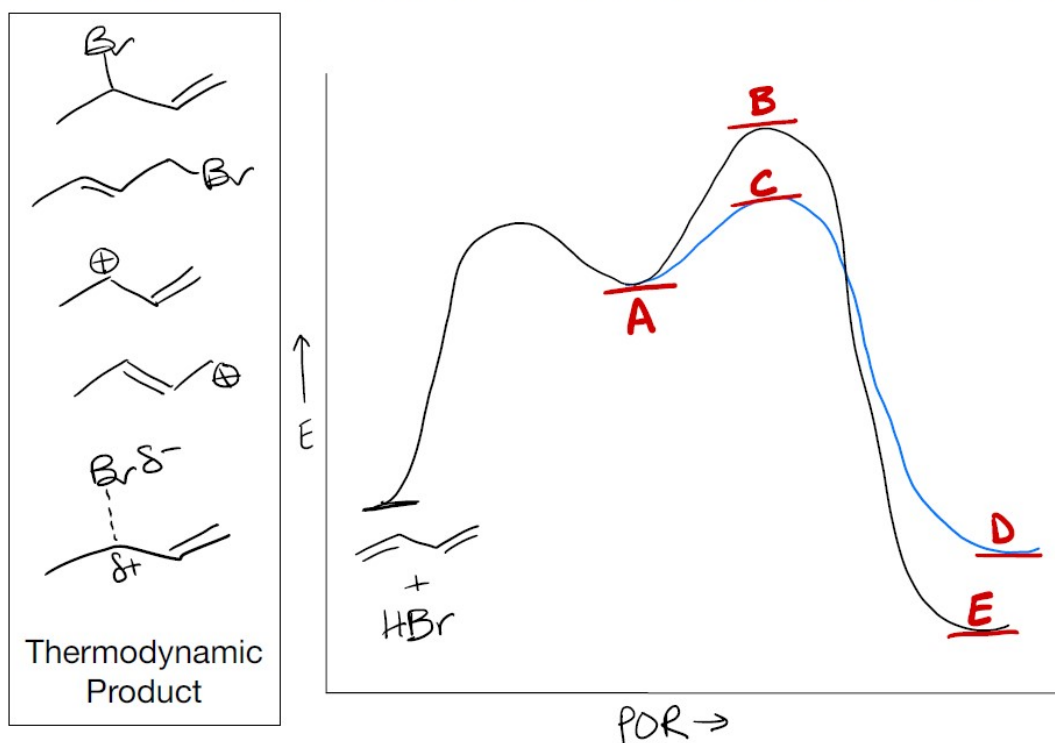


3 Predict the major **1,4-addition** product expected.



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.

