

NAME (Print): _____

SIGNATURE: _____

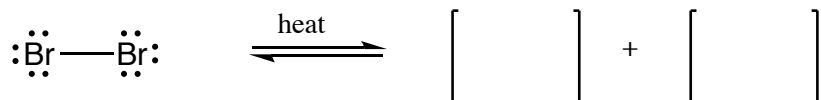
**Chemistry 320M/328M
Dr. Brent Iverson
3rd Midterm Practice
November 8, 2022**

**Please print the
first three letters
of your last name
in the three boxes**

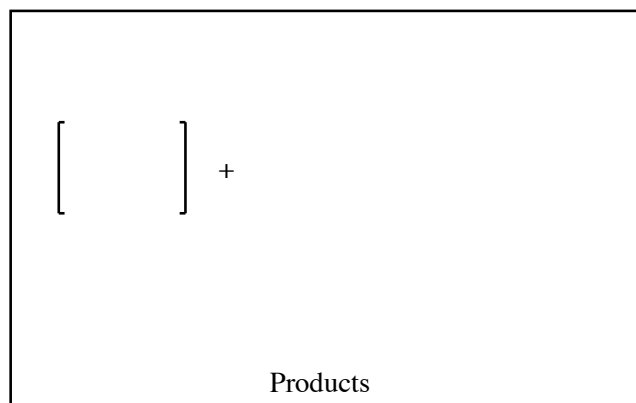
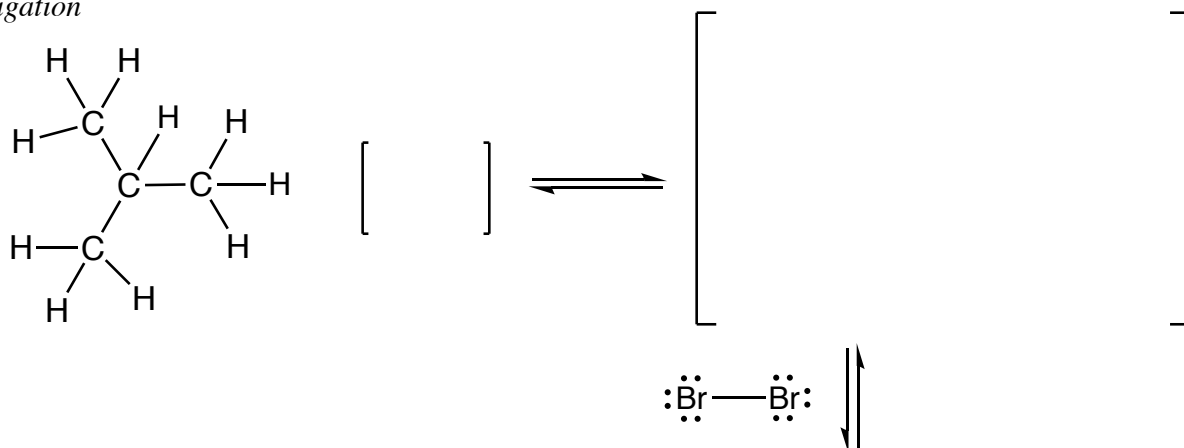
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1 Complete the following initiation and propagation steps for the halogenation of an alkane via a free radical chain reaction mechanism. Use appropriate arrows to show movement of electron density, and show all non-bonding electrons as dots and show any formal charges. Note that you do not need to draw any termination steps.

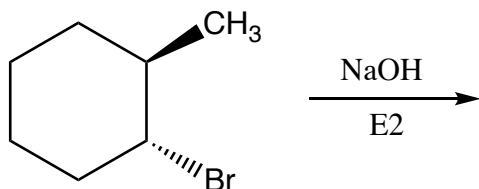
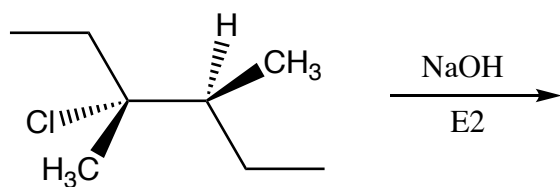
Initiation



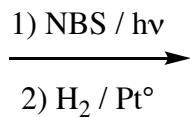
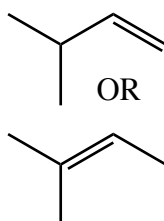
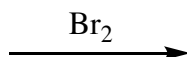
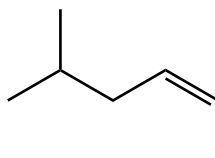
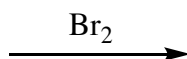
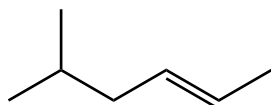
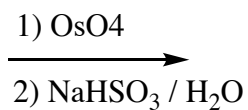
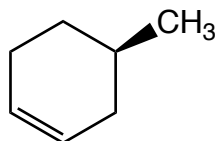
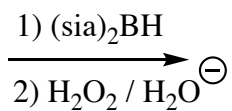
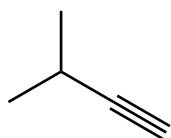
Propagation



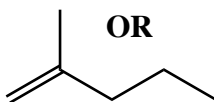
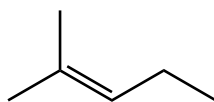
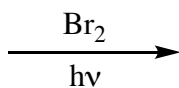
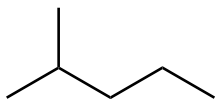
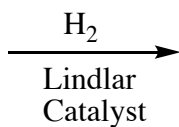
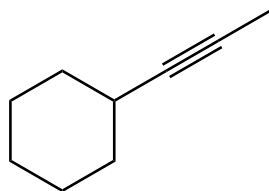
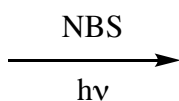
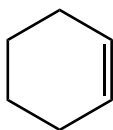
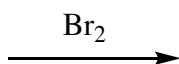
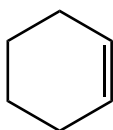
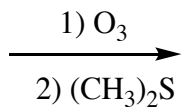
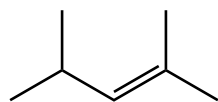
2. Draw the predominant products from these E2 reactions.



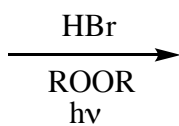
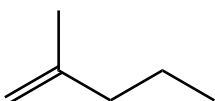
3. Fill in the boxes with the structures that complete the reactions. Use wedges and dashes to indicate stereochemistry when appropriate. This format is intended to get you more comfortable with working backwards in synthesis problems.



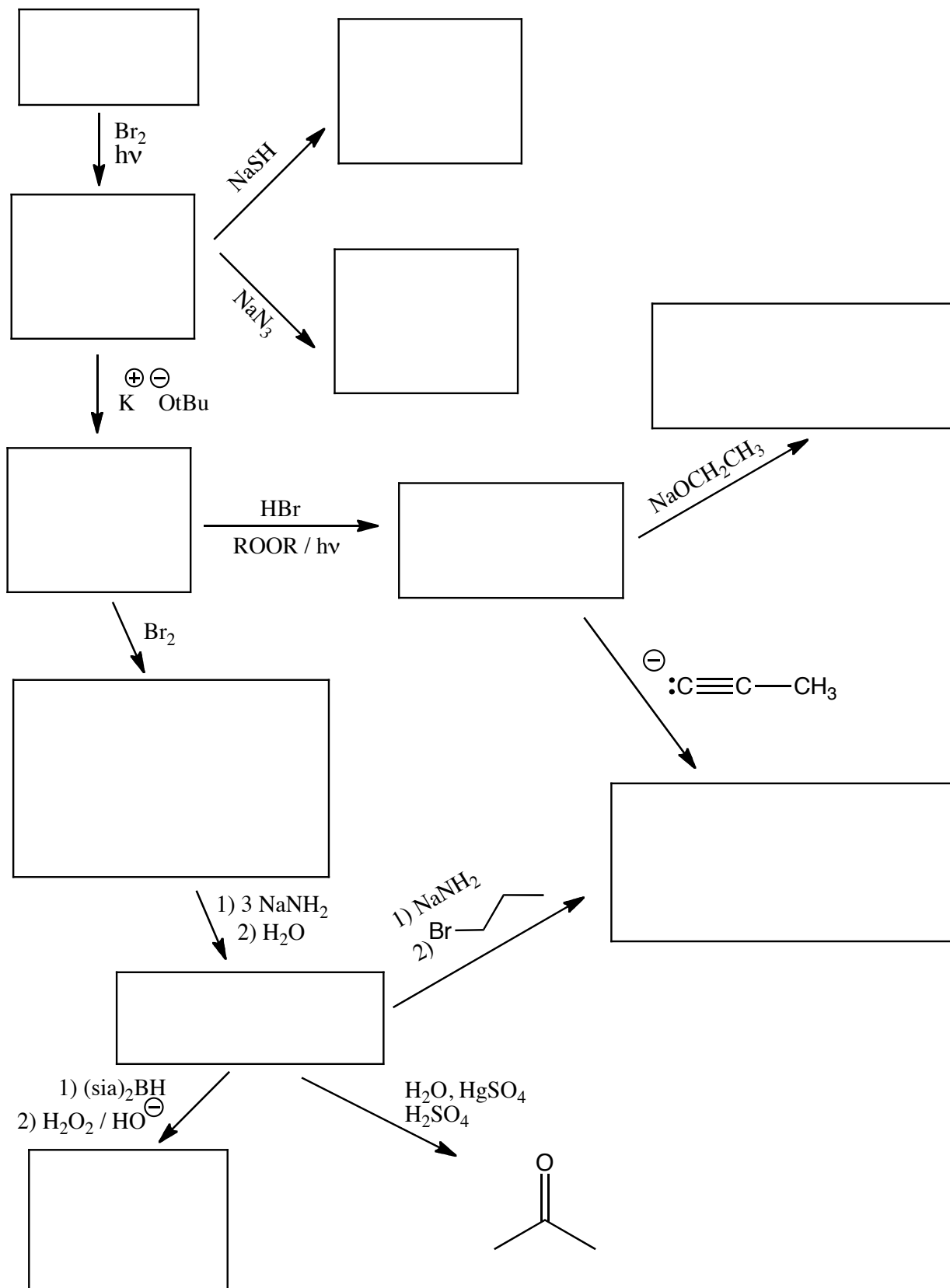
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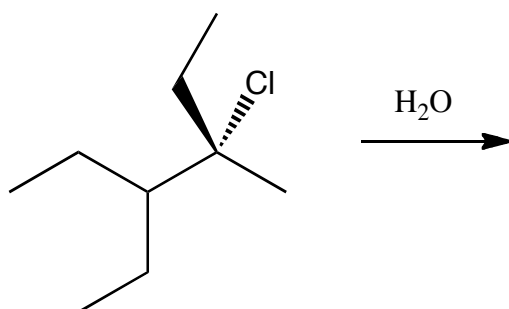
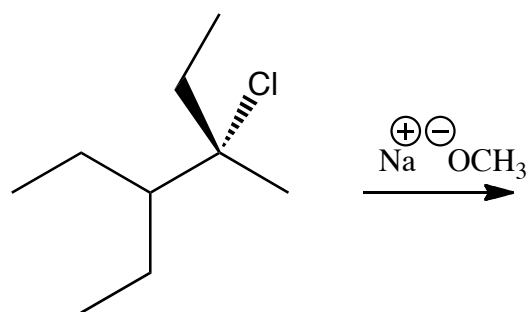
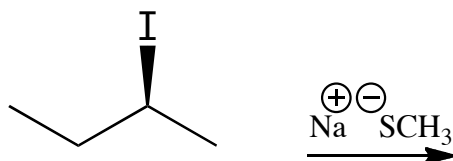
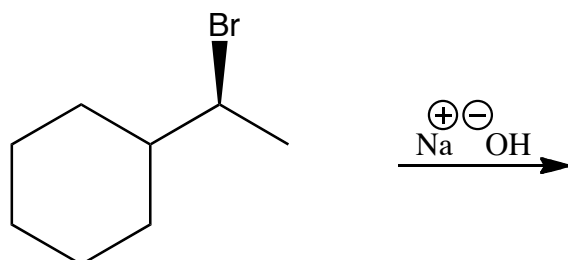
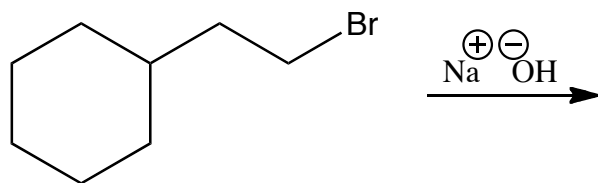
OR



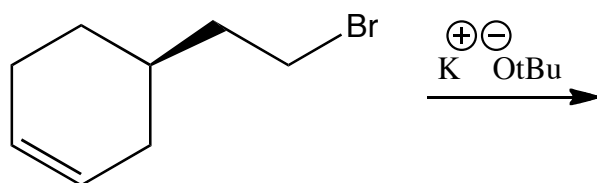
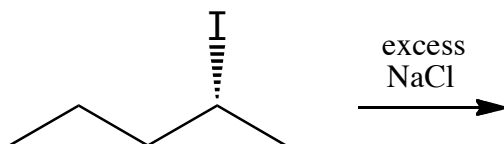
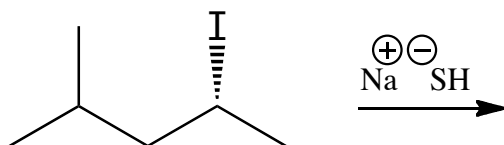
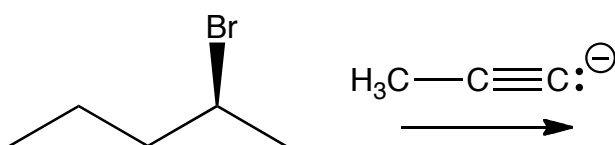
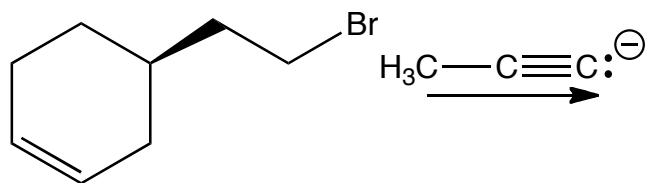
5. For the following, fill in the boxes with the product or products that are appropriate. You must indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.



6. For the following, complete the reactions with the predominant product or products. You must indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.

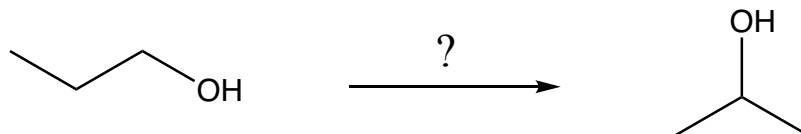


7. For the following, complete the reactions with the predominant product or products. You must indicate stereochemistry with wedges and dashes. If a racemic mixture is created, you must write "racemic" under the structures.



8. These are synthesis questions. You need to show how the starting material can be converted into the product(s) shown. You may use any reactions we have learned. Show all the reagents you need. Show each molecule synthesized along the way and be sure to pay attention to the regiochemistry and stereochemistry preferences for each reaction because only predominant products can be used. All the carbon atoms of the product(s) must come from the starting material(s) shown.

A) 7 pts



B) 13 pts

