NAME (Print): _____

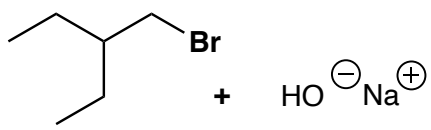
SIGNATURE: _____

Chemistry 320M/328M
Dr. Brent Iverson
9th Homework
November 5, 2025

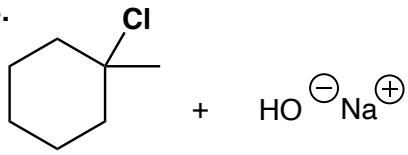
Please print the first three letters of your last name in the three boxes

1. (5 or 6 pts) The following reactions all involve chemistry of haloalkanes. **Fill in the box above the arrow with the mechanism that will be followed (S_N2, E2, etc.)**. **Then draw only the predominant product or products** and please remember that **you must draw the correct stereoisomers**. For S_N1/E1 reactions you must draw all significant products (including all stereoisomers).

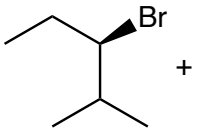
A.



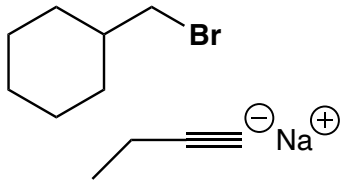
B.



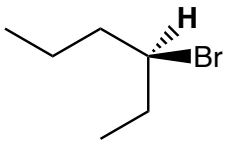
C.



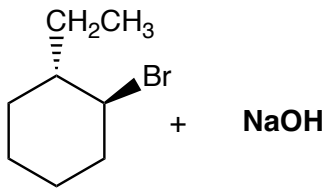
D.



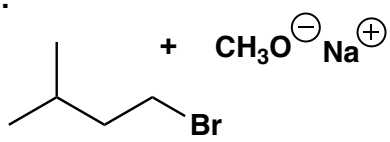
E.



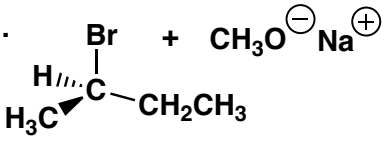
F.


CH2CH3
Br
+ NaOH

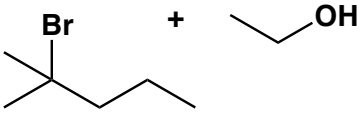
G.


+ CH3O Na
Br

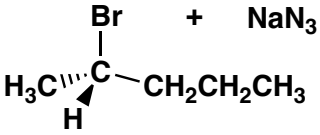
H.


Br
+ CH3O Na
H
C
H3C
CH2CH3

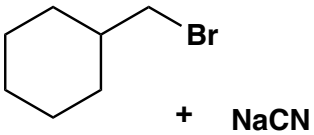
I.


Br
+
OH

J.


Br
+ NaN3
H3C
C
CH2CH2CH3
H

K.


Br
+ NaCN

2. (20 pts) Consider the following statements that refer **S_N1, S_N2, E1, E2**, or a **radical chain reaction** mechanism. Fill in the circles to indicate to which mechanism(s) each statement applies.

A. A reaction in which the predominant product is predicted by Zaitsev's rule.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
B. A reaction observed when tertiary haloalkanes react with any nucleophile that is not a very weak base.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
C. A reaction that involves an anti-periplanar transition state.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
D. A reaction that involves initiation, propagation and termination steps.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
E. A reaction that is favored for secondary haloalkanes when a nucleophile that is NOT a strong base and is also NOT a very weak base is used	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
F. A reaction mechanism that involves a carbocation intermediate.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
G. A reaction mechanism that involves only a transition state, no intermediate.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
H. A reaction that causes InVERSiON of sterechemistry at the site of reaction.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
I. A reaction that will occur when Br_2 and light are used with an alkane.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
J. A reaction that involves initiation, propagation and termination steps.	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**
K. A reaction obeserved when secondary haloalkanes react with a nucleophile that is a very weak base (as solvent).	○ **S_N2** ○ **S_N1**	○ **E2** ○ **E1**	○ **Radical chain reaction**