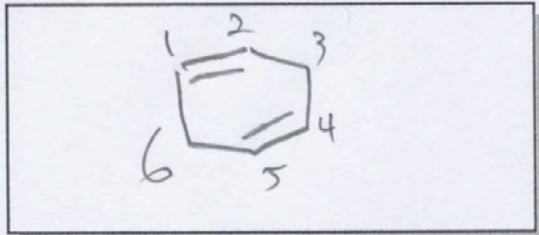
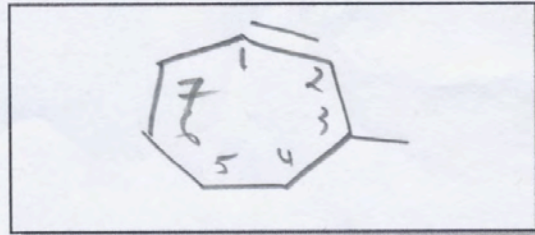


1. (8 Pts total, 2 Pts. each) Draw the structure for the following compounds:

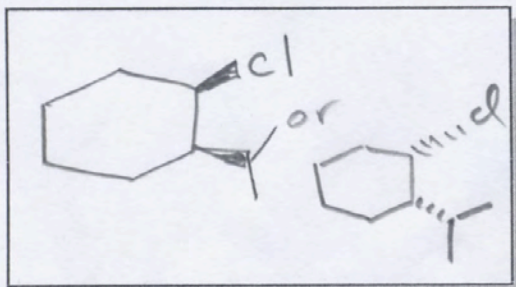
a) 1,4-Cyclohexadiene



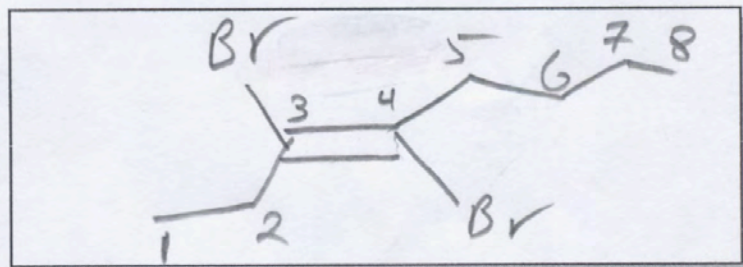
b) 3-Methylcycloheptene



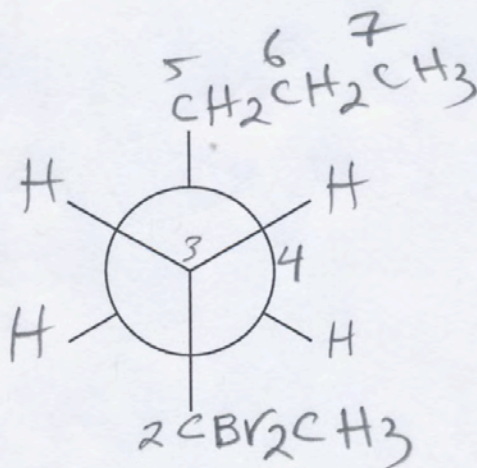
c) *cis*-1-Chloro-2-isopropylcyclohexane



d) *trans*-3,4-Dibromo-3-octene



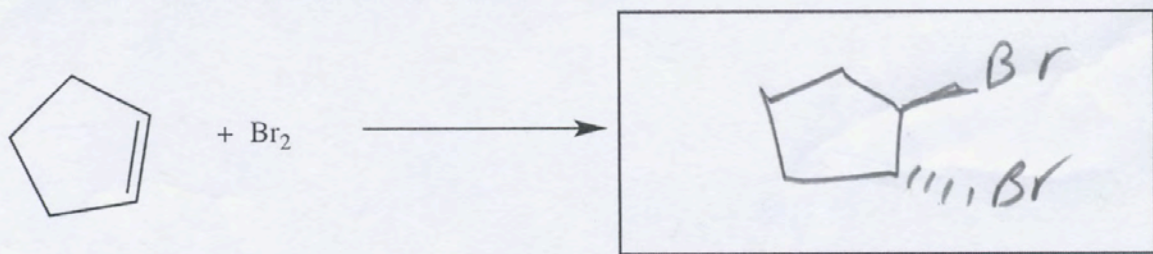
2) (5 Pts) Draw the Newman projection for the most stable conformer of 2,2-dibromoheptane looking from C3 to C4.



Anti

3. (12 Points, Total) For the following reaction:

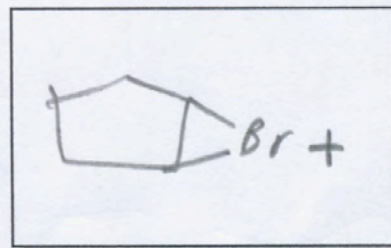
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(Product, 3 Points)

a) (3 Points) Give the product in the provided box above.

b) (3 Points) Provide the structure of the reaction intermediate.



Bromonium ion (3 Points)
(The reaction intermediate)

c) (6 Points) Draw an energy diagram and clearly indicate the position of reactants, product, Activation energy (E_a), heat of reaction (ΔH), and the transition states. The above reaction is an exothermic one.

