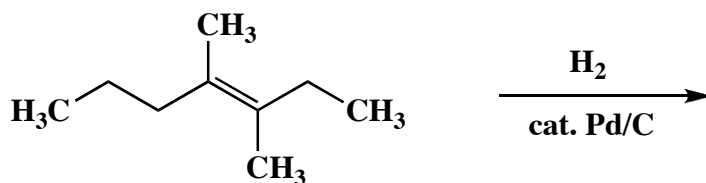


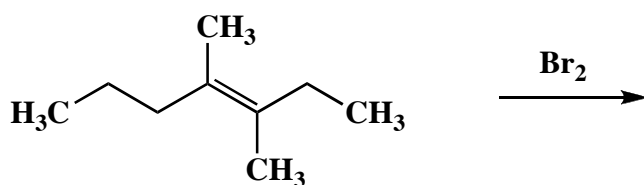
Problem Set 10

1. Draw the structure of the expected major organic product for each of the following four (4) questions. Specify stereochemistry clearly, if relevant.

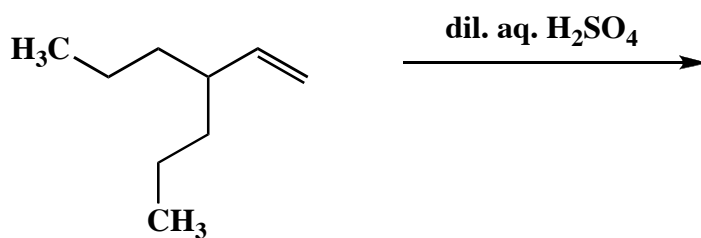
A.



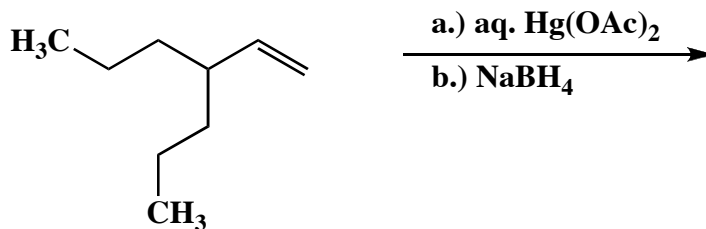
B.



C.



D.



2. Draw a pair of detailed mechanisms to explain why anhydrous hydrogen bromide adds to 1-pentene to afford a racemic mixture of 2-bromopentane, and not 1-bromopentane. Use the curved-arrow notation to indicate the reorganization of electron density. Show all intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or irreversibility in both mechanisms. Finally, describe in detail the mechanistic basis for the observed regio- and stereochemical results.

3. Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Show all intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or irreversibility. Finally, describe in detail why the observed regiochemistry is as shown, why the bromine is *trans* to the hydroxyl, and why a racemic mixture is obtained.

