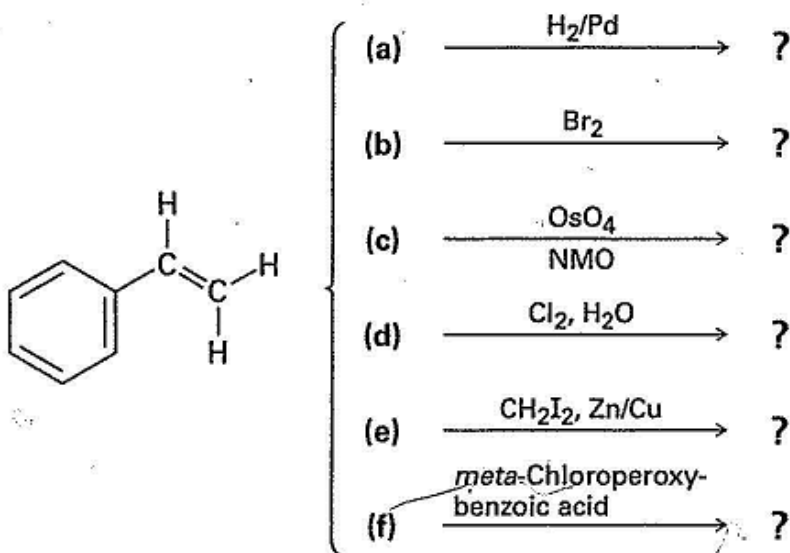


Problem 8.13

What product would you expect from reaction of *cis*-2-butene with *meta*-chloroperoxybenzoic acid? Show the stereochemistry.

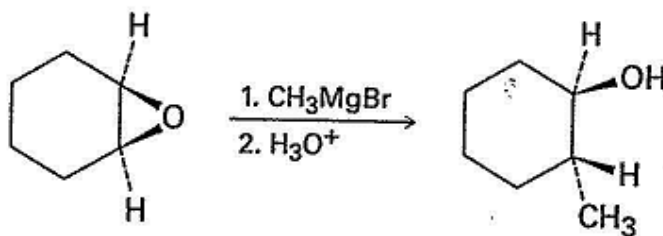
Problem 8.26 (d,f)

Predict the products of the following reactions (the aromatic ring is unreactive in all cases). Indicate regiochemistry when relevant.



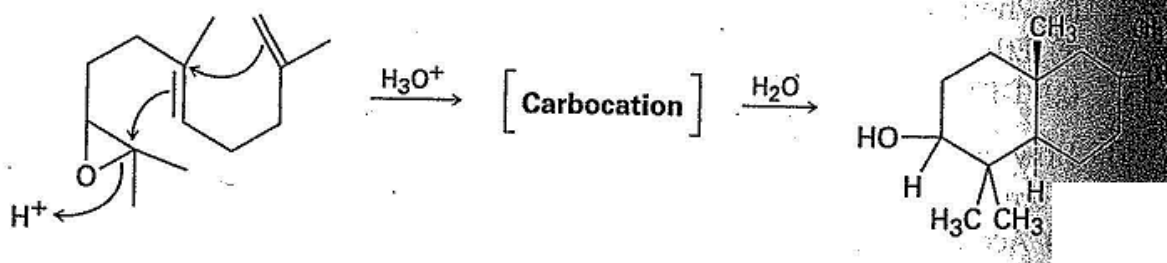
Problem 17.41

Epoxides react with Grignard reagents to yield alcohols. Propose a mechanism.



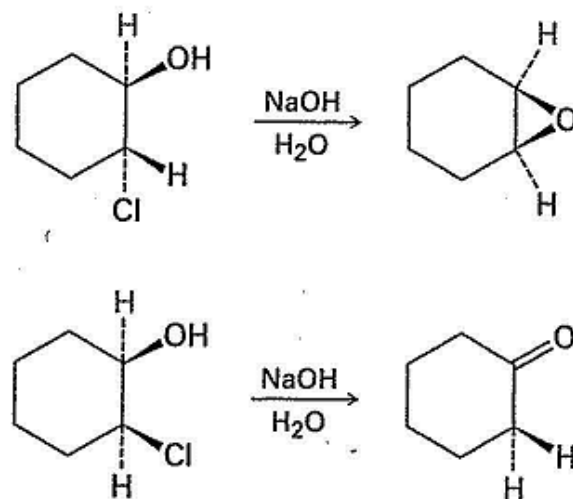
Problem 17.42

Treatment of the following epoxide with aqueous acid produces a carbocation intermediate that reacts with water to give a diol product. Show the structure of the carbocation, and propose a mechanism for the second step.



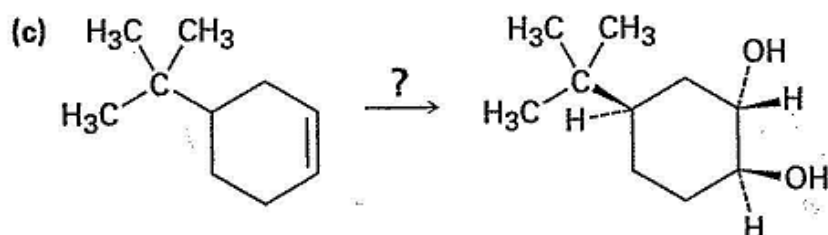
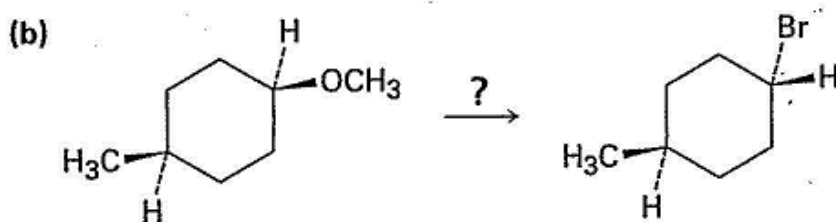
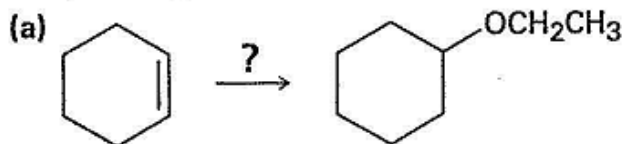
Problem 18.28

Treatment of *trans*-2-chlorocyclohexanol with NaOH yields 1,2-epoxycyclohexane, but reaction of the *cis* isomer under the same conditions yields cyclohexanone. Propose mechanisms for both reactions, and explain why the different results are obtained.



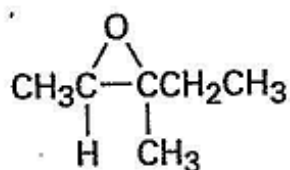
Problem 18.30c

How would you carry out the following transformations? More than one may be required.



Problem 18.35

Imagine that you have treated (2*R*,3*R*)-2,3-epoxy-3-methylpentane with aqueous acid to carry out a ring-opening reaction.



2,3-Epoxy-3-methylpentane
(no stereochemistry implied)

- Draw the epoxide, showing stereochemistry.
- Draw and name the product, showing stereochemistry.
- Is the product chiral? Explain.
- Is the product optically active? Explain.

Problem 18.36

Epoxides are reduced by treatment with lithium aluminum hydride to yield alcohols. Propose a mechanism for this reaction.

