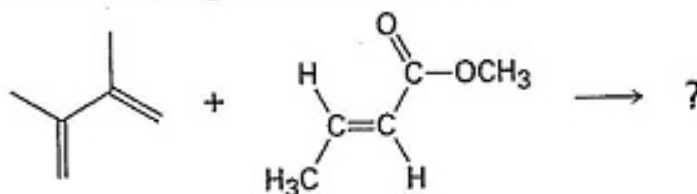


Problem 14.7

Predict the product of the following Diels-Alder reaction:

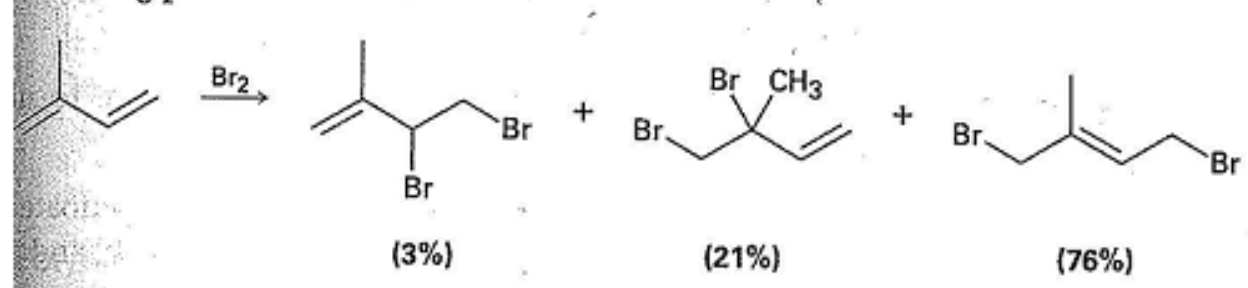
**Problem 14.22**

What product(s) would you expect to obtain from reaction of 1,3-cyclohexadiene with each of the following?

- | | |
|--|--|
| (a) 1 mol Br ₂ in CH ₂ Cl ₂ | (b) O ₃ followed by Zn |
| (c) 1 mol HCl in ether | (d) 1 mol DCl in ether |
| (e) 3-Buten-2-one (H ₂ C=CHCOCH ₃) | (f) Excess OsO ₄ , followed by NaHSO ₃ |

Problem 14.23

Electrophilic addition of Br₂ to isoprene (2-methyl-1,3-butadiene) yields the following product mixture:



Of the 1,2-addition products, explain why 3,4-dibromo-3-methyl-1-butene (21%) predominates over 3,4-dibromo-2-methyl-1-butene (3%).