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Chemistry Class 12 NCERT Solutions: Chapter 10 Haloalkanes and Haloarenes Part 6

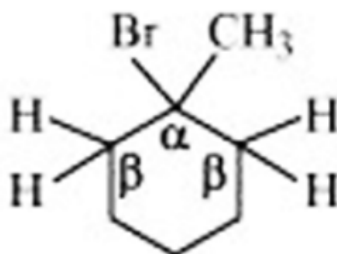
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Q: 10. Predict all the alkenes that would be formed by dehydrohalogenation of the following halides with sodium Ethoxide in ethanol and identify the major alkene:

- (i) 1-Bromo-1-methylcyclohexane
- (ii) 2-Chloro-2-methylbutane
- (iii) 2,2, 3-Trimethyl-3-bromopentane.

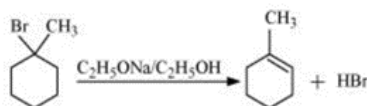
Answer:

(i)

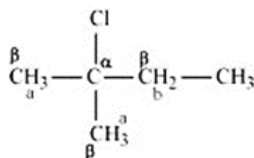


1 – bromo – 1 – methylcyclohexane

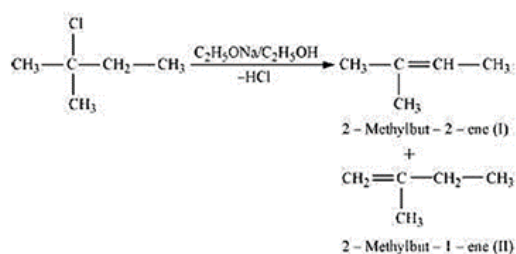
In the given compound, all β -hydrogen atoms are equivalent. Thus, dehydrohalogenation of this compound gives only one alkene.



(ii)



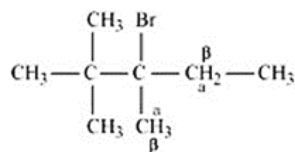
In the given compound, there are two different sets of equivalent β -hydrogen atoms labelled as a and b. Thus, dehydrohalogenation of the compound yields two alkenes.



Saytzeff's rule implies that in dehydrohalogenation reactions, the alkene having a greater number of alkyl groups attached to a doubly bonded carbon atoms is preferably produced.

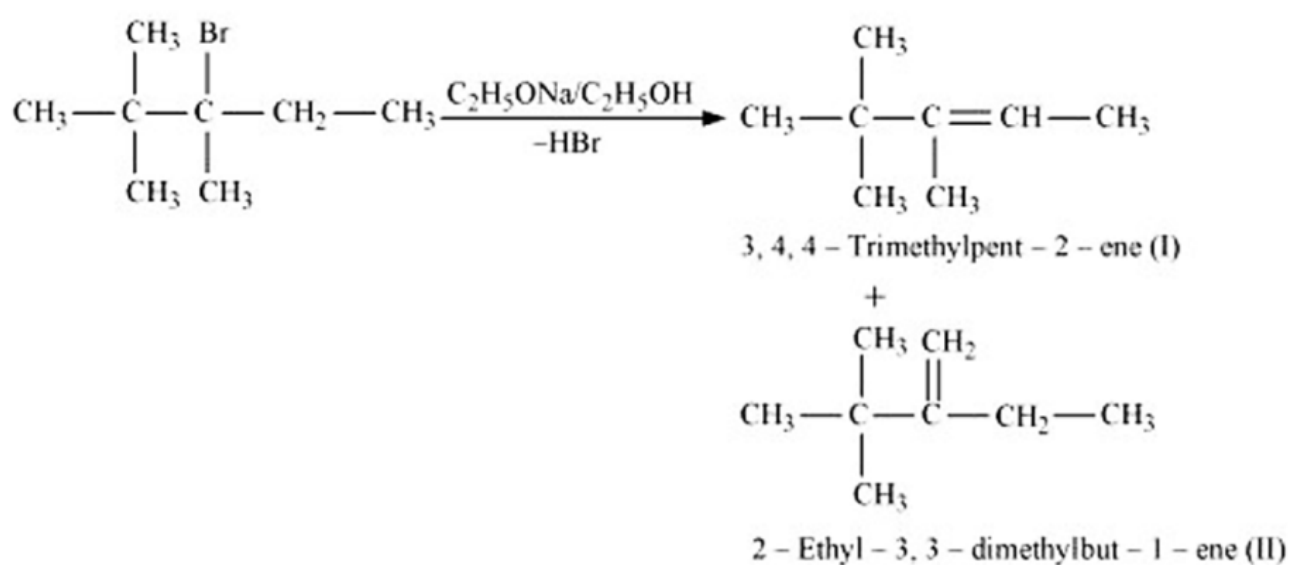
Therefore, alkene (I) i.e., 2-methylbut-2-ene is the major product in this reaction.

(iii)



2,2, 3-Trimethyl-3-bromopentane

In the given compound, there are two different sets of equivalent β -hydrogen atoms labelled as a and b. Thus, dehydrohalogenation of the compound yields two alkenes.



According to Saytzeff's rule, in dehydrohalogenation reactions, the alkene having a greater number of alkyl groups attached to the doubly bonded carbon atom is preferably formed.

Hence, alkene (I) i.e., 3,4,4-trimethylpent-2-ene is the major product in this reaction.