

Chapter 08 Worksheet 02

Alkene Reactions

Give the name of the reaction and describe what the following reactions do. Also, state whether the resulting product follows Markovnikov's rule, if it is syn or anti addition, and whether or not a carbocation is formed during the reaction (which could lead to rearrangement).

1.



Name:

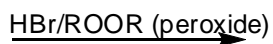
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

2.



Name:

Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

3.



Name:

Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

4.



Name:

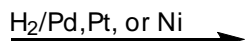
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

5.



Name:

Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

6.



Name:

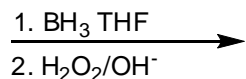
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

7.



Name:

Description:

Markovnikov / Anti-Markovnikov:

8.
$$\begin{array}{l} \xrightarrow{1. \text{Hg(OAc)}_2/\text{H}_2\text{O}} \\ \xrightarrow{2. \text{NaBH}_4} \end{array}$$
9.
$$\begin{array}{l} \xrightarrow{1. \text{Hg(OAc)}_2/\text{ROH}} \\ \xrightarrow{2. \text{NaBH}_4} \end{array}$$
10.
$$\begin{array}{l} \xrightarrow{\text{KMnO}_4} \\ \text{cold, OH}^- \text{ (basic)} \end{array}$$
11.
$$\begin{array}{l} \xrightarrow{\text{OsO}_4} \\ \text{H}_2\text{O}_2 \end{array}$$
12.
$$\begin{array}{l} \xrightarrow{\text{KMnO}_4} \\ \text{warm (conc.)} \end{array}$$
13.
$$\begin{array}{l} \xrightarrow{1. \text{O}_3} \\ \xrightarrow{2. \text{DMS}} \end{array}$$
14.
$$\xrightarrow{\text{H}-\ddot{\text{C}}-\text{H}}$$

Syn / Anti-Addition:

Carbocation formed?

Name:

Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

Name:

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Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

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Syn / Anti-Addition:

Carbocation formed?

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Description:

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Syn / Anti-Addition:

Carbocation formed?

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Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

Name:

Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

Name:

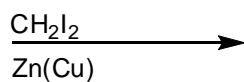
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

15.



Name:

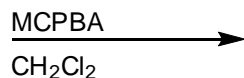
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

16.



Name:

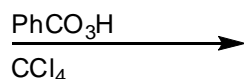
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

17.



Name:

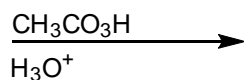
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

18.



Name:

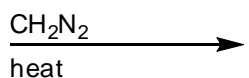
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

19.



Name:

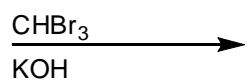
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

20.



Name:

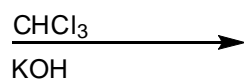
Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?

21.



Name:

Description:

Markovnikov / Anti-Markovnikov:

Syn / Anti-Addition:

Carbocation formed?