Questions on
Reactive Intermediates: Carbocations (carbenium and carbonium ions)

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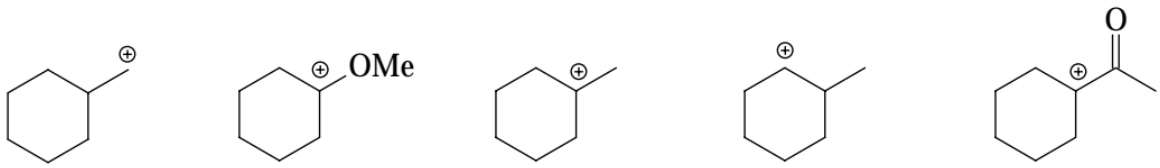
Dated: 23-09-2023 (Saturday)

Q1.

Which carbocation is the most stable?

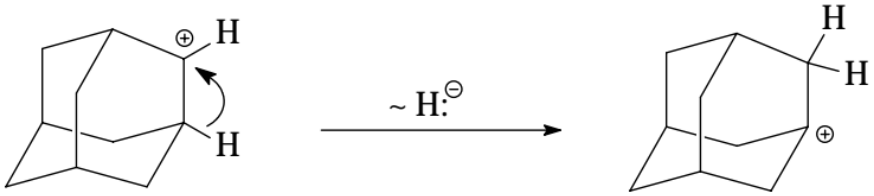


Q2.

Draw the *most stable intermediate* in the following reaction:

Q3.

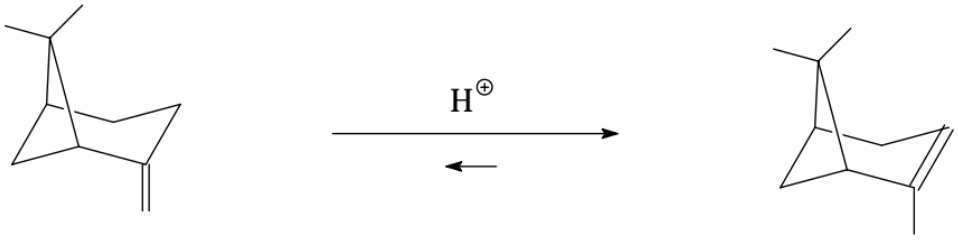
The following 1,2-hydride shift does not occur. Why?



adamantyl carbocation

Q4.

Why, and how, does *β-pinene* readily isomerize to *α-pinene* in the presence of an acid catalyst?

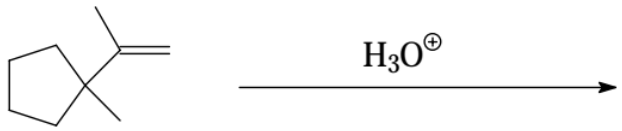


β-pinene

α-pinene

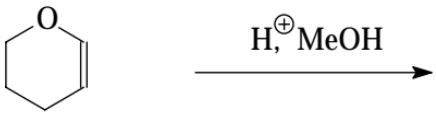
Q5. *Draw the structural formula of the major organic product(s).*

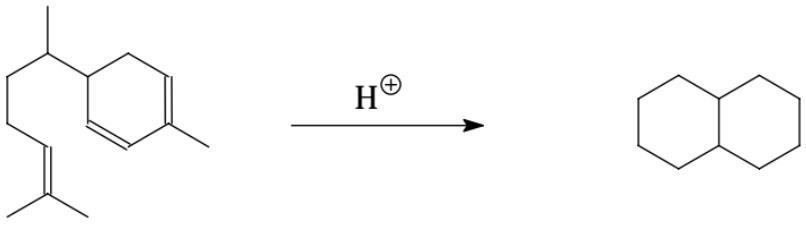
a) 

b) 

c) 

d) 

e) 

f) 

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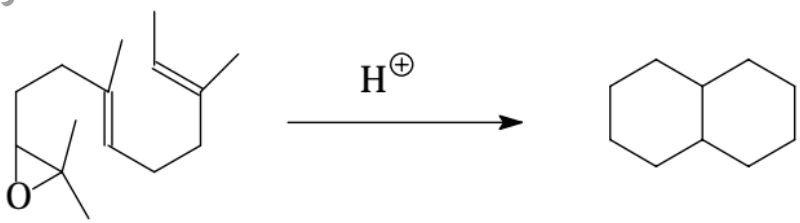
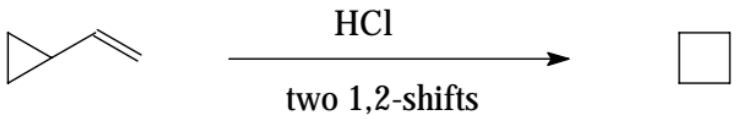
g) 

(complete)

h)

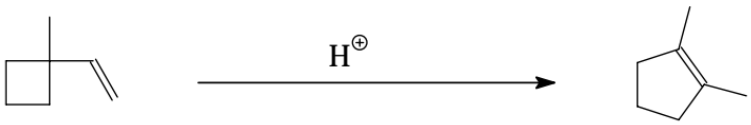


(complete)

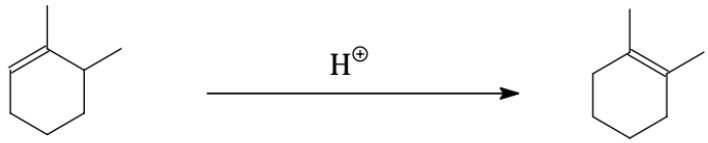
Q6.

Outline a detailed mechanism for each of the following. No other reagents than those given are necessary. Use arrows to explain the flow of electrons and show all intermediates. NO WORDS!

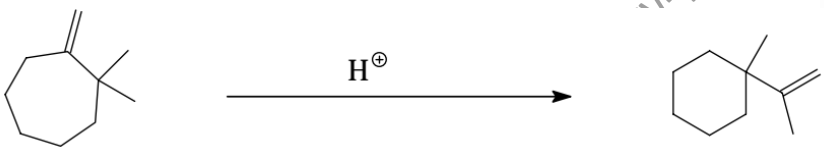
a)



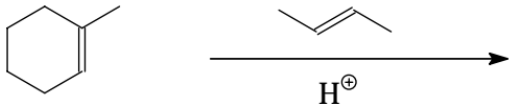
b)



c)

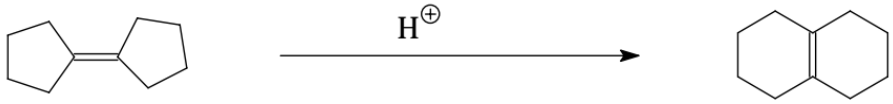


d)

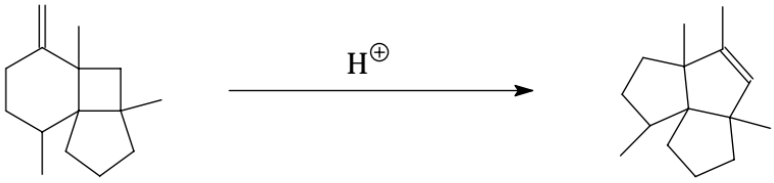


(*a C_{11} olefin*)

e)

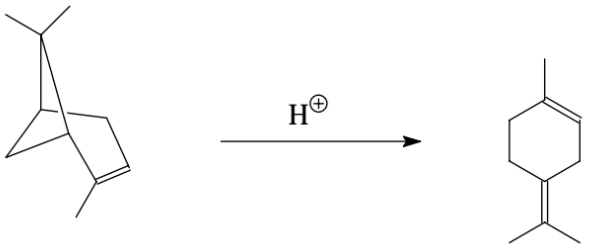


f)

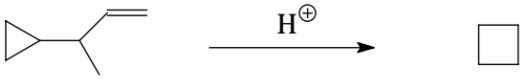


isocomene (from goldenrod)

g)



h)



(an olefin - complete)

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