

Last Name:

First Name:

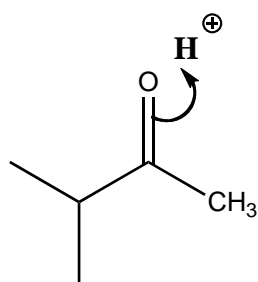
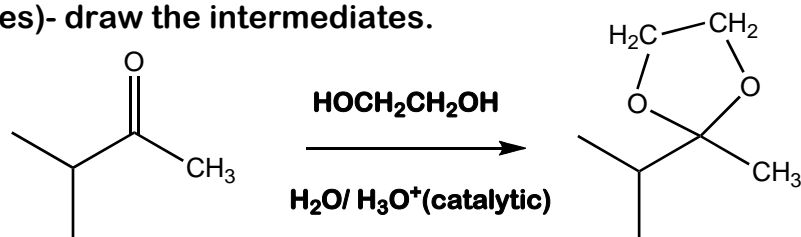
UTEID:

SCORE:

POW 5 CH 310N

Due October 5, 2009

Mechanism: Provide a mechanism for the following transformation. Show all important flows of electrons, charges and intermediates. Where indicated, (in the structure boxes)- draw the intermediates.



First Step

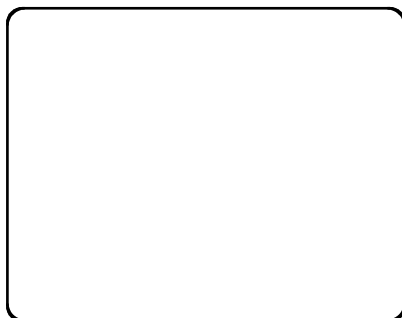
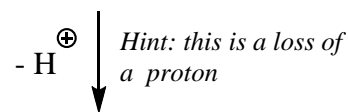


Protonated ketone intermediate

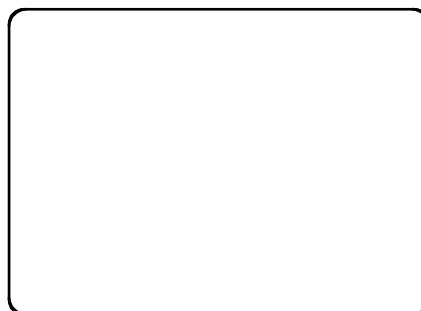
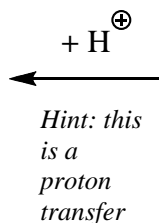


Tetrahedral Intermediate

Hint: next step is the nucleophilic attack of ethylene glycol-use one of the oxygen atoms

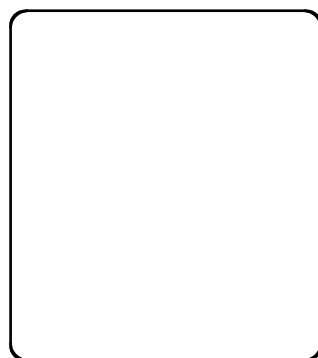
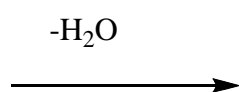


Protonated Hemiacetal
(this intermediate will lose H₂O)



Neutral Hemiacetal

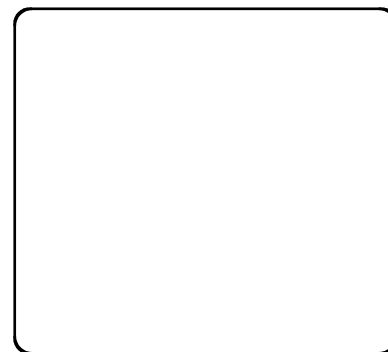
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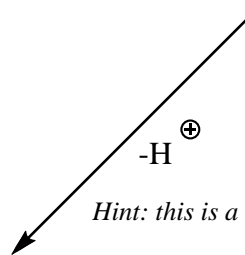
Carbocation
intermediate



*Hint: this is an
intramolecular
ring closure*

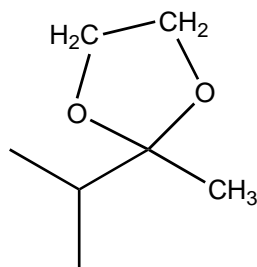


Protonated
Acetal



$-\text{H}^{\oplus}$

Hint: this is a loss of a proton



Product: acetal