

Last Name:

First Name:

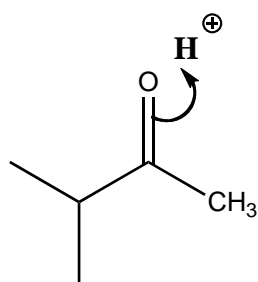
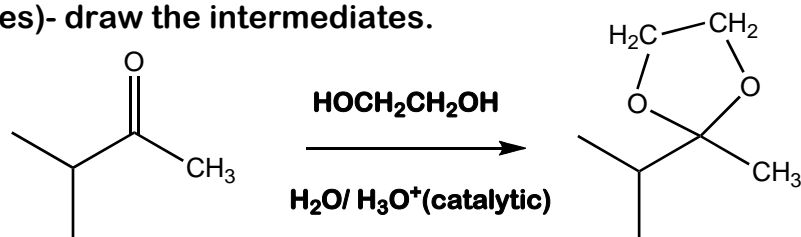
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SCORE: **KEY**

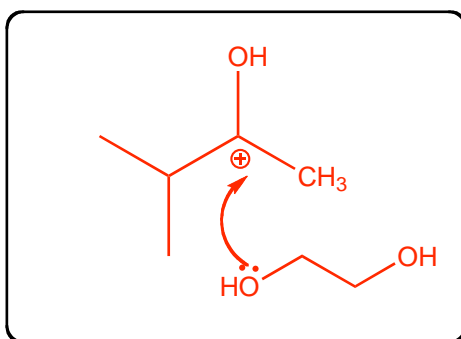
POW 5 CH 318N

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.

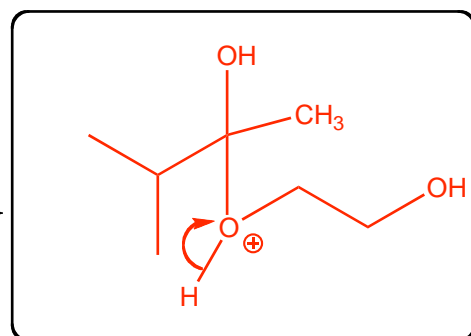


First Step

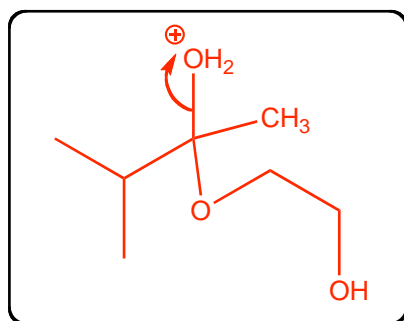
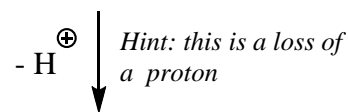


Protonated ketone intermediate

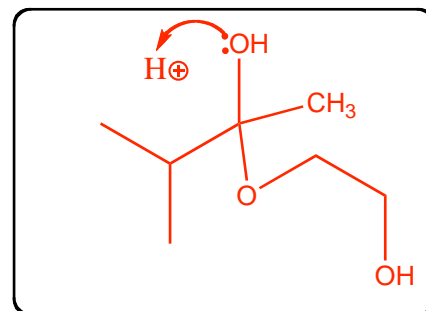
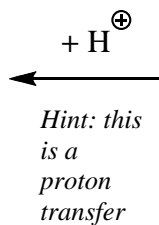
*Hint: next step is the nucleophilic attack of ethylene glycol-use one of the oxygen atoms*



Tetrahedral Intermediate

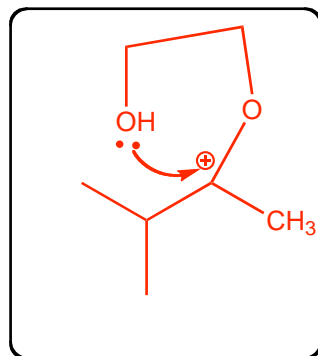
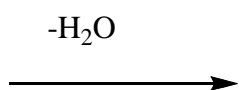


Protonated Hemiacetal  
(this intermediate will lose H<sub>2</sub>O)



Neutral Hemiacetal

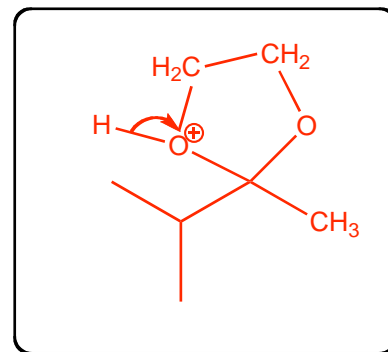
continue on next page



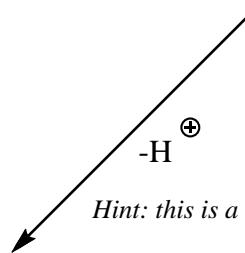
Carbocation  
intermediate



*Hint: this is an  
intramolecular  
ring closure*

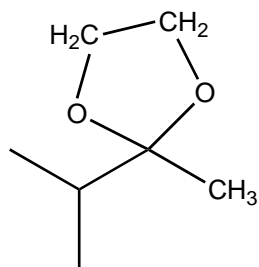


Protonated  
Acetal



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

*Hint: this is a loss of a proton*



Product: acetal