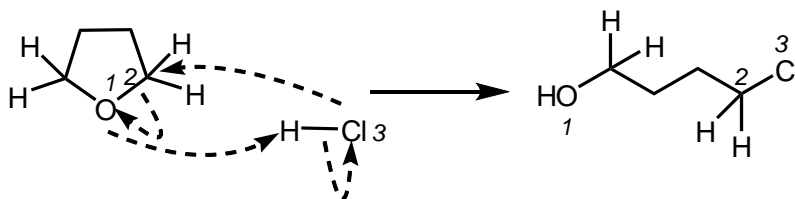


Problem 4



Ref.: D. M. Starr and R. M. Hixon, *Org. Syn.*, Coll. Vol. 2, 1943, 571

1. Draw all bonds near the reactive center in the starting materials
2. Draw all H-atoms near the reactive sites of starting materials and products
3. Balance the equation
4. Number the non-H atoms



5. Identify bonds made and broken

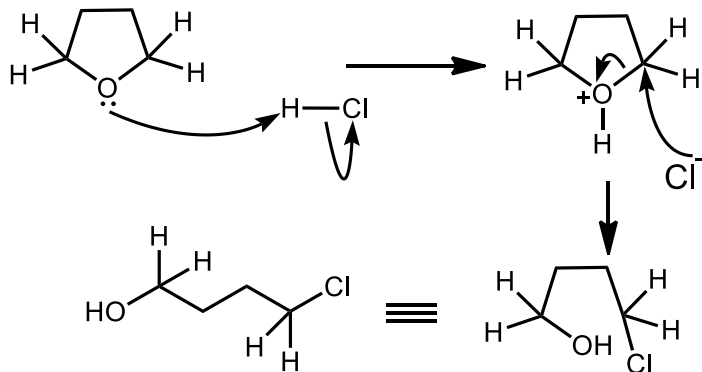
Bonds made: 1-H, 2-3

Bonds broken: 2-1, 3-H

6. Identify the conditions

Acidic (do not generate strong bases)

Mechanism



Discussion

An S_N1 mechanism for the above reaction is not reasonable. Such a mechanism will result in the formation of a primary carbocation. Carbocations can be generated under acidic conditions, but primary carbocations that are not resonance stabilized are very high in energy and should not be generated in the mechanism.

Incorrect:

