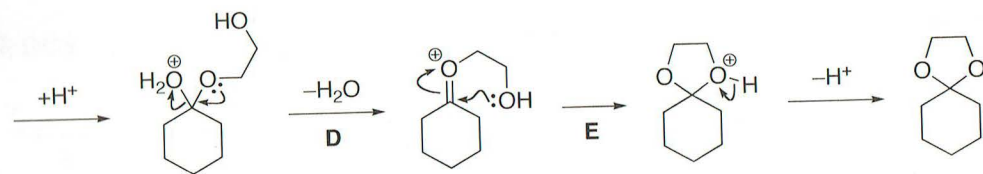
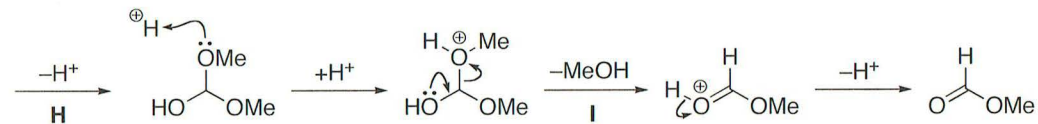
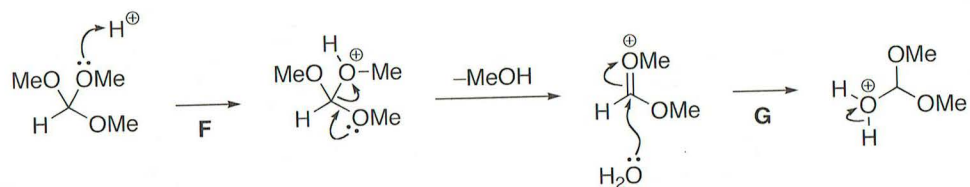
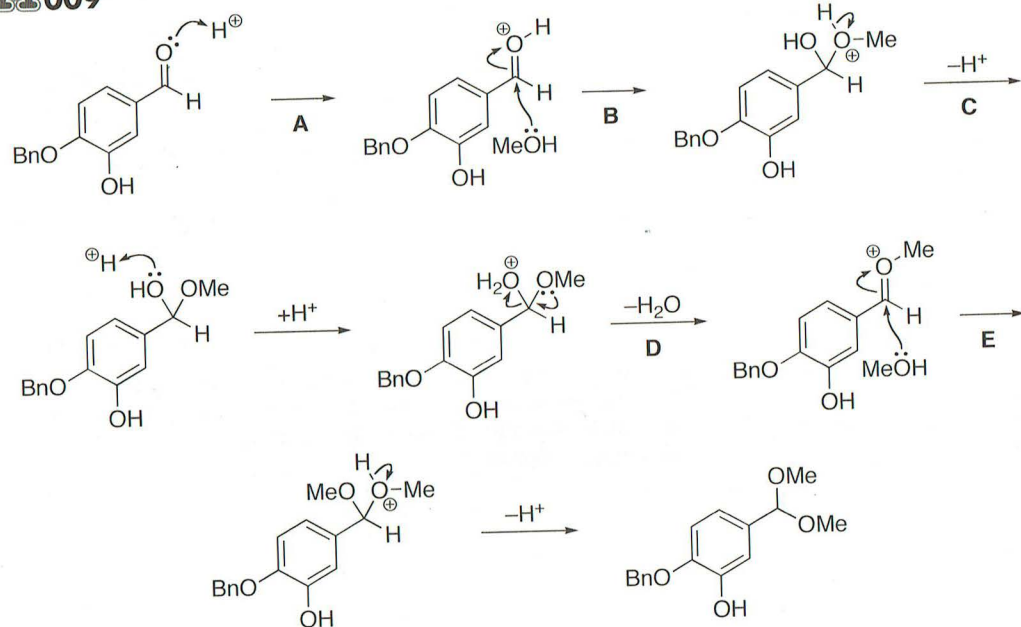


解答

Daignault, R. A.; Eliel, E. L. *Org. Synth., Coll. Vol. V* 1973, 303.

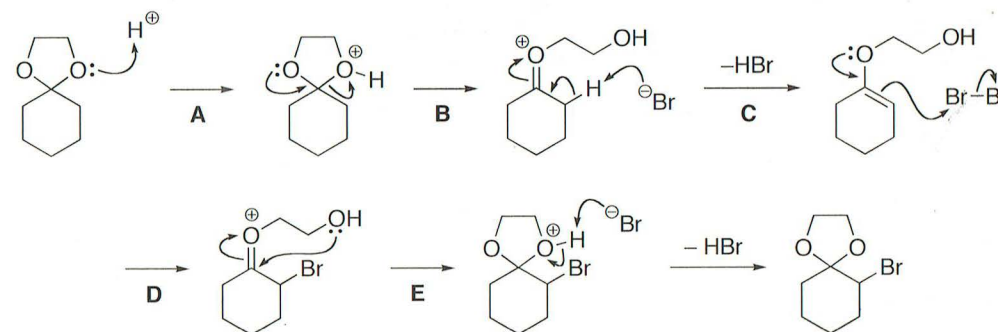
A: Activation of the carbonyl group by protonation. **B:** Addition of ethylene glycol to the activated carbonyl group. **C:** Proton transfer. **D:** Elimination of water helped by the oxygen lone pair. **E:** Intramolecular addition of the second hydroxy group.

A009

Baker, R.; Cooke, N. G.; Humphrey, G. R.; Wright, S. H. B.; Hirshfield, J. *J. Chem. Soc., Chem. Commun.* 1987, 1102.

A: Activation of the carbonyl group by protonation. **B:** Addition of MeOH to the activated carbonyl group. **C:** Proton transfer. **D:** Elimination of water helped by the oxygen lone pair. **E:** Addition of MeOH and deprotonation to form a dimethyl acetal. **F:** Trimethyl orthoformate serves as a scavenger of water to shift the equilibrium to the product side. Protonation followed by elimination of MeOH. **G:** Addition of water. **H:** Proton transfer. **I:** Elimination of MeOH followed by deprotonation to form HCO_2Me .

A010

Aben, R. W. M.; Hanneman, E. J. M.; Scheeren, J. M. *Syn. Commun.* 1980, 10, 821.

A: Protonation. **B:** Cleavage of the dioxolane ring helped by the oxygen lone pair. **C:** Deprotonation to form an enol ether. **D:** Bromination of the electron-rich enol ether. **E:** Intramolecular addition of the hydroxy group. Opening of the dioxolane ring of the product is more difficult because of the electron-withdrawing bromine atom.

A011

