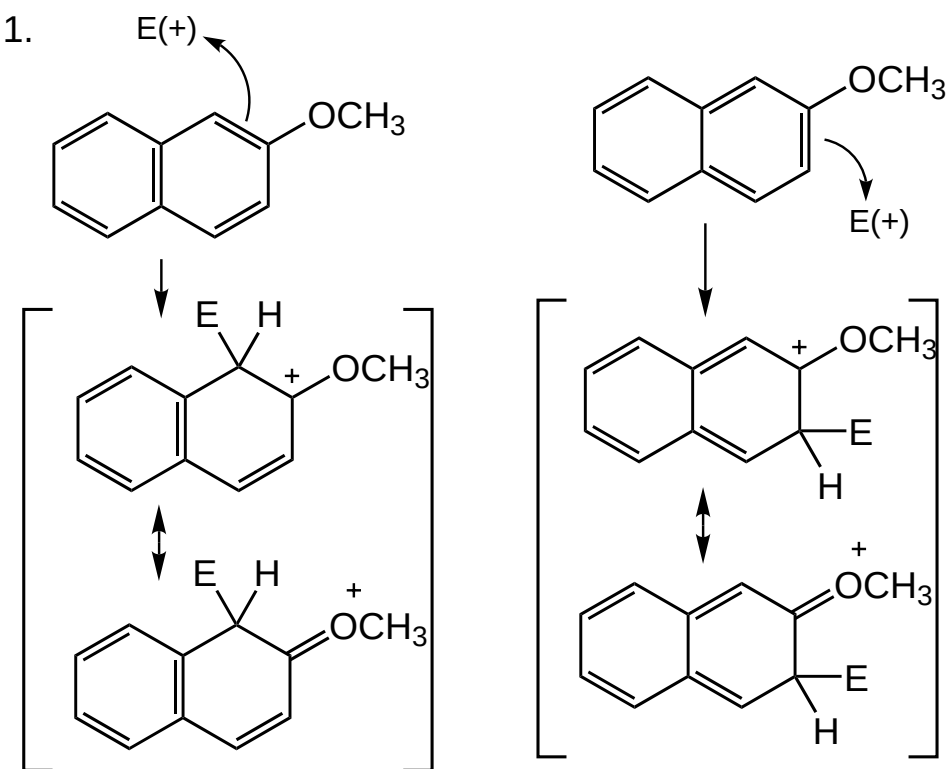


Problem Set 4 - Electrophilic and Nucleophilic Aromatic Substitution

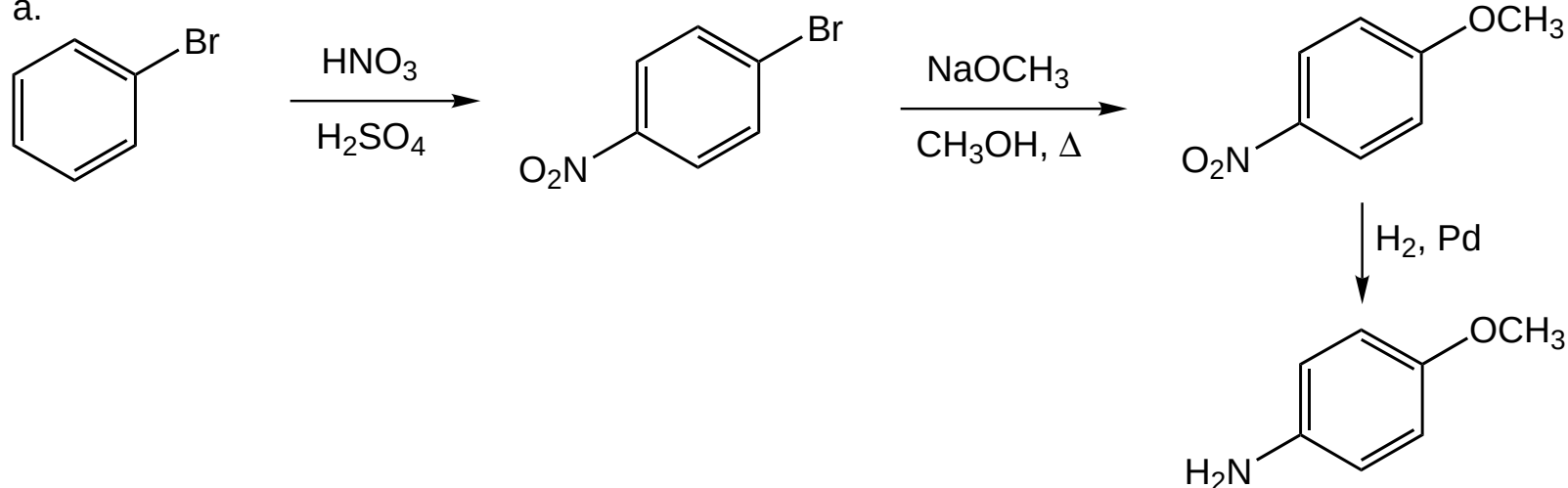
Answer Key

1.



The important thing here is the extra resonance structure we can draw for the arenium ion because of the lone pairs on the oxygen. We can draw such an extra resonance structure for each of the two ortho additions. But there is a difference. In the first aromaticity is maintained in the ring on the left. In the second case, in order to take advantage of the extra resonance stabilization of the oxygen, aromaticity has been lost in the ring on the left.

2. a.



2. b.

