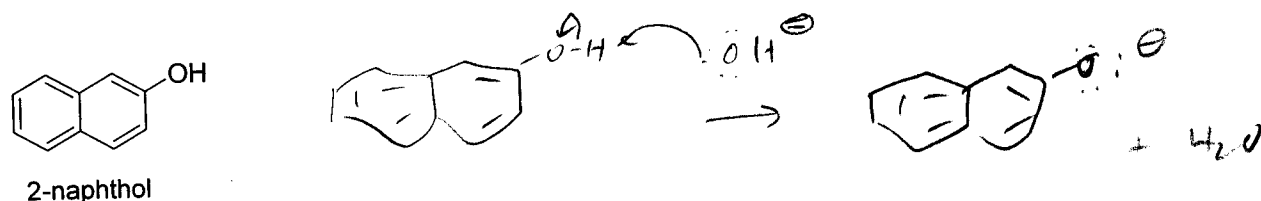
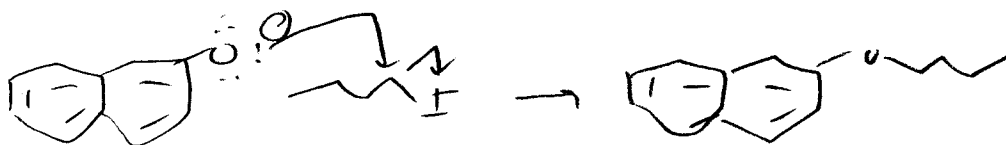


Name Key

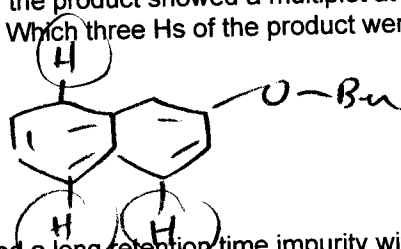
1. For the first reaction of lab 4, 2-naphthol was treated with NaOH in ethanol. Show an equation for this reaction including the structure of the product formed. Use curved arrows to show the flow of electron pairs. (5 pts)



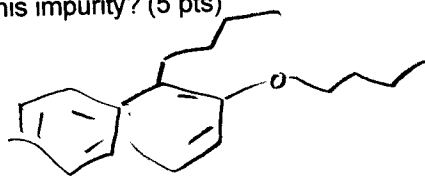
2. The solution containing the product formed in reaction 1 was treated with 1-iodobutane. Show an equation for this reaction including the structure of the final product formed. Use curved arrows to show the flow of electron pairs. (5 pts)



3. The proton NMR of the product showed a multiplet at approx. 7.7 ppm that appeared to be three overlapping doublets. Which three Hs of the product were responsible for this peak? (3 pts)



4. The GC-MS showed a long retention time impurity with a molecular ion at  $m/z = 256$ . What is the most likely structure for this impurity? (5 pts)



5. What undesirable side reaction might have occurred due to the use of ethanol (rather than, say, THF) as the solvent for this reaction? (2 pts)

