EXERCISE 11: ROADMAP PROBLEMS WITH AROMATICS part 1

Organic Chem II Alfred State College

**1) Building off a Substituent**

**Starting from benzene and alcohols, find a route to:**





A

product A above







B



product B above



chem. 4524 exercise #11 (continued)

11.2 aromatic, electrophilic heavy hitters

Draw the critical Lewis acids needed for the five electrophilic aromatic substitutions below and include the reaction leading to the acid

Critical Lewis acid1

1. Aromatic Bromination (substituting a -Br)

Br+

Br2 + FeBr3🡪 Br+ + FeBr4-

1. Aromatic ethylation (substituting a -C2H5)

C2H5+

C2H5Cl + AlCl3🡪 C2H5+ + AlCl4-

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1. Aromatic acetylation (substituting a CH­3-C=O)

CH3C=O

(+)

CH3C=O + AlCl3 🡪 CH3C=O + AlCl4-

|

Cl

d)Aromatic sulfonation (substituting a -SO3H)

SO3 + H2SO4 🡪 HSO3+ + HSO4-

HSO3+

1. Aromatic nitration (substituting an NO2)

NO2+

either HONO2 + HNO3 🡪 NO2+ + H2O + NO3-

or: HO-NO2 + H2SO4 🡪 NO2+ + H2O + HSO4-

1. What simple pattern for the structure of main Lewis acid is apparent for electrophilic, aromatic substitution ?? *All are (+) charged electrophiles*