Aromatic Reactions

1. Predict the major products formed when benzene reacts with the following reagents.
   a) 1,2-dichloroethane, AlCl₃
   (with 2 mols benzene)
   b) Iodine, HNO₃
   c) 1-chloro-2,2-dimethylpropane, AlCl₃

2. Predict the major products of the following reactions.
   a) Isopropoxybenzene + t-butyl chloride + AlCl₃
   b) Nitrobenzene + fuming sulfuric acid
   c) Nitrobenzene + acetyl chloride + AlCl₃
   d) 1,2-dichloro-4-nitrobenzene + NaNH₂
   e) PhCNHPh + CH₃CH₂CCl, AlCl₃
f) p-ethylbenzenesulfonic acid + HNO₃, H₂SO₄

g) + hot KMnO₄

h) + acetyl chloride + AlCl₃

3. Show how you would synthesize the following compounds, starting with benzene or toluene and any necessary acyclic reagents.
   a) 1-phenyl-1-bromobutane

   b) 1-phenyl-1-methoxybutane

   c) 3-phenyl-1-propanol

   d) Ethoxybenzene
e) 1,2-dichloro-4-nitrobenzene

f) 1-phenyl-2-propanol

g) 3,4-dibromobenzoic acid

4. Give the structures of compounds A through H of the following series of reactions.