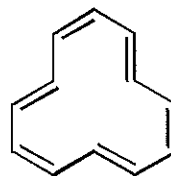
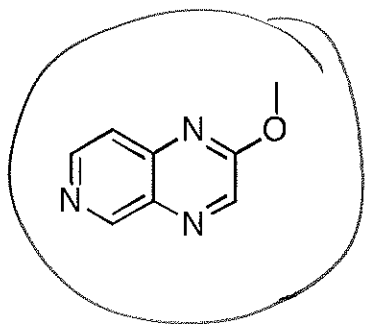
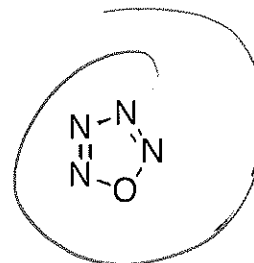
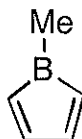
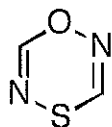


# 2010 EXAM 3 ANSWERS

NAME

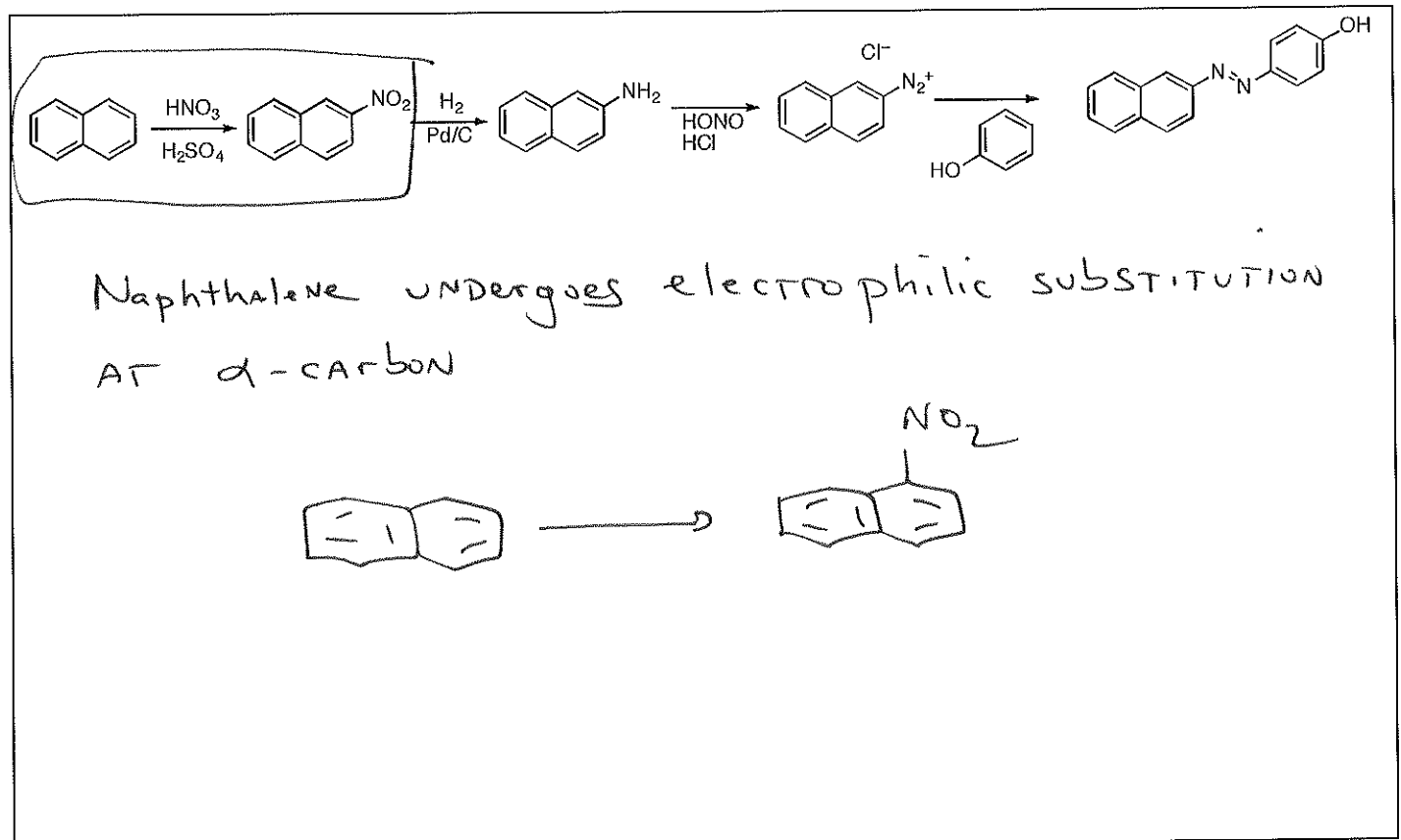
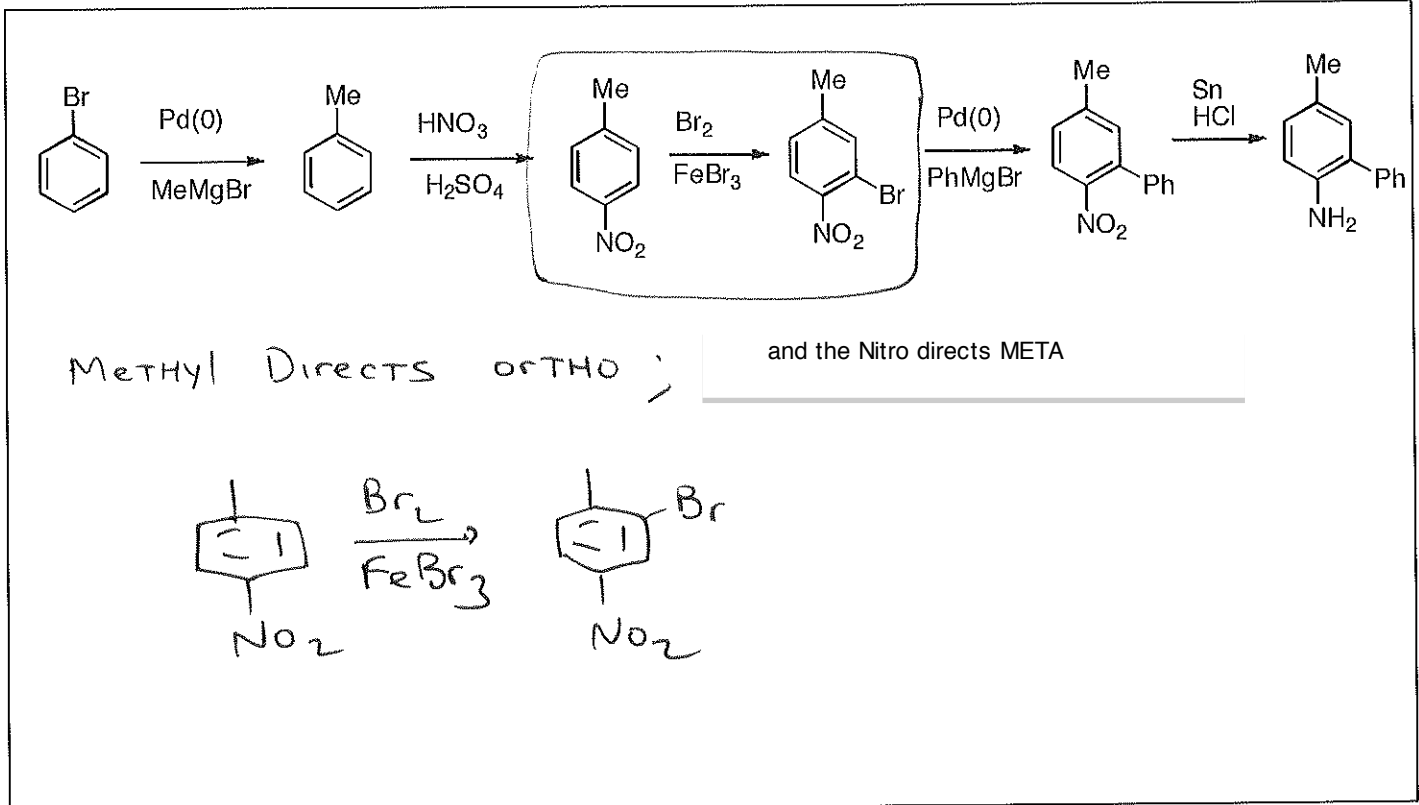
Key

1. Circle the molecules that are aromatic. No partial credit. 3 points each



NAME key

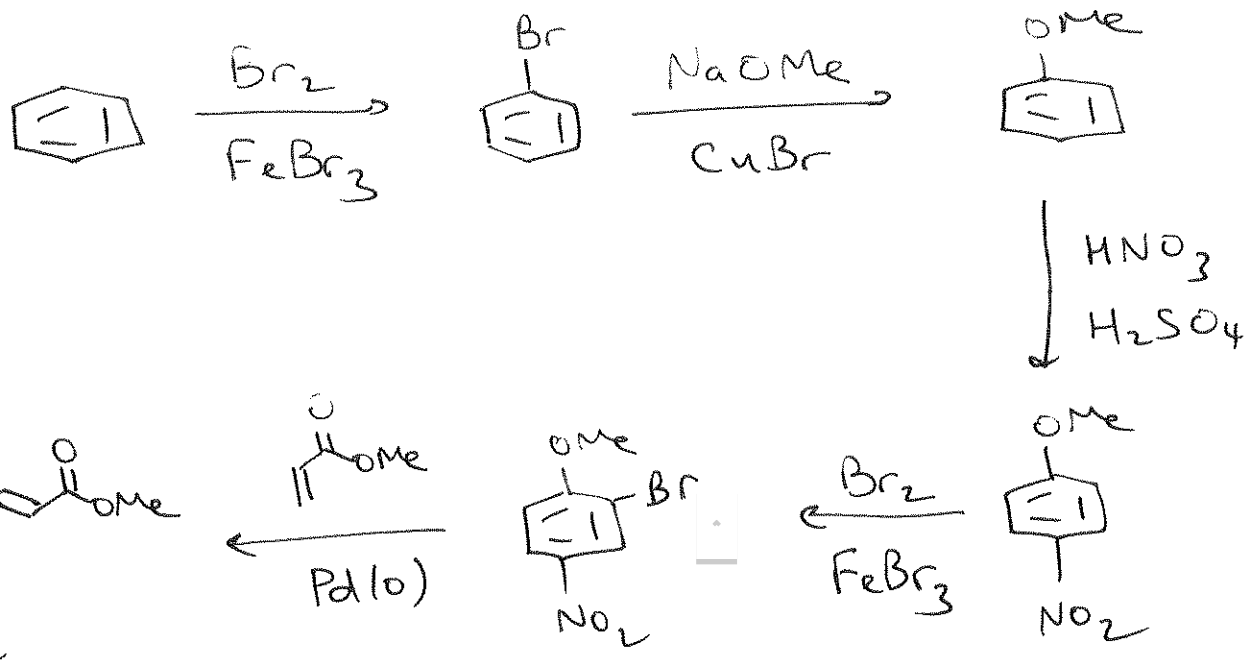
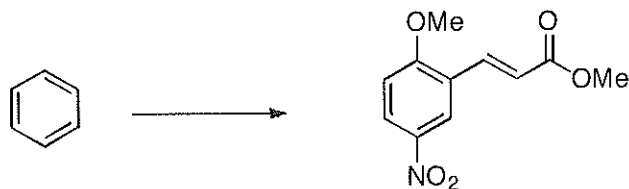
2. There is a problem with each of the following syntheses. (8 points each)  
 CIRCLE the problematic step, and describe the problem in the space below in 30 words or less



NAME key

3. Suggest a multistep synthesis, using **benzene** and any other materials that contain **5 carbons or less**. Reagents that do not end in the product (e.g.  $\text{PPh}_3$ ) may contain more than 5 carbons

(25 points)



NAME key

4. Provide a detailed arrow pushing mechanism (24 points)

