

Aug - 83¹

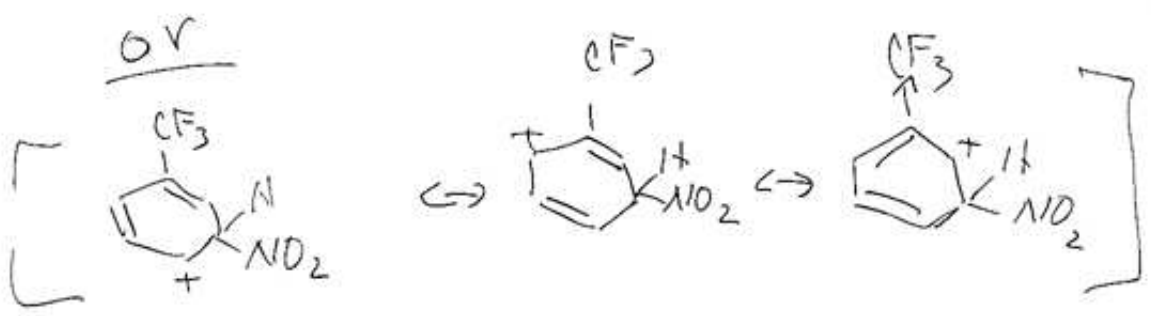
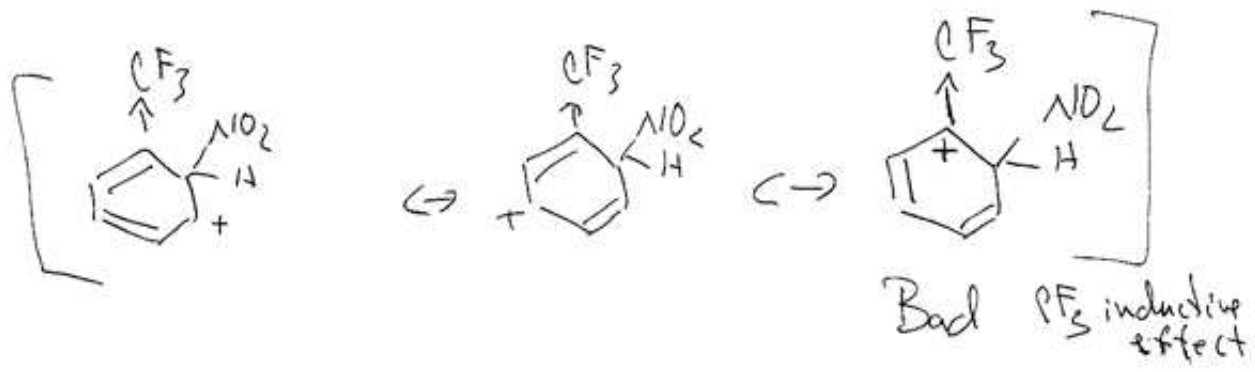
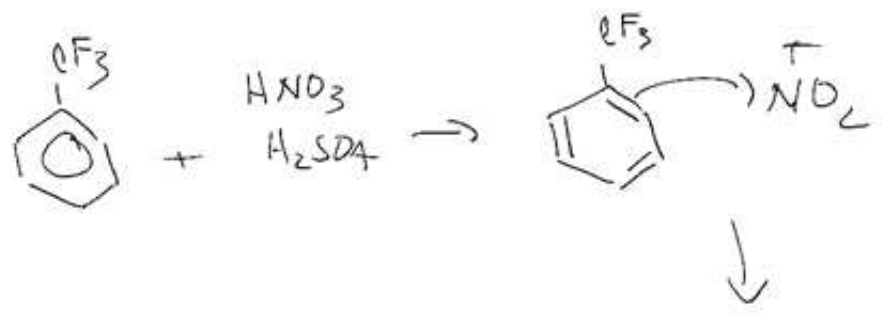
Chemistry 3371-100
Organic Chemistry/Dr. Barney Ellison
Thursday: April 21th @ 7:00pm → 9:00/3rd Exam/Chem 142

High: 99

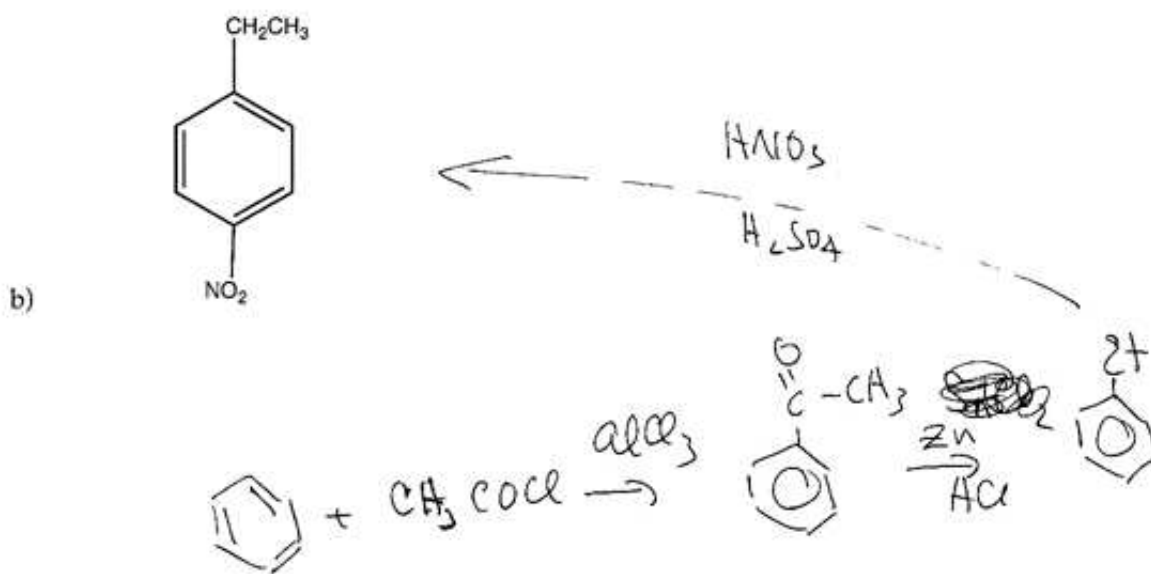
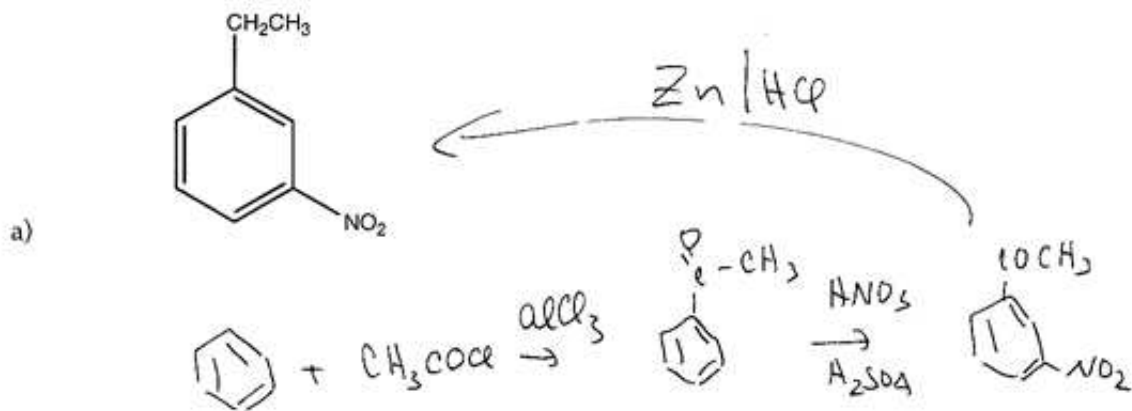
Name: Key (please print)

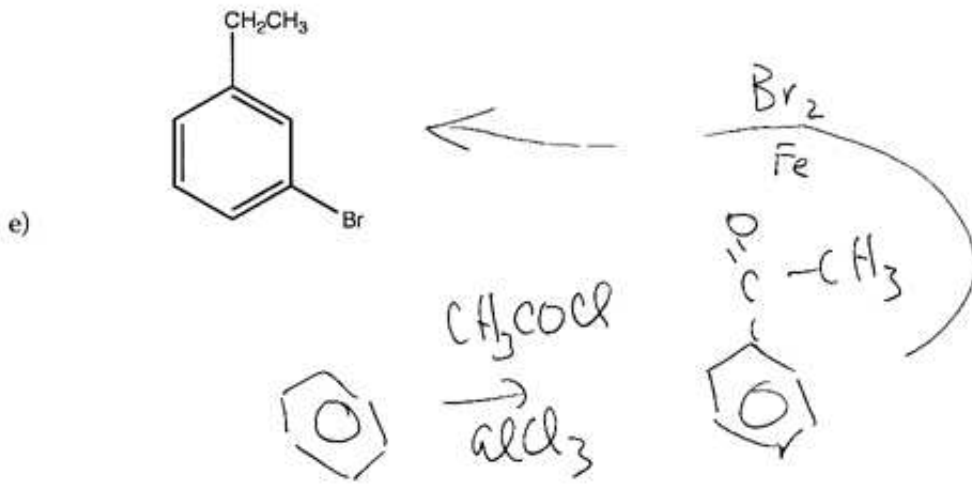
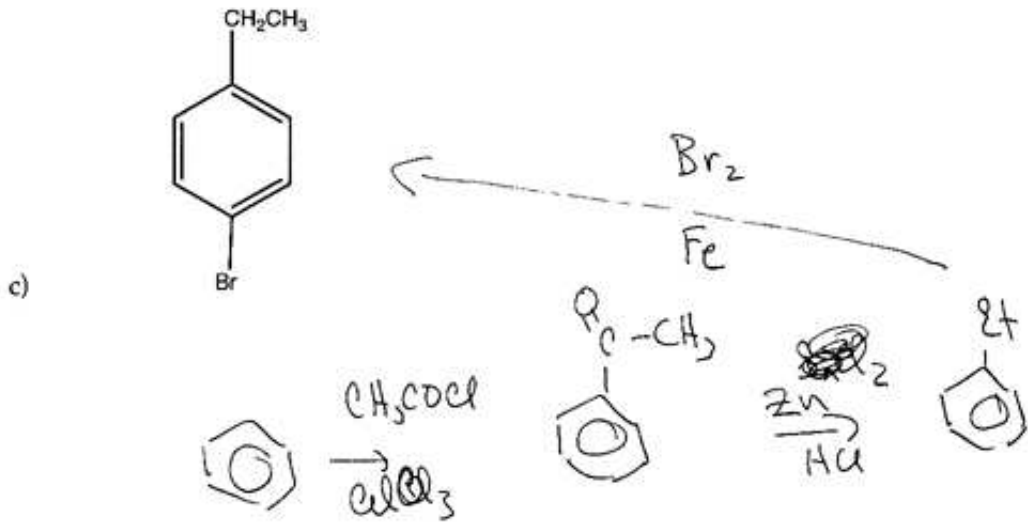
Low: 53

1. (10 pts) Toluene is *ortho, para* directing, whereas trifluoromethylbenzene, PhCF₃, is *meta* directing. Explain.

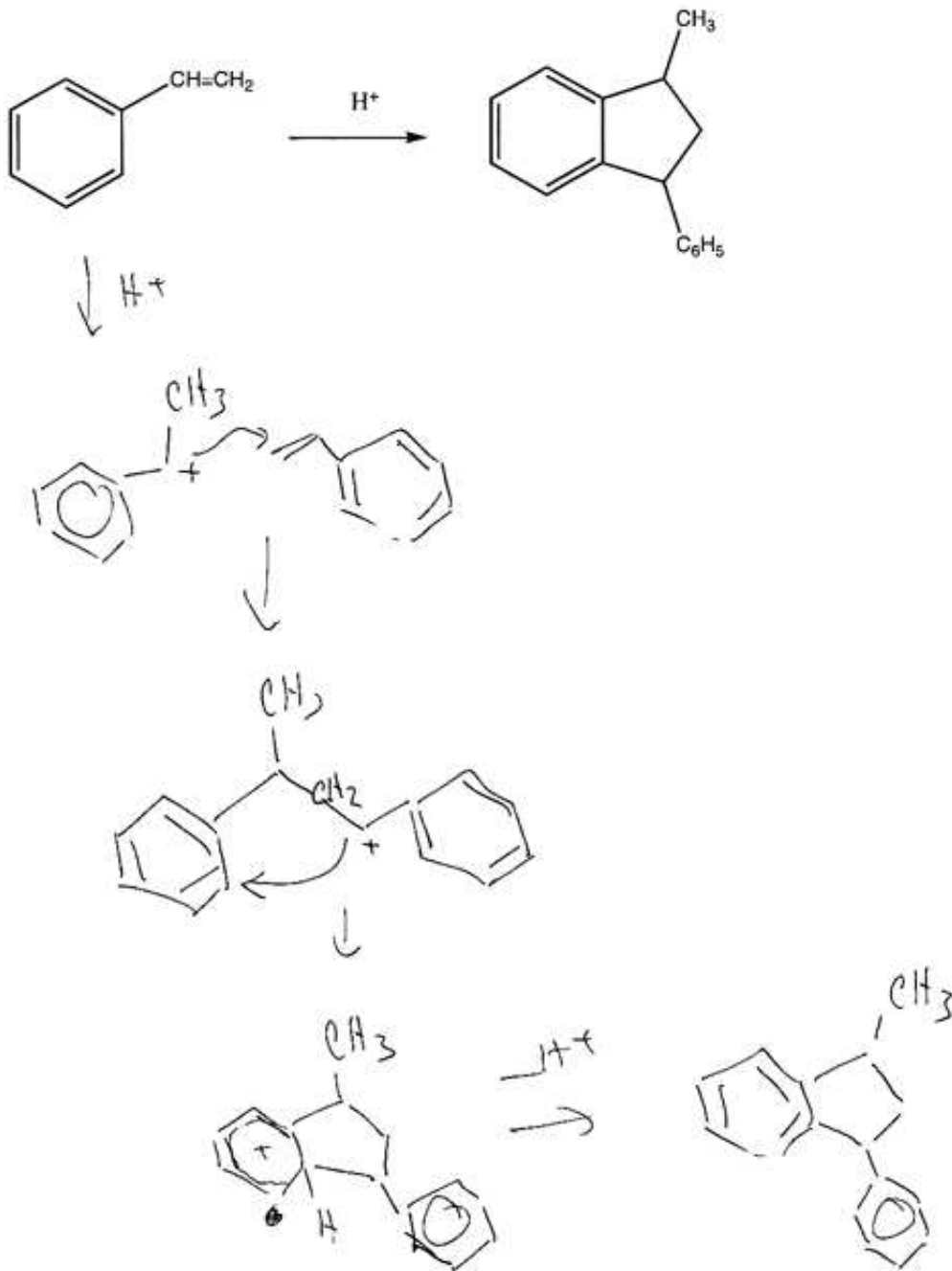


2. (20 pts) Show how each of the following compounds can be prepared from benzene or toluene in a practical manner.

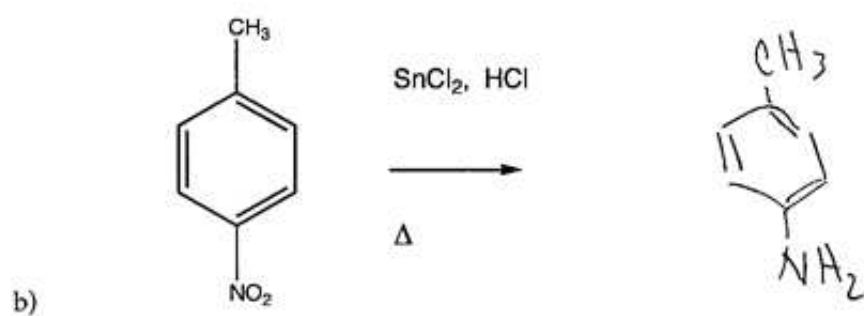
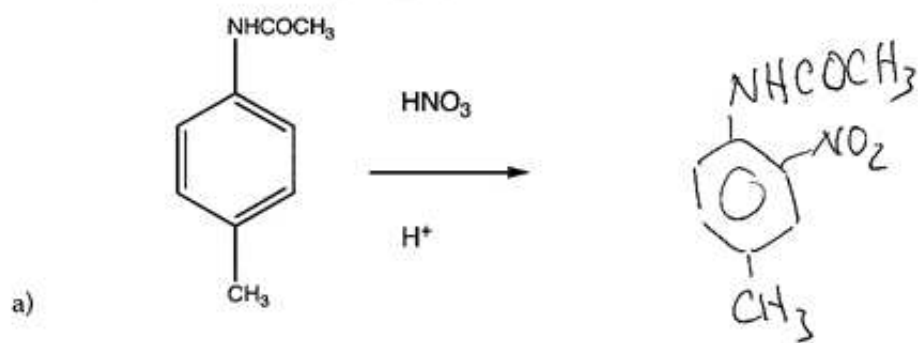


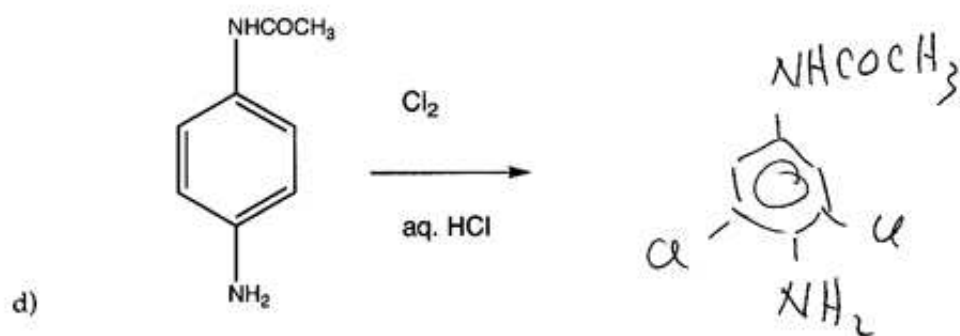
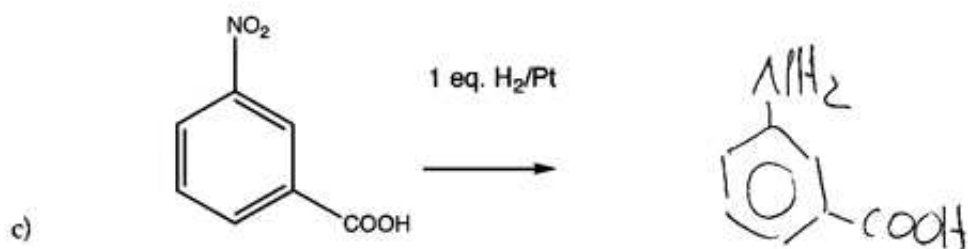


3. (10 pts) On heating with aqueous sulfuric acid, styrene reacts to form a dimer in good yield. Write a reasonable mechanism.

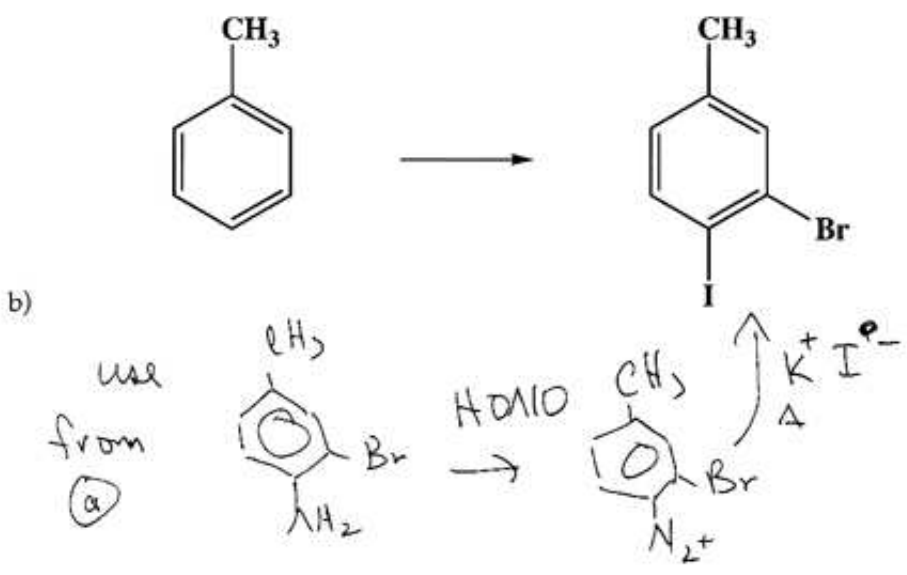
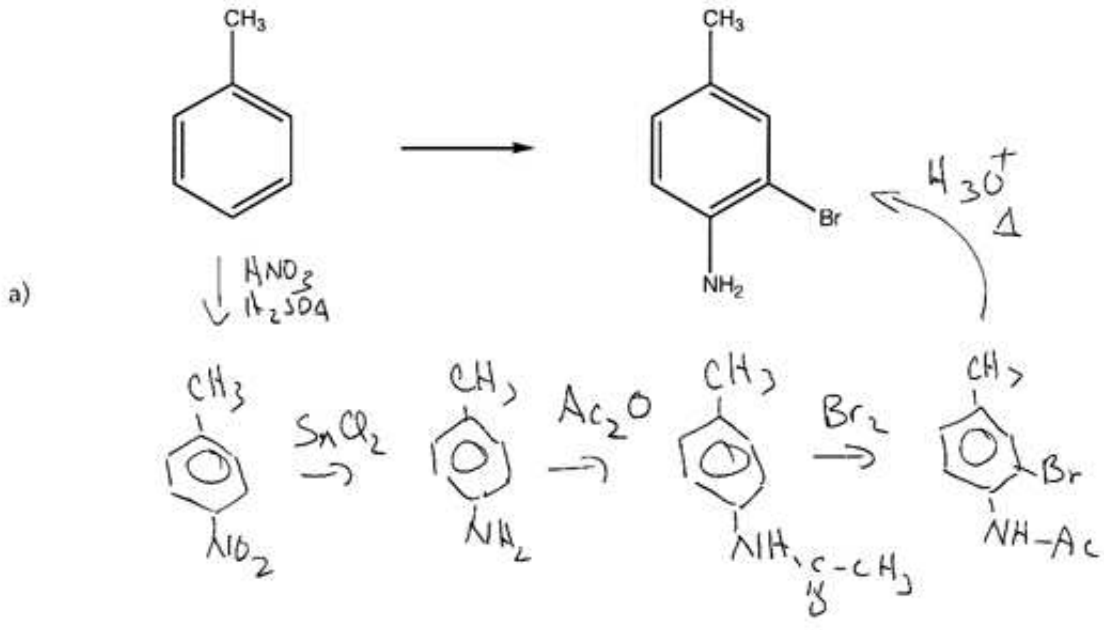


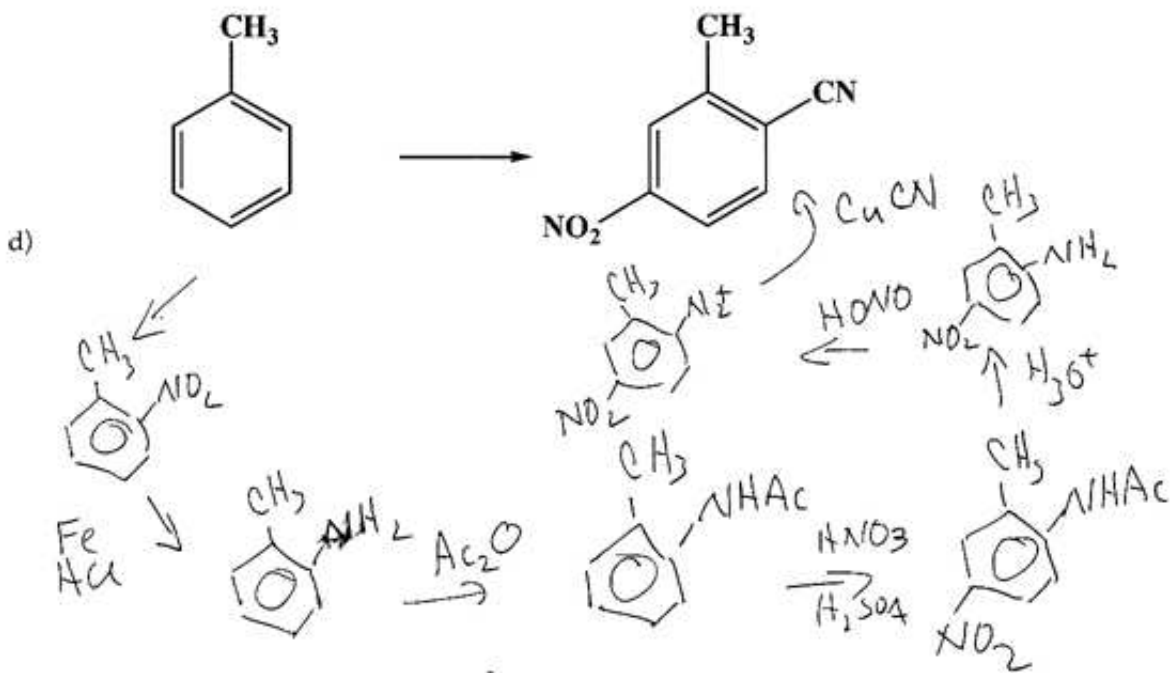
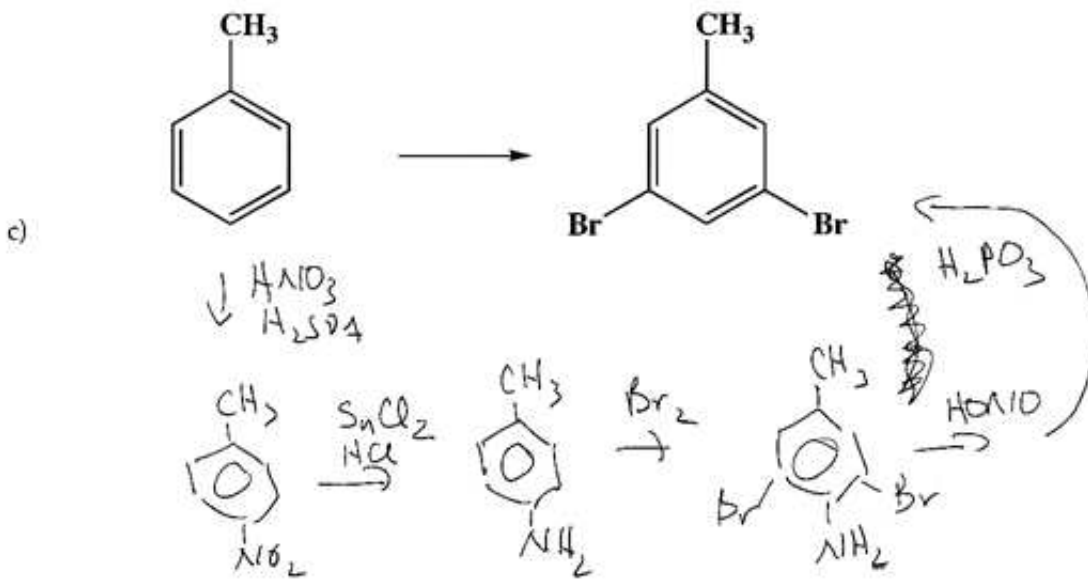
4. (20 pts) What are the principal products of the following reactions?



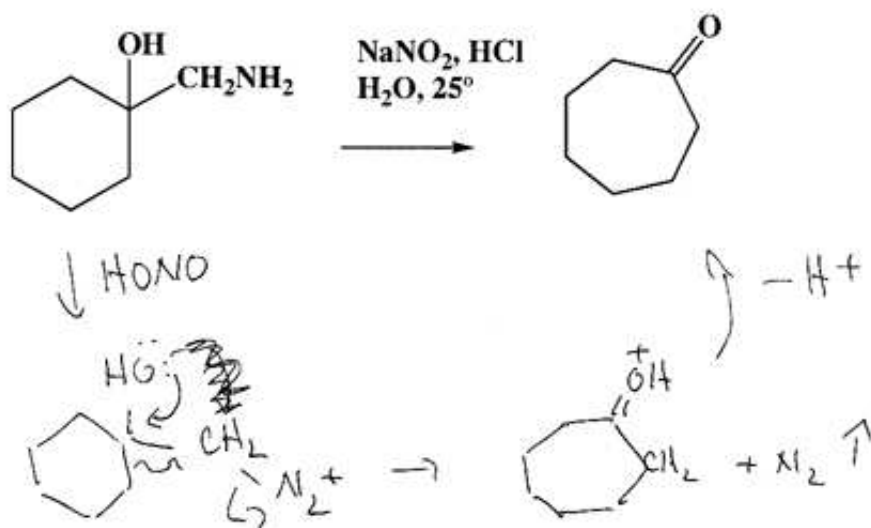


5. (20 pts) Show how the following conversions can be accomplished in a practical manner.





6. (10 pts) Suggest a mechanism for the following rearrangement (the Tiffeneau rearrangement).



7. (10 pts) When cyclohexanecarboxamide is treated with bromine and sodium methoxide in methanol, the product is methyl-N-cyclohexylcarbamate. Explain.

