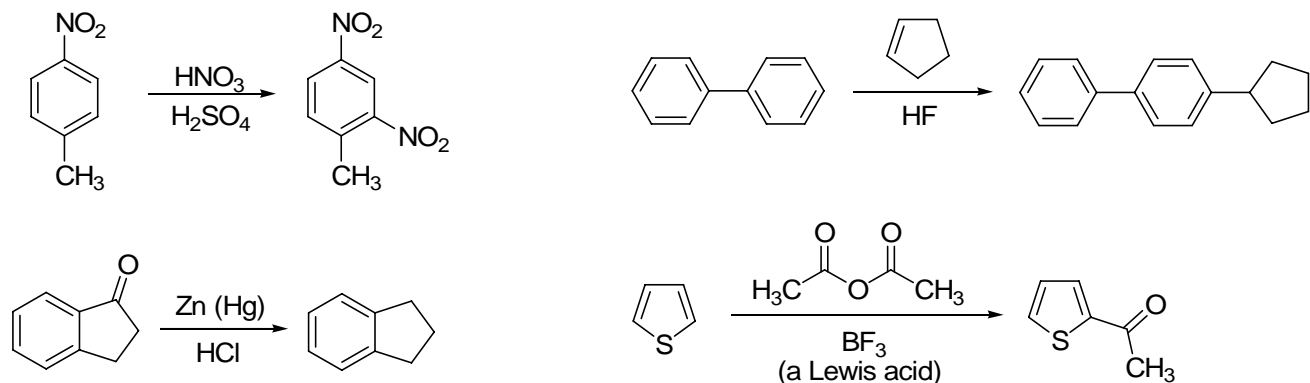


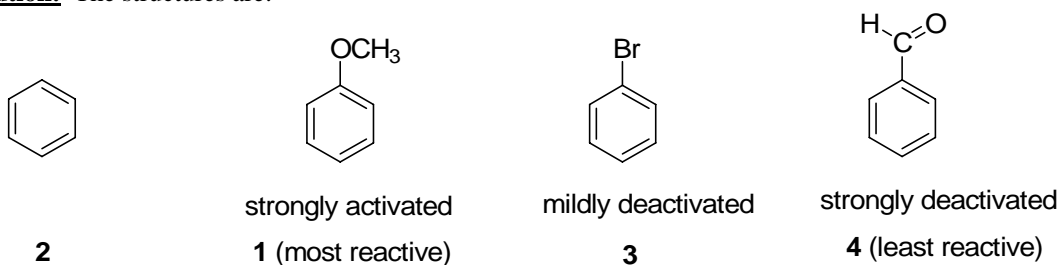
CHEMISTRY 314-01
QUIZ # 1 – answer key
 September 09, 2009

1. (4 pts) Indicate the principal organic product of each of the following reactions. You have to write the CORRECT REGIOISOMER in order to get credit.

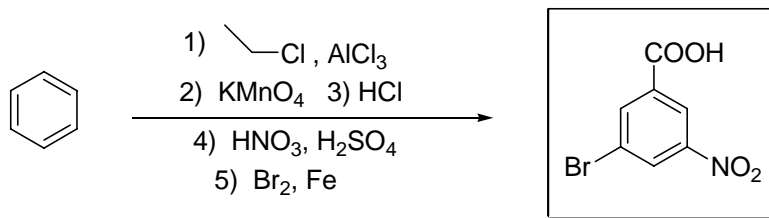


2. (2 pts) Arrange the following compounds in order of increasing reactivity in S_EAr reactions:
- Benzene;
 - Anisole;
 - Bromobenzene;
 - Benzaldehyde;

Solution: The structures are:



3. (2 pts) You start with benzene and conduct the following sequence of reactions:



Your product is:

- 4-bromo-2-nitrobenzoic acid;
- 2-bromo-4-nitrobenzoic acid;
- 3-bromo-5-nitrobenzoic acid;
- 2-bromo-4-nitroethylbenzene;
- 2-bromo-6-nitrobenzoic acid;

Write the correct structure in the box above.

Explanation: Reaction (1) introduces an ethyl group (Friedel-Crafts alkylation); Reactions (2), (3) convert the ethyl group into a carboxylic acid group, which is meta-directing; Reaction (4) introduces a nitro group, meta to the carboxylic acid. At this point there are two substituents, both meta directing; Reaction (5) introduces bromine, meta to both the carboxylic acid and the nitro group.