1. When performing a Friedel-Crafts alkylation reaction, not only does one have the problems

of multiple alkylation and rearrangement of the cation, but the presence of strong electron

donating groups prevents reaction. Provide an explanation for this.

2. Metallocenes, like ferrocene cannot be nitrated. Why?

3. Draw the structure of the diacetylferrocene you would obtain if ferrocene were diacetylated.

4. Draw an arrow pushing mechanism for the formation of the acylium ion when acetic

anhydride reacts with phosphoric acid.

5. Provide the major organic product(s) for the following reactions.

