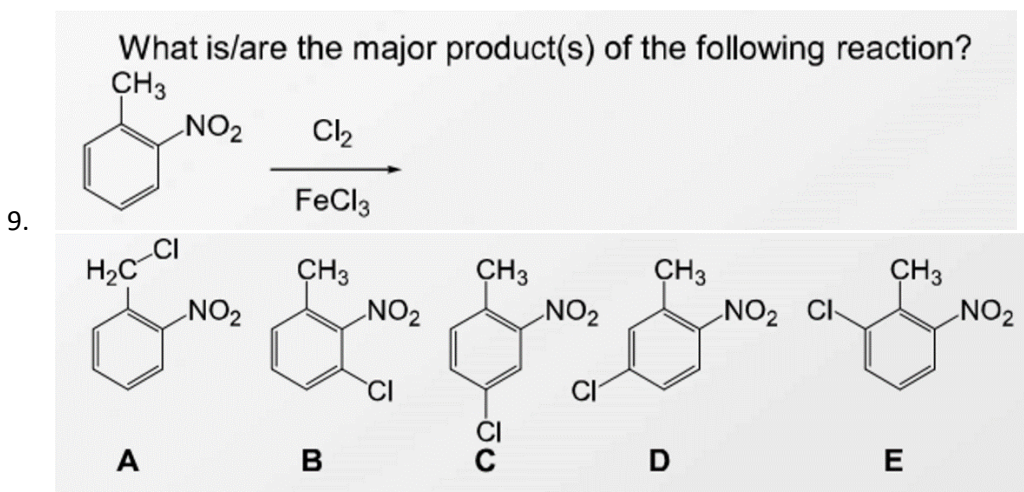


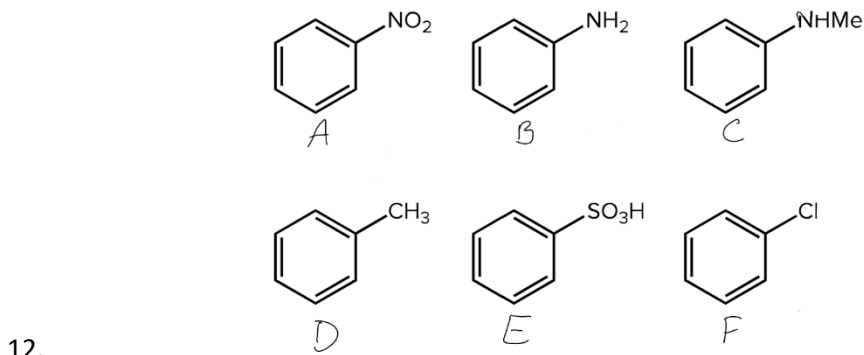
## Topics 1 and 2 Study Guide

1. How do you add OH across a double bond?
2. What ways give you Markovnikov addition of an OH group to a double bond?
3. T/F You can add Br<sub>2</sub> to a benzene ring just as Br<sub>2</sub>?
4. T/F Ortho is the position at the carbon immediately adjacent to the substituent?
5. T/F Para is the position at the carbon two carbons away from the substituent?
6. Which of these is a meta director: NO<sub>2</sub>, NH<sub>2</sub>, NHMe, CH<sub>3</sub>, SO<sub>3</sub>H, and Cl?
7. Which of these is electron withdrawing: NO<sub>2</sub>, NH<sub>2</sub>, NHMe, CH<sub>3</sub>, SO<sub>3</sub>H, and Cl?
8. T/F Electron donating groups direct substituents to the ortho and para positions.



10. T/F In the Diels Alder reaction, the exo product is the major product.
11. T/F The nitrogens in a benzene ring with electrons part of the conjugated ring are very nucleophilic.

Rank the compounds below from most to least reactive in EAS. Justify your rankings.



13. T/F In NAS reactions, the benzene ring's electrons attack a positively charged molecule.
14. What are the problems with aromatic amines?