*CHEM 242 – Lecture 17 24/02/2014*

Overheads: - Outline

Handout: EAS template

Feedback on Midterm

Recap before Break Electrophilic Aromatic Substitution

5 Types of E+:



What if there is already a group on the benzene ring?



⇨ Any alkyl (R) or aryl (Ar) group on benzene ring directs E+ to ortho and para

Why? Stabilization of C+ intermediate

⇨ Must look at 3 resonance forms for C+





Other Activating Groups

* all electron-donating groups can stabilize C+
* speed up reaction and all direct o/p

*eg* OH: - alcohols are strongly electron-donating

* lone pairs on O can do resonance with C+

\*\*Practice at home: Draw res. Forms for m & p, show only o & p have “extra” res. form

Activating Groups: Table 19.1/16.1 in old book



Electron-Withdrawing groups are deactivating:

- remove e- from ring C+ less stable, slower reaction

Deactivating Groups: 2 types:

