

Do Not Use Pencil

Do Not Staple, Please!

Course Chem 345

Lecturer Gellman

Day Friday

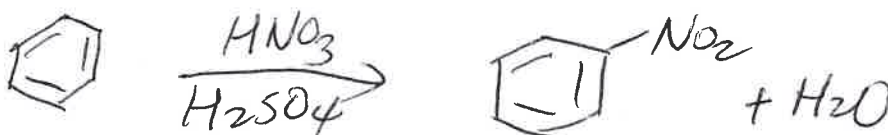
Date 2-5-16

Notes Taken by Lu Lia

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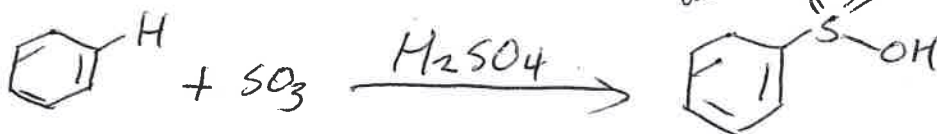
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Electrophilic Aromatic Substitution



Sulfonation:

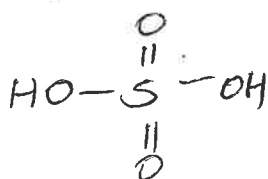
overall:



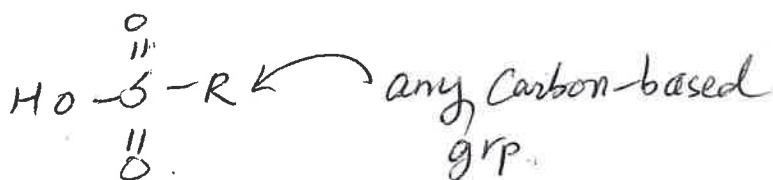
"Sulfonic acid"



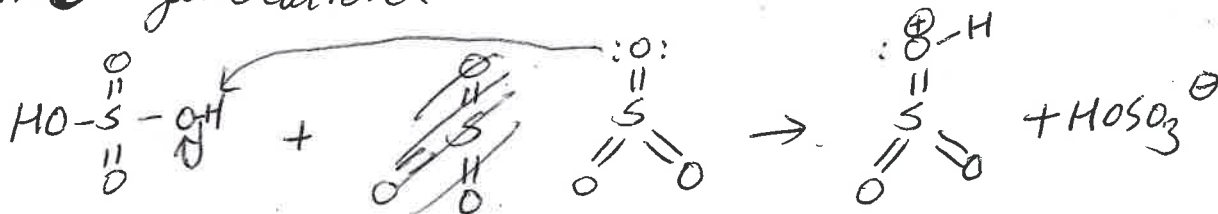
Sulfuric acid



Sulfonic acid



Electrophile generation:



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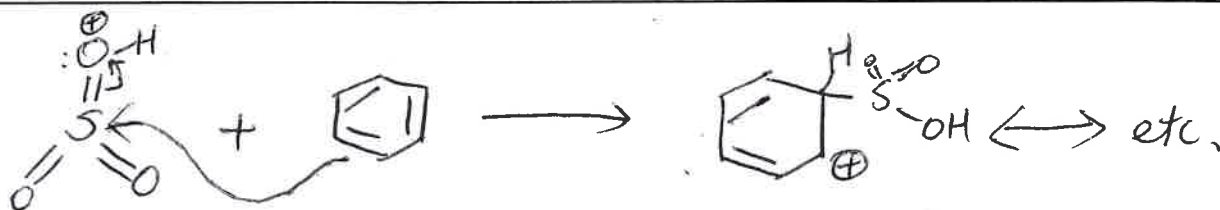
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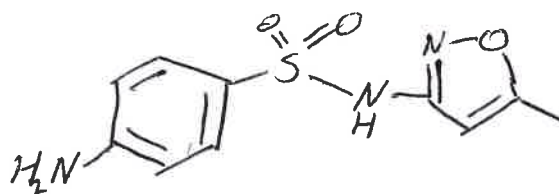
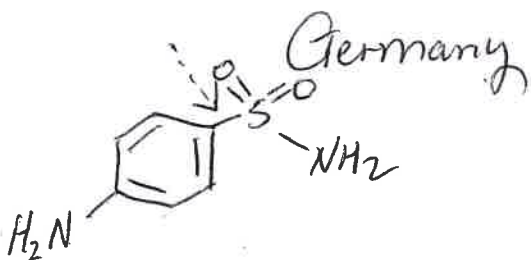
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* As the text notes, SO_3 (w/o protonation) can serve as the electrophile

* Critical for synthesis of "sulfa drugs"

- 1st antibiotics developed in 1930's in

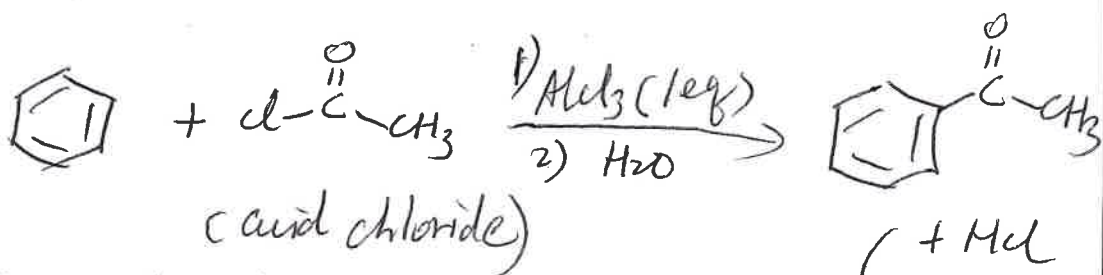


"Sulfamethoxazole"

Note:



Example:



* New C-C bond

* Indicate that the chemic operations must be performed in sequence

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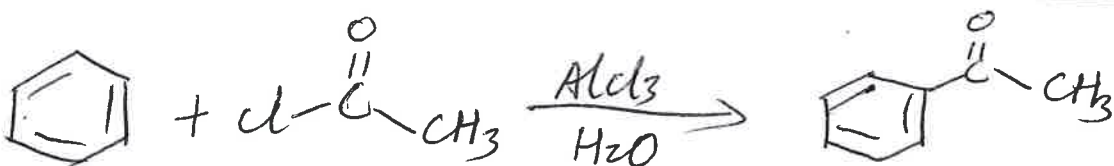
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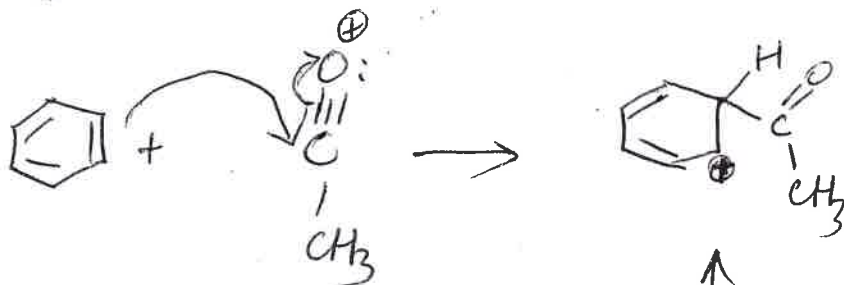
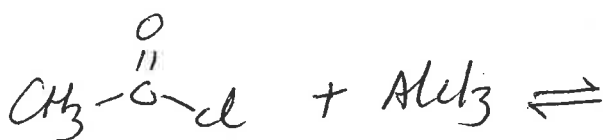
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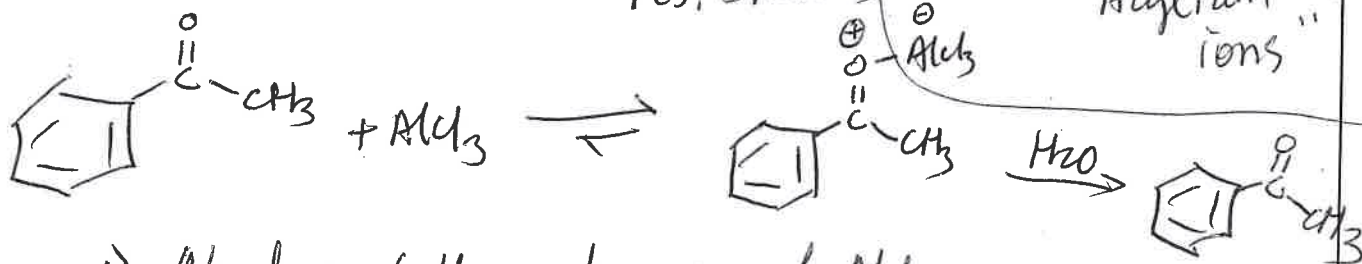
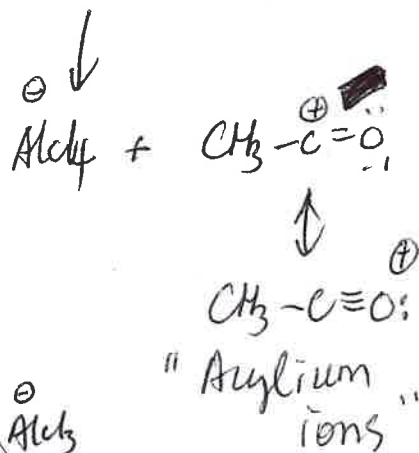


(AlCl₃ + H₂O "self destruct")

Nonsense
Generation of Electrophile:



res. structures



- 1) Need a full molar eq. of AlCl₃
- 2) Need H₂O — "liberates" product.

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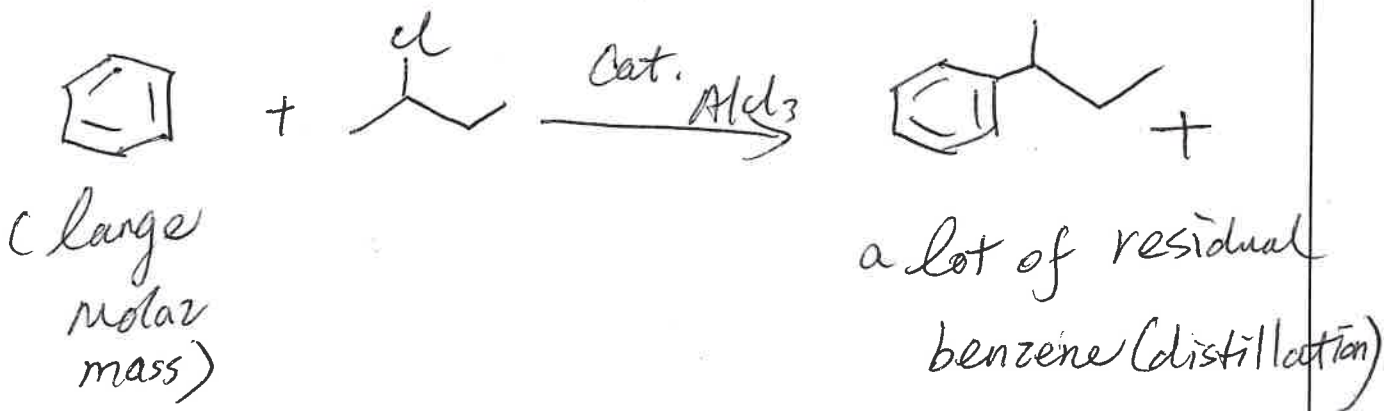
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Friedel - Crafts Alkylation :



- * Results of similar quantities of the 2 s.m. benzene
- * Different from prev. cases (multiple addition)
 - Difference ~~is~~ among EAS rxns provide mech. insight.
- * synthetic perspective: rxn not useful b/c multiple products.
- * For benzene itself as s.m., can modify ~~conditions~~ ^{Conditions} to prepare mono-substituted product.



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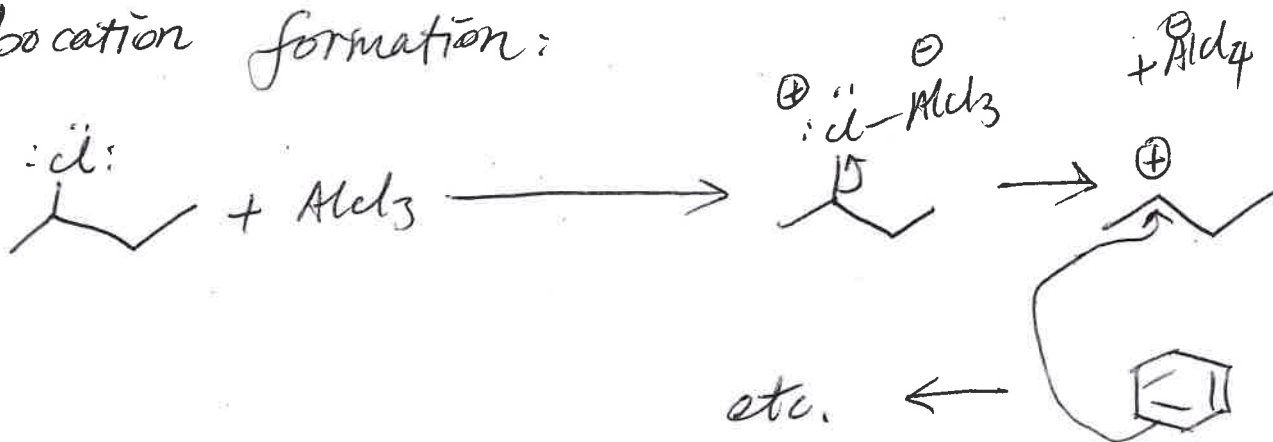
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Carbo cation formation:



Rearrangements

