Review Sheet – CH 254, Final Exam

The final exam is cumulative, covering chapters 12-20, 29, and 30. See the review sheets for the first four exams for details on chapters 12-20.

Chapter 29 Topics

- Know the three types of organic reactions (polar, radical, pericyclic)
- Know the three types of pericyclic reactions (electrocyclic, cycloaddition, sigmatropic rearrangement)
- Know the basic features of pericyclic reactions (concerted, stereospecific, not affected by solvent or catalyst)
- Be able to draw molecular orbitals for various pi systems
    - Identify HOMO & LUMO for ground state and excited state
    - Fill in electrons appropriately
    - Identify symmetry of each MO (symmetric or asymmetric)
- Thermal vs. photochemical reactions
- Conrotatory vs. disrotatory ring closures/ring openings
- Suprafacial vs. antarafacial cycloadditions

Chapter 30 Topics

- What is a drug?
- Know the basic pathway for drug development
    - Identify target disease/condition
    - Identify lead compound
    - Optimize lead compound
    - Preclinical (toxicity) studies
    - Clinical testing (phase I/II/III)

- How do we find lead compounds?
    - Random screening
    - Serendipity
    - Rational drug design (structure-activity relationships)
    - Combinatorial synthesis
    - Molecular modeling