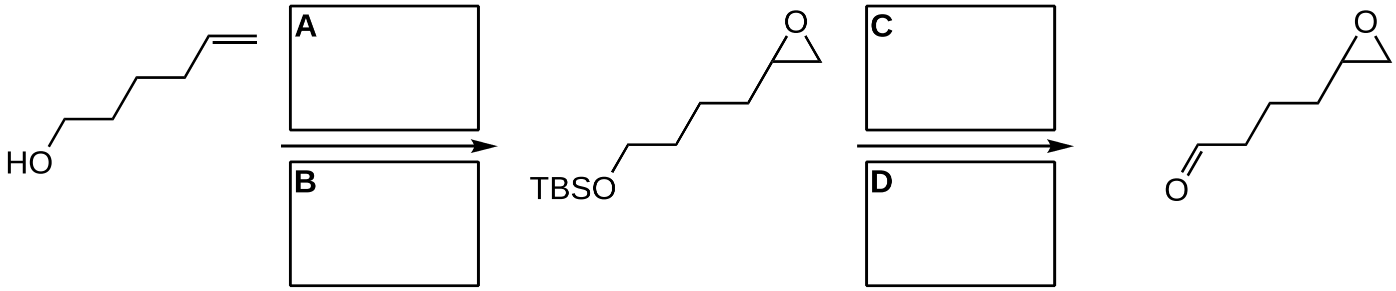
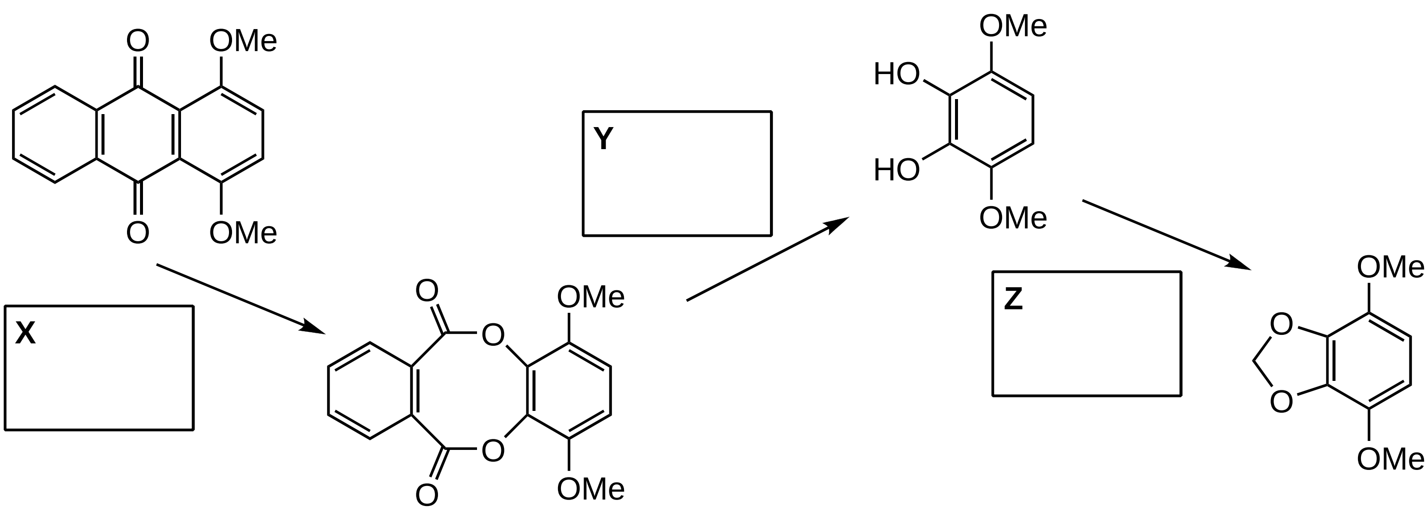
CHM 422 Organic Synthesis, Dr. Laurie S. Starkey, Spring 2016
Midterm Exam

Name:___________________________________

I. (8 pts) Provide the missing reagent(s) for **A** – **D**. Each step is a single transformation and not a multi-step reaction (you may include an aqueous workup, if needed).



(12 pts) Provide the missing reagent(s) for **X** – **Z**. Each step is a single transformation and not a multi-step reaction (you may include an aqueous workup, if needed).



II. (40 pts, 8 pts each) Provide the reagents necessary to transform the given starting material into the desired product. Showing your work and providing intermediate structures may help earn partial credit. It may help to first consider the retrosynthesis of the product.

a.