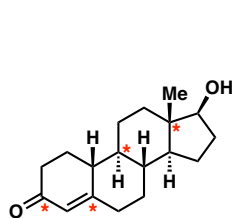
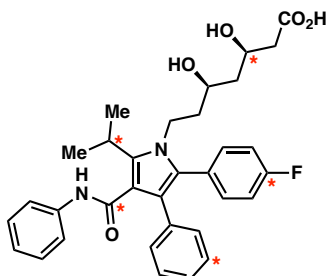


Problem Set 3
CHM 2211 – Prof. Joel M. Smith
1/7/2020

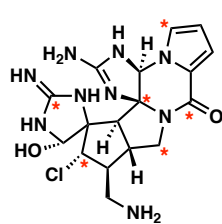
1. Identify the oxidation level of each carbon starred in the following molecules.



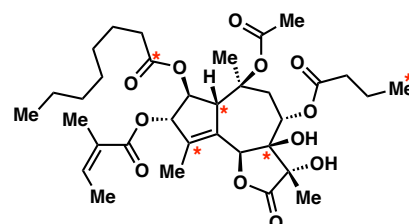
Nandrolone
 (illegal performance-enhancing steroid)



Atorvastatin
 (Lipitor)

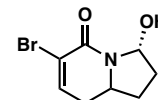
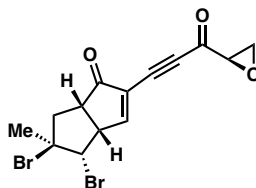
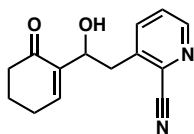
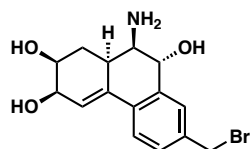


Palau'amine
 (a marine natural product)

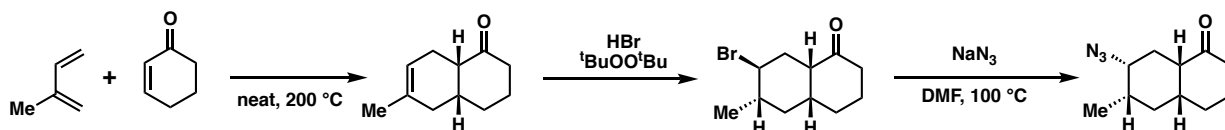


Thapsigargin
 (an anticancer natural product)

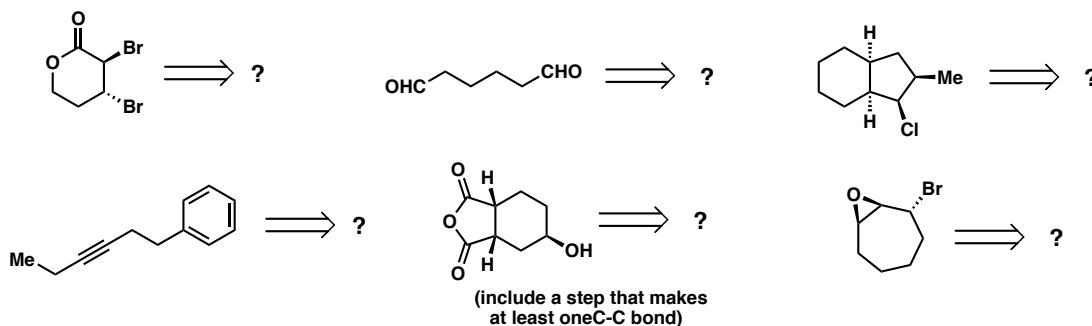
2. Identify both simple functionality and composite functionality in the following molecules.



3. Given the following forward synthesis, provide a retrosynthetic analysis including synthons, transforms, and synthetic equivalents starting from the final product and going back to the starting materials shown.



4. Identify an alkene starting material to forge the following products over either one or two transformations (do not just employ a hydrogenation!). These are all transformations from CHM 2210.



5. Provide a retrosynthetic analysis including synthons, transforms, and synthetic equivalents for the following two target molecules from the given starting materials and synthetic equivalents of 3 carbons or fewer. Then, provide a forward synthesis based off of your retrosynthesis.

