

# Organic Cumulative

## November 7, 1998

9:00 AM to Noon

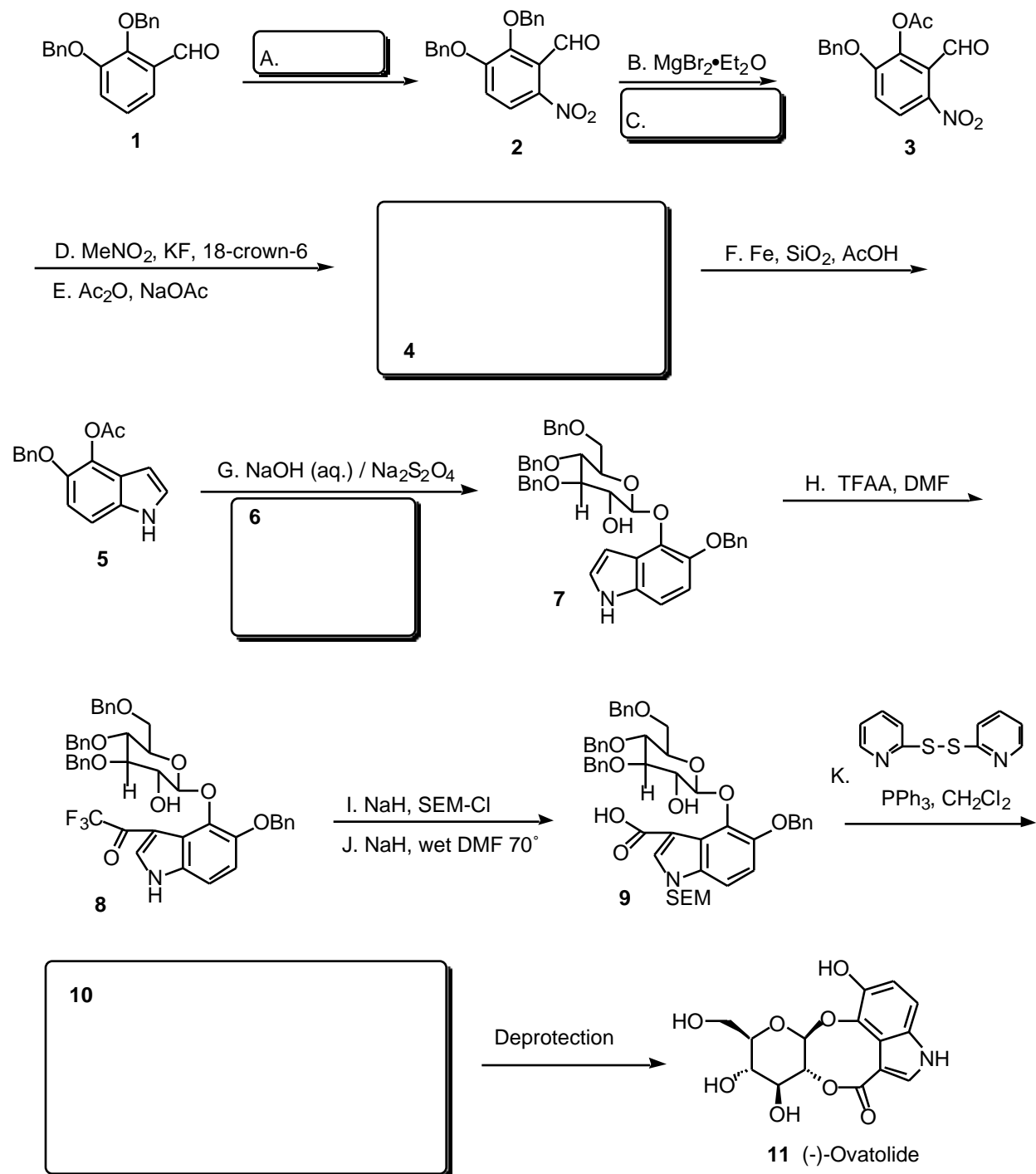
125I Chemistry Conference Room  
Synthetic Organic Chemistry

1.(24 pts.) Provide the name and structure for the following eight common organic abbreviations:

AIBN      Py      DMAP  
NMO      TFAA      DEAD  
PTSA      Tr

AIBN	DMAP	NMO	Py
DEAD	PTSA	Tr	TFAA

Consider the following total synthesis of (-)-Ovatolide: Delgado, A.; Clardy, J. *J. Org. Chem.* **1993**, *58*, 2862. (-)-Ovatolide **11** is isolated from the leaves of *Bridelia siamensis* Craib and is used in folk medicine as a laxative and astringent. Specific questions are asked on the next pages, please answer the questions completely and carefully. Neatness is always helpful.





4.(10 pts) The conversion of compound **3** to compound **4** is a modification of the Henry Aldol reaction. Using the reagents given in steps D and E suggest a structure for compound **4** and provide a mechanism for the formation of **4**. Do not forget to look ahead to help you out.

5.(10 pts) Suggest a reasonable structure for compound **6** and provide a mechanism for the formation of compound **7**.

6.(10 pts) Suggest a mechanism for the transformation of compound **7** to compound **8**

7.(10 pts) The transformation from **9** to **10** is macrolactonization using dipyridyl disulfide (Corey-Nicolaou reagent). Provide a structure for compound **10** and discuss some of the potential problems associated macrolactonization reactions in general.

8.(15 pts) Suggest a reasonable mechanism for the macrolactonization of **9** to **10** and comment on why you think dipyridyl disulfide is a useful reagent for this macrolactonization.