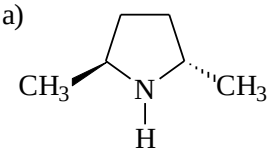
Chemistry 320
Problem Set I
Due January 29, 2020

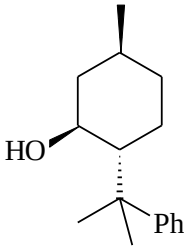
For the following questions, **be sure to reference your answers**. **For a Journal**: Authors (Last, first initial(s)); *Journal title*, **year**, *volume*, inclusive pages. For other sources, use standard MLA or other acceptable format (including web sources).

1. Chiral auxiliaries are optically active compounds used in enantioselective reactions. For each of the chiral auxiliaries shown below, give a reference for the *synthesis* of the compound. Also describe the reaction that this compound is used in (and give the reference).

a)

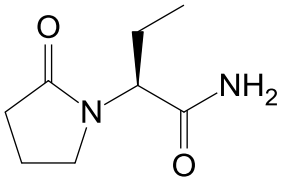


b)

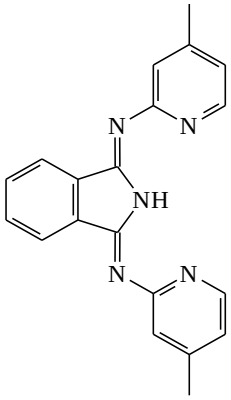


Ph = phenyl

2. The structure of a common anti-seizure medication is shown below. Is it optically active? What is the IUPAC name of this compound? Under what name is this drug marketed? Biochemically, how does it work?



3. The molecule shown below was used by Michael J. Prushan to make a polynuclear Cu(II) complex. Cite the reference for this recent paper. What is the I.U.P.A.C. name of this compound? How many other citations referenced this compound?



4. In 2004, scientists synthesized several cantharidin analogues in an attempt to find a radiosensitizer toward cancer cells. Their paper appeared in *Int. J. Radiat. Biol.* What is a radiosensitizer? What is the structure of cantharidin? What is the structure of their most effective radiosensitizer? What is its common name? Who was the lead author on the paper?

5. Give the complete reference for the latest paper published by Dr. Zeb Kramer.

6. Give the complete reference for the latest paper published by Dr. Denise Femia.