

**CH103 General Chemistry II**  
**2019 Fall semester Quiz 2 (Ch. 7)**

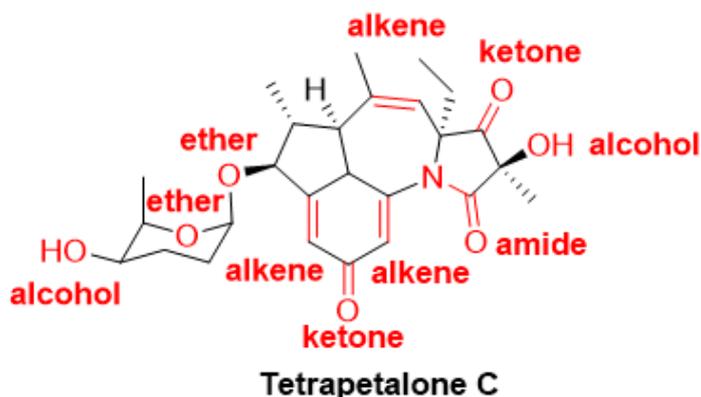
*Date: Oct 7 (Mon)*

*Time: 19:00~19:45*

Professor Name	Class	Student I.D. Number	Name

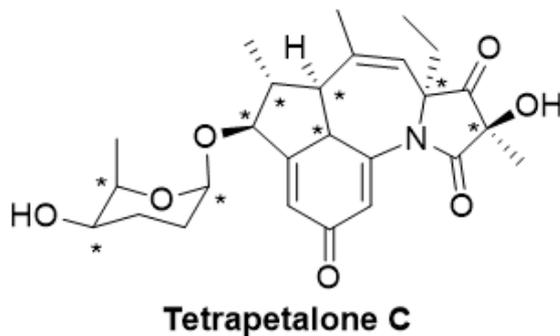
\*Write down the units for your answers

1. Answer following True or False questions, indicating with T or F. (Each 2 pts, total 8 pts)
  - a) Toluene has molecular formula of  $C_7H_8$ . **T**
  - b) The axial form of methylcyclohexane is more stable than equatorial form of methylcyclohexane because of 1,3-diaxial strain. **F**
  - c) Chirality is asymmetric in such a way that the structure and its mirror image are superimposable. **F**
  - d) Aromatic hydrocarbons are planar ring structures with  $4n+2$  delocalized  $\pi$  electrons, with  $n$  being an integer. **T**
  
2. Tetrapetalone C (shown in the below figure) is an anti-cancer chemotherapy drug. It is classified as a naturally occurring "polyketides". (total 12 pts)



- a) Please **circle** and **label all different functional groups** on the figure of Tetrapetalone C. (1 pts each, total 10 pts)

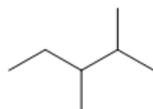
- b) How many chiral centers does the above Tetrapetalone C have? (2 pts, no partial point)



**9 chiral centers** in Tetrapetalone C

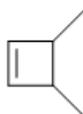
3. Write structural formulas for the following: (2 pts each, total 8 pts)

- a) 2,3-Dimethylpentane



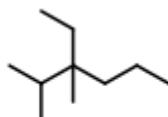
2,3-Dimethylpentane

- b) 3,4-Dimethylcyclobut-1-ene



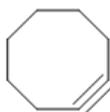
3,4-dimethylcyclobut-1-ene

- c) 3-Ethyl-2,3-dimethylhexane



3-ethyl-2,3-dimethylhexane

- d) Cyclooctyne

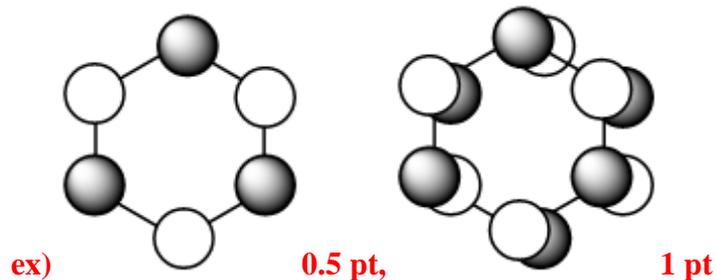


Cyclooctyne

**Other right answers: full point**

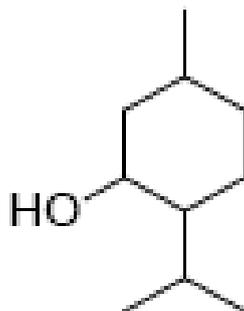


point.

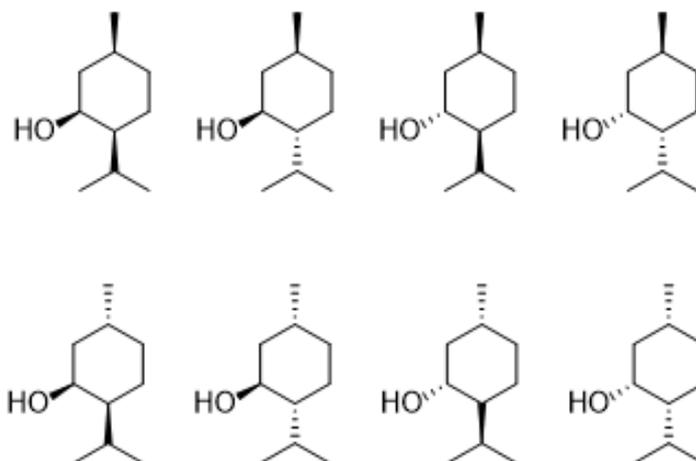


- Don't need to consider energy levels of molecular orbitals.

5. Menthol ( $C_{10}H_{19}O$ ), shown below structure, is a crystalline organic compound having anesthetic and counterirritant properties. It has three chiral centers. (total 6 pts)



- a) Please draw all 8 possible stereoisomers of menthol. (0.5 points each, total 4 pts)



- b) Please circle most stable 2 stereoisomers in chair form. (1 points each, total 2 pts)

