

CH103 General Chemistry II

2019 Fall semester Quiz 1 (Ch. 7, 23) answers

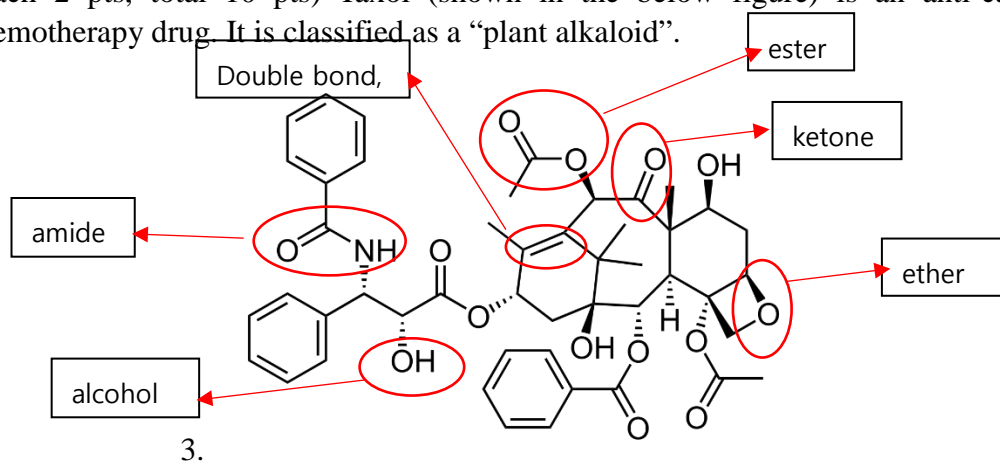
Date: Sep 23 (Mon)

Time: 19:00~19:45

Professor Name	Class	Student I.D. Number	Name

*Write down the units for your answers

- (Each 2 pts, total 8 pts) Answer following True or False questions, indicating with T or F.
 - Triacotane has molecular formula of $C_{30}H_{62}$. T
 - The boat conformation of cyclohexane is significantly more stable than chair conformation. F
 - Primary alcohols can get oxidated to form a ketone. F
 - Nylon has structural units of Polyamide. T
- (Each 2 pts, total 10 pts) Taxol (shown in the below figure) is an anti-cancer chemotherapy drug. It is classified as a "plant alkaloid".

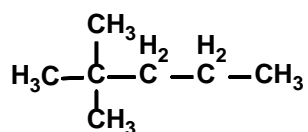


3.

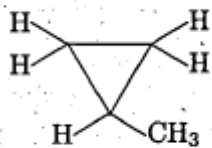
Please **circle** and **label** 5 different functional groups on the figure of Taxol.

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

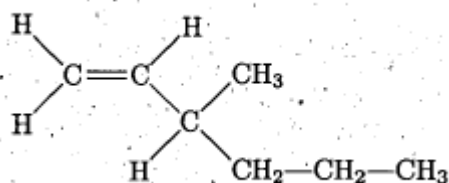
- 2,2-Dimethylpentane



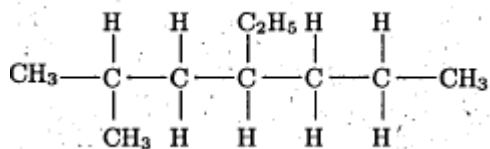
b) Methylcyclopropane



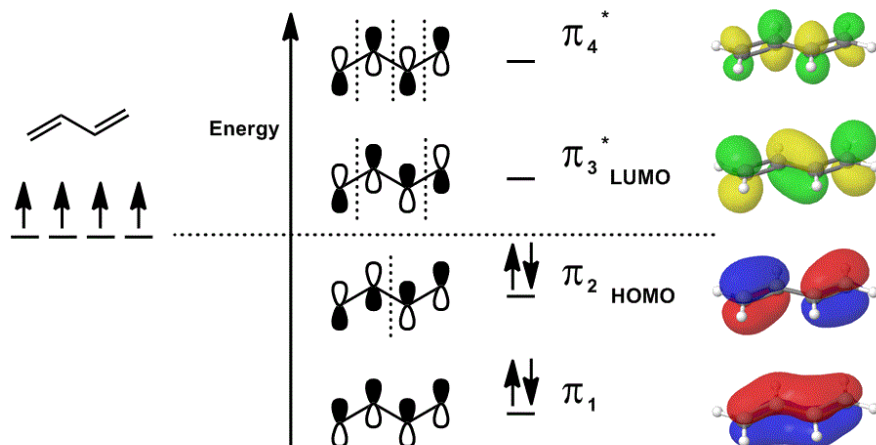
c) 3-Methyl-1-hexene



d) 4-Ethyl-2-methylheptane



4. (4 pts) Draw the Molecular Orbitals of 1,3-butadiene.

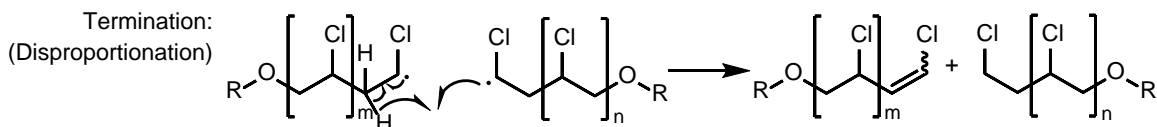
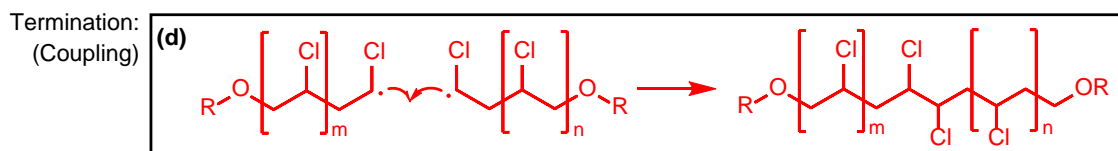
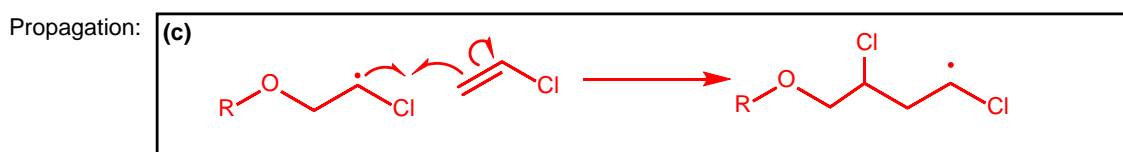
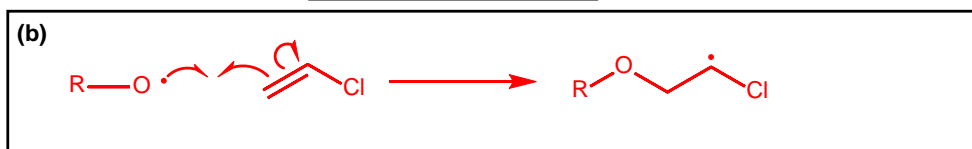
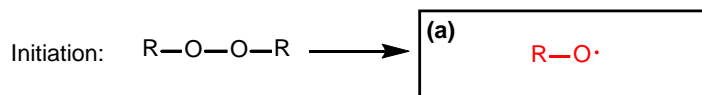


5. (2 pts, no partial pts.) Define Chirality.

Type of isomerism, where a carbon atom that makes single bonds to four different atoms or groups of atoms can exist in two forms, that are mirror images of each other that cannot be interconverted without breaking and re-forming bonds.

Or “asymmetric in such a way that the structure and its mirror image are not superimposable.”

6. (Total 8 points) The mechanism of polyvinyl chloride (PVC) radical chain polymerization is shown below.

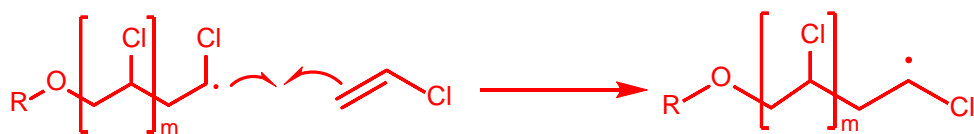


- a) Fill in the blank (a) with appropriate intermediate. (2 points)

No partial point.

- b) Fill in the blank (b) to (d) with the reaction mechanism of each step including half-arrow for single electron movement. (2 points each)

For propagation step, following is also correct answer.



Without electron arrow, 1 points each.