

Chemistry 2541, Summer 2018

Quiz 4

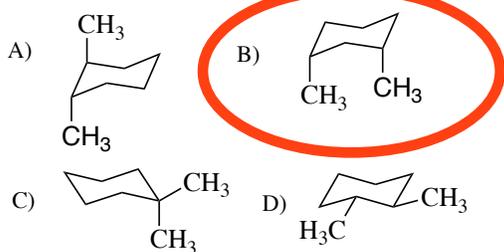
(30 points)

Important notes:

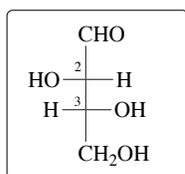
- Please use the provided Scantron form for your answers; you can keep the sheet with the questions and can use it as scratch paper
- Do not forget to write your name on the Scantron form
- You will not receive credit for unmarked answers or for more than one mark on answer line
- Your scores will be posted on eGradebook; graded Scantron forms will not be returned to students.

Questions 1-10: Please mark the appropriate box on the front of the Scantron form (3 pts each).

1. Which one of following structures represents a meso compound?

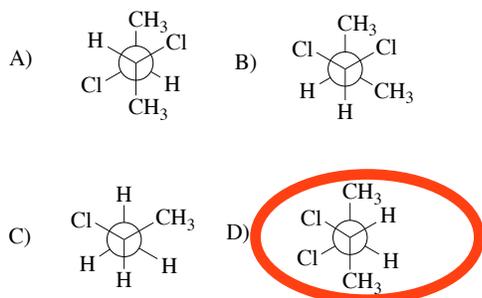


2. What is the configuration (*R* or *S*) at the carbon atoms 2 and 3 in the Fischer projection of a molecule shown in the box?

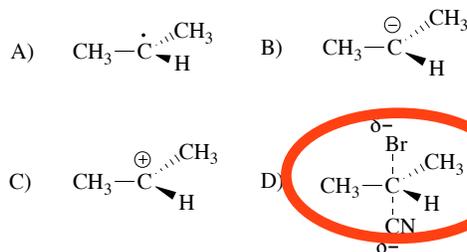
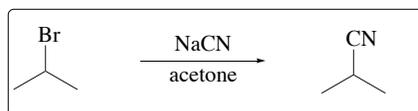


- A) 2*R*,3*R* B) 2*S*,3*S*
 C) 2*R*,3*S* D) 2*S*,3*R*

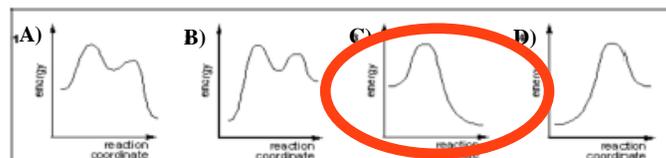
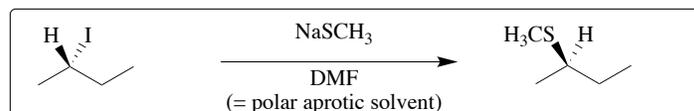
3. Which one of the following Newman projections represents chiral molecule?



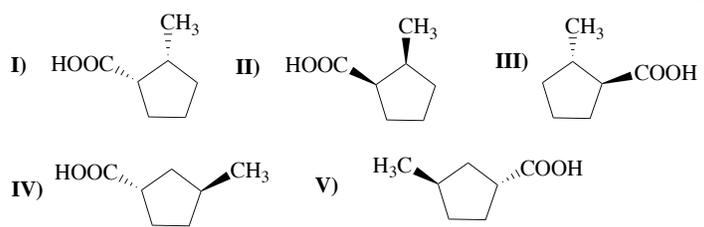
4. Which structure best represents the transition state for the reaction in the box?



5. What is the energy diagram for the reaction in the box:



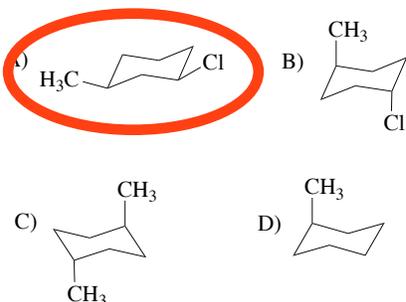
6. Consider the relationship of structure **I** to the other structures shown in the box.



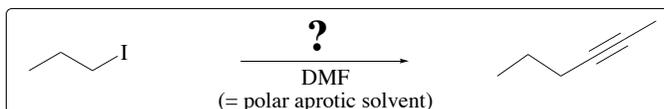
Which one of the following pairs is a pair of diastereomers?

- A) **I and II** **B) I and III**
 C) **I and IV** D) **I and V**

7. Which of the following molecules is chiral?



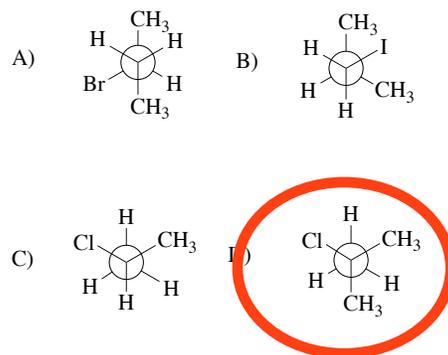
8. Consider the transformation in the box.



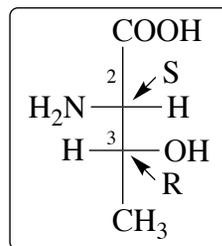
Which of the following reagents can be used to induce this transformation in high yield?

- A) NaCN B) $\text{HC}\equiv\text{CNa}$
 C) NaN_3 **D) $\text{CH}_3\text{C}\equiv\text{CNa}$**

9. Which of the following Newman projections depicts a tertiary alkyl halide?



10. The structure in the box depicts the amino acid L-threonine. The IUPAC name for this compound is (2S,3R)-2-amino-3-hydroxybutanoic acid.



What is the IUPAC name of the enantiomer of this compound?

- A) (2R,3R)-2-amino-3-hydroxybutanoic acid.
 B) (2S,3S)-2-amino-3-hydroxybutanoic acid.
C) (2R,3S)-2-amino-3-hydroxybutanoic acid
 D) The enantiomer of this compound will have the same IUPAC name: (2S,3R)-2-amino-3-hydroxybutanoic acid.