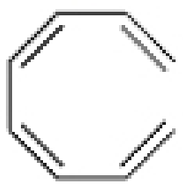
CHEM 343, Quiz 11

1. Under thermal conditions, would the ring closure of octatetraene be conrotatory or disrotatory?



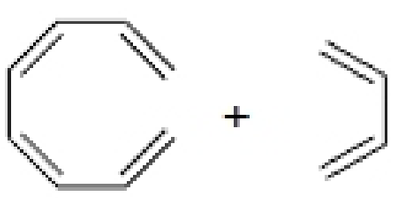
octatetraene

a. conrotatory
b. disrotatory
c. a mixture of con- and dis- rotatory
d. not possible to determine

2. Which of the following correctly describes the highest occupied orbital of the molecule below under photochemical conditions?

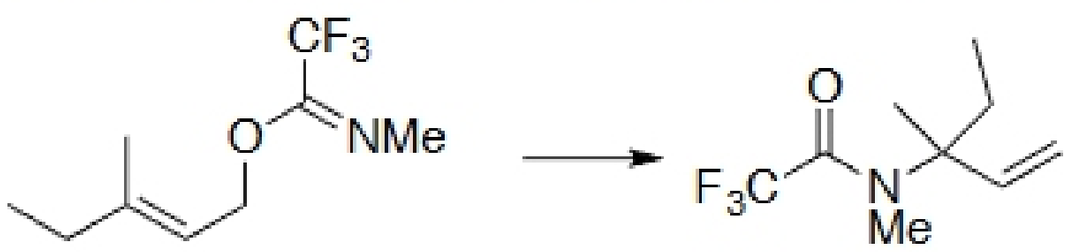
a. π_5, symmetric b. π_5, antisymmetric c. π_6, symmetric **d. π_6, antisymmetric**

3. Which of the following correctly describes the required orbitals for a cyclization of the two molecules shown below?



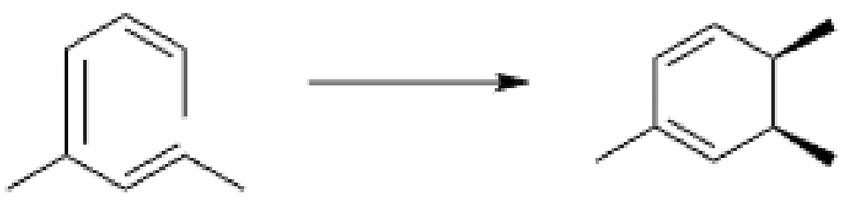
a. two antisymmetric orbitals
b. two symmetric orbitals
c. an antisymmetric orbital and a symmetric orbital
d. either a or c

4. The sigmatropic rearrangement below is a:



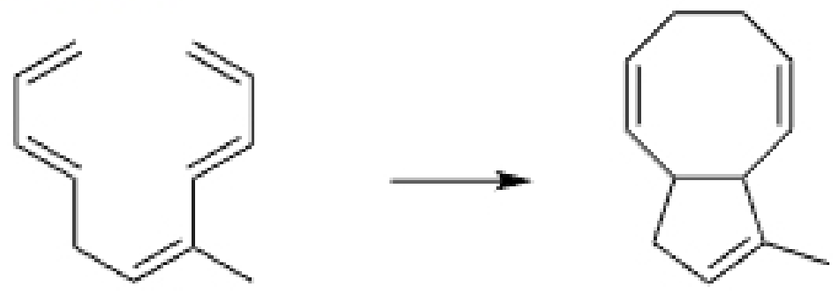
a. [6,8] b. [6,6] **c. [3,3]** d. [2,3]

5. The conditions for the reaction below would be:



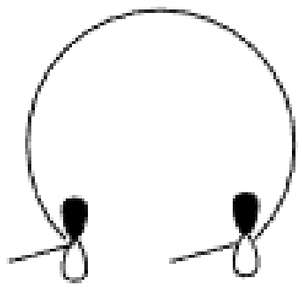
a. thermal **b. photochemical** c. either, as the product is achiral d. cannot be determined

6. The reaction below is:



a. thermally forbidden, photochemically allowed
b. thermally allowed, photochemically forbidden
c. thermally forbidden, photochemically forbidden
d. thermally allowed, photochemically allowed

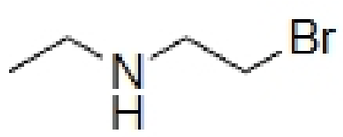
7. After an electrcyclization, the methyl groups in the molecule below would be:



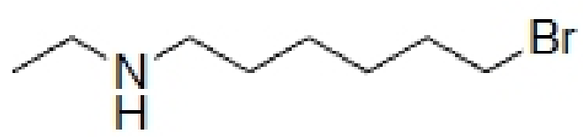
a. cis **b. trans** c. a 50/50 mixture of cis and trans d. cannot be determined without the reaction conditions

8. Each of the following molecules was reacted with sodium acetate. Which underwent substitution at the fastest rate?

I



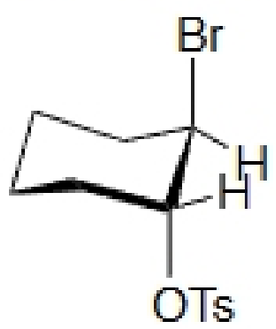
II

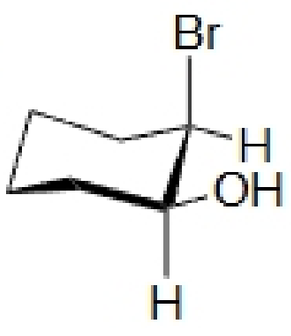


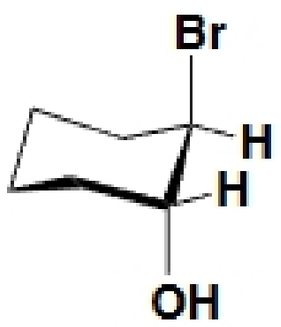
III

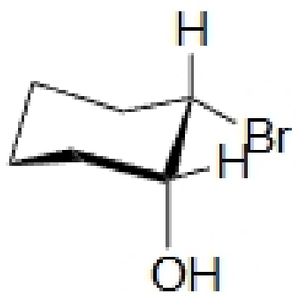
a. I **b. II** c. III d. there should be no noticeable difference

9. Considering the molecule below. What is the product if water is added?



a. 

b. 

c. 

d. a mixture of a and b

10. Which of the following does not describe how neighboring group participation affects a reaction?

a. An unexpected regioisomer is obtained.
b. An unexpected stereochemical outcome is obtained.
c. An unexpected intermolecular reaction occurs.
d. An unexpected rate increase occurs.