

**Sp2007 Org II Quiz #1 Ch 14-16 (20 questions for 20 points)**

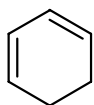
NAME: \_\_\_\_\_

If you object to your graded script being placed in a box outside my office then check here \_\_\_\_\_

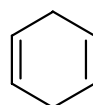
(1-10) are True or False.

- 1) Aromatic compounds are generally more stable than nonaromatic compounds.
- 2) Nonaromatic compounds are generally more stable than antiaromatic compounds.
- 3) Cyclobutadiene has the same number of  $\pi$  bonds as butadiene.
- 4) Kinetic products are always formed faster than thermodynamic products.

5)

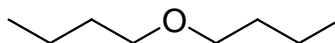


is more stable than

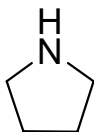


6)

The oxygen atom in this ether is sp hybridized

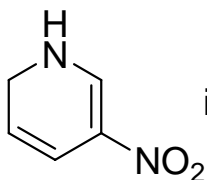


7)



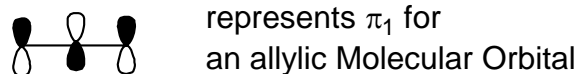
is aromatic

8)

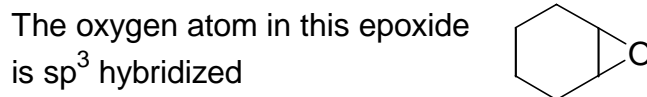


is aromatic

9)

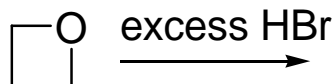


10)

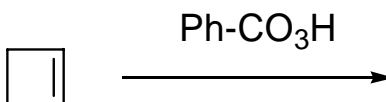


11-14) Give the products for the following reactions (and indicate stereo/regiochemistry where applicable).

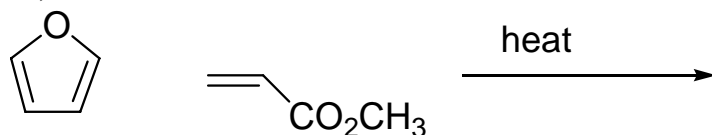
11)



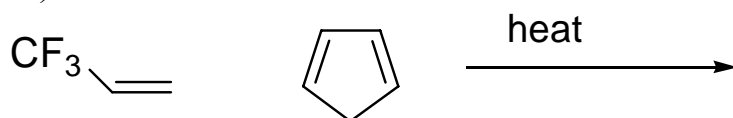
12)



13)



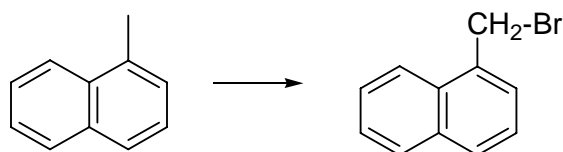
14)



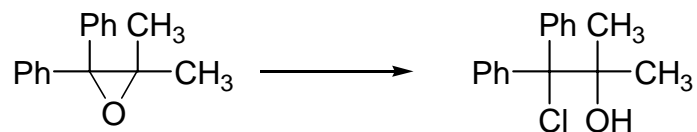
15) How many pairs of degenerate molecular orbitals are found in the MO description of the  $\pi$  bonding of 1,3-cyclobutadiene?

16-18) Give reagents and conditions for the following transformations.

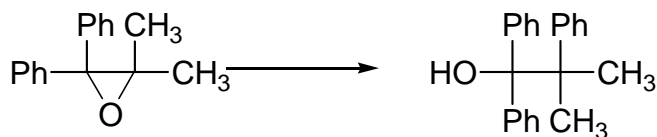
16)



17)



18)



19) What is the ENDO rule in Diels Alder reactions?

20) What is a PERICYCLIC reaction?

**\*BONUS QUESTION for 1 extra point\***

Name an electron withdrawing group that is more powerfully electron withdrawing than a trifluoromethyl (-CF<sub>3</sub>) group.

NAME: WOODIN MARY-ANNETTE

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(1-10) are True or False.

1) Aromatic compounds are generally more stable than nonaromatic compounds. T

2) Nonaromatic compounds are generally more stable than antiaromatic compounds. T

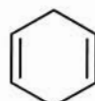
3) Cyclobutadiene has the same number of  $\pi$  bonds as butadiene. T

4) Kinetic products are always formed faster than thermodynamic products. T

5)



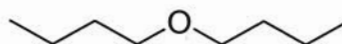
is more stable than



T

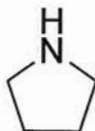
6)

The oxygen atom in this ether is sp hybridized



F

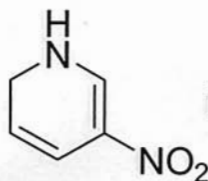
7)



is aromatic

F

8)



is aromatic

F

9)

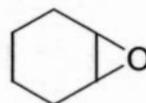


represents  $\pi_1$  for  
an allylic Molecular Orbital

F

10)

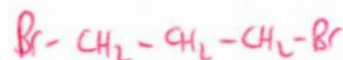
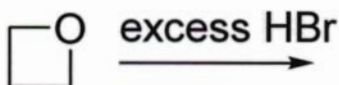
The oxygen atom in this epoxide  
is  $sp^3$  hybridized



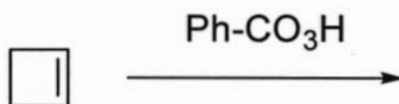
T

11-14) Give the products for the following reactions (and indicate  
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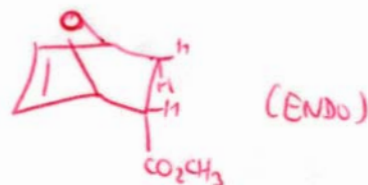
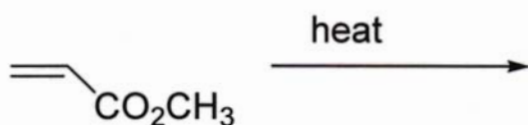
11)



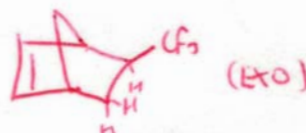
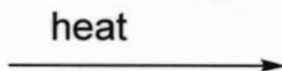
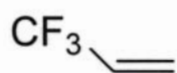
12)



13)



14)



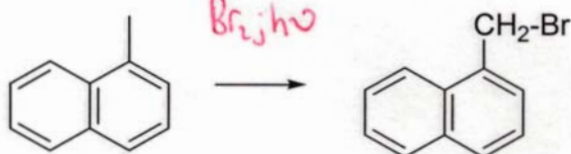
15) How many pairs of degenerate molecular orbitals are found in the MO  
description of the  $\pi$  bonding of 1,3-cyclobutadiene?

ONE

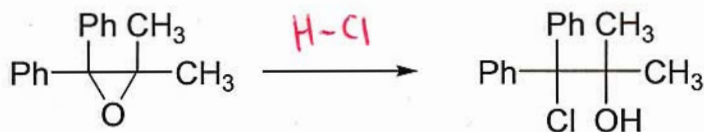


16-18) Give reagents and conditions for the following transformations.

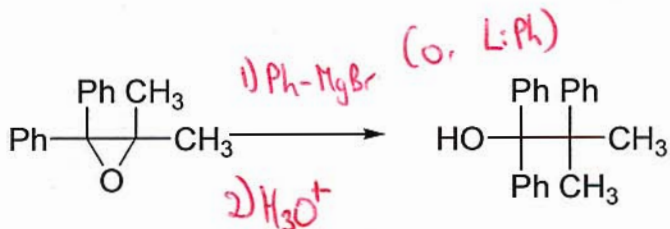
16)



17)



18)



19) What is the ENDO rule in Diels Alder reactions?

If a substituent on a dienophile has a  $\pi$  bond, because of secondary orbital overlap, that substituent will show a preference to go into the ENDO position.

20) What is a PERICYCLIC reaction?

A reaction proceeding through a closed loop of interacting orbitals.

\*BONUS QUESTION for 1 extra point\*

Name an electron withdrawing group that is more powerfully electron withdrawing than a trifluoromethyl ( $-\text{CF}_3$ ) group.

eg  
 $-\text{C}\equiv\text{N}$  cyano group  
 $-\text{NO}_2$  Nitro group.